MINUTES
TOWN OF AMHERST
AMHERST PLANNING BOARD MEETING
April 21, 2022
6:30 PM

The Planning Board will hold a public work session at 6:00 pm in the Amherst Municipal Building, 5583 Main Street, Williamsville, NY 14221 on the same date.

This meeting is being video recorded.

The plans and documents that are available below for each Planning Board hearing item were submitted by the project applicant and are intended to provide general information about the proposal.
The official, complete sets of submittal documents and materials that provide more detailed information about the projects are available in the Planning Department, which is located in Amherst Town Hall, 5583 Main Street, Williamsville, NY 14221. Hours are 9 am to 5 pm, Monday through Friday. If you have any questions, please contact the Planning Department at (716) 631-7051.
Revised plans are submitted on an ongoing basis throughout the review process to address comments on the project. Every effort will be made to post the most recent version of the plans and application materials in a timely manner.

ROLL CALL

Attendee Name	Organization	Title	Status	Arrived
Robert J. Gilmour	Town of Amherst	Chair	Absent	
Michael Chmiel	Town of Amherst	Board Member	Present	
Harbinder Gill	Town of Amherst	Board Member	Present	
Dal Giuliani	Town of Amherst	Board Member	Present	
Brittany Lee Penberthy	Town of Amherst	Board Member	Present	
Joseph P. Raffaele Jr.	Town of Amherst	Board Member	Present	
Carrie H. Kahn	Town of	Board Member	Present	

	Amherst			
Dan Howard	Town of Amherst	Planning Director	Present	
Daniel J. Ulatowski	Town of Amherst	Assistant Planning Director/ZEO	Present	
Scott Marshall	Town of Amherst	Principal Planner	Present	
Thomas J. Voigt	Town of Amherst	Assistant Planner	Present	
Gary Palumbo	Town of Amherst	Associate Planner	Present	
Amy Carrato	Town of Amherst	Sr. Clerk Typist	Present	
Jacqualine Berger	Town of Amherst	Councilmember	Present	
Samuel A Alba	Town of Amherst	Sr. Deputy Town Attorney	Present	

Note: There will be no public hearing or opportunity to speak for the projects listed under the Unfinished Business section of this agenda.

Please note the following time limits for speakers at public hearings:

- **Presentation by Petitioner: 15 minutes**
- **Rebuttal by neighborhood/resident spokesperson: 15 minutes**
- **Individual speakers: 3 minutes**

PUBLIC HEARINGS

SITE PLANS & RELIEF FROM CONDITIONS OF SITE PLANS

1. PROPOSED SELF STORAGE FACILITY, SP-2022-01
Property located at 321 Commerce Drive
321 Commerce, LLC, Petitioner

March 17, 2022
No comments were heard on this proposal, as the petitioner requested the project be adjourned to the April Planning Board meeting.

Ms. Penberthy moved to adjourn the subject proposal. The motion was seconded by Mr. Chmiel and carried. Ayes 7, Noes 0.

April 21, 2022
Proposed self-storage facility consisting of four single-story structures totaling approximately 19,000 s.f. of commercial space, as well as, stormwater management facilities to the west and south sides of the site with a central driveway to Commerce Drive.

Jared Johnson represented the petitioner, explained the proposal and was available to answer questions from the Board.

No comments were heard on this proposal. The hearing was closed.

Following discussion, Mr. Gill moved to approve the Negative Declaration. The motion was seconded by Mr. Chmiel and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

Following the approval of the Negative Declaration, Mr. Chmiel moved to approve the request based on the resolution. The motion was seconded by Mr. Gill and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Michael Chmiel, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn
ABSENT:	Gilmour

2. PROPOSED DENTISTRY SCHOOL AND PARKING LOT EXPANSION, SP-2022-02
Property located at 2525 Kensington Avenue
Philipps Bros Supply Inc., Petitioner

April 21, 2022
No comments were heard on this proposal. The Petitioner requested an adjournment. Ms. Penberthy moved to adjourn until the May Planning Board meeting. The motion was seconded by Mr. Chmiel and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 5/19/2022 6:30 PM**
MOVER:	Brittany Lee Penberthy, Board Member	
SECONDER:	Michael Chmiel, Board Member	
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn	
ABSENT:	Gilmour	

3. PROPOSED SITE PLAN AMENDMENT, AUTOMOBILE DEALERSHIP - BUILDING ADDITIONS, SP-2000-14_C
Property located at 6868, 6886, 6888 and 6900 Transit Road
Basil Family Dealerships, Petitioner

This project is a conversion of a used car dealership to a new car dealership and repair facility with two building additions totaling 2,570 square feet of new floor area. The new building additions provide an expansion for a showroom and an enlarged service area. Site improvements include the addition of a landscape buffer at the south property line, a new parking area arrangement for better circulation, and the addition of landscape islands and a dumpster enclosure. Three curb cuts will be closed as part of this project as required by the New York State Department of Transportation.

Sean Hopkins, Esq. represented the petitioner, explained the proposal and was available to answer questions from the Board. Emily Scaia, Bliss Construction, and Joe Basil III, Basil Family Dealerships, were also present.

No comments were heard on this proposal. The hearing was closed.

Following discussion, Mr. Chmiel moved to approve the Negative Declaration. The motion was seconded by Mr. Raffaele and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

Following the approval of the Negative Declaration, Mr. Chmiel moved to approve the request based on the resolution. The motion was seconded by Ms. Kahn and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Michael Chmiel, Board Member
SECONDER:	Carrie H. Kahn, Board Member
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn
ABSENT:	Gilmour

4. PROPOSED MUIR WOODS PHASE IV - 8-LOT SUBDIVISION FINAL PLAT, SP-2021-24A
Property located at 520 Campbell Boulevard (NCD)
Ciminelli Muir Woods, Petitioner

April 21, 2022
No comments were heard on this proposal. The Petitioner requested an adjournment. Ms. Kahn moved to adjourn until the May Planning Board meeting. The motion was seconded by Mr. Chmiel and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 5/19/2022 6:30 PM**
MOVER:	Carrie H. Kahn, Board Member	
SECONDER:	Michael Chmiel, Board Member	
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn	
ABSENT:	Gilmour	

SUBDIVISIONS & RELIEF FROM CONDITIONS OF SUBDIVISIONS

None

REZONING & RELIEF FROM CONDITIONS OF REZONINGS

5. REQUEST TO REZONE 14.81± ACRES OF LAND FROM CTR-8 TO RD & GI, Z-2021-07
Property located at 4252-4258 Ridge Lea Road (portion, BCD)
Benderson Development Company LLC, Petitioner

The proposed request is to rezone 14.81 acres of land to the Research & Development (RD) and General Industrial (GI) zoning districts. The proposed rezoning will allow for a new 108,000± square foot warehouse building and to connect the proposed warehouse to the existing southerly 21,736 square foot building, which will be utilized for the compounding and blending of soap products for the car wash industry. This will include a 3,000 square foot building addition, including new parking, utilities, drainage and landscaping.

James Boglioli, Esq., Benderson Development Company LLC, represented the petitioner, explained the proposal and was available to answer questions from the Board.

In response to the Board's questions, Mr. Boglioli stated employees will arrive at 6 am, manufacturing will take place at the rear of the building, manufacturing noise will not be heard outside of the warehouse, there will be no public access only a gated emergency vehicle access to Meyer Road, the buffer along the residential properties will consist of 50' of current green space followed by an additional 50' of green space with a fence on top of a berm, he met with the neighbors and met 90% of resident concerns, there are no safety precautions necessary for the chemicals being mixed on site, and the number of parking spots will be addressed during the site plan process.

Geri DiCosmo, 378 Meyer Road, spoke in opposition of the proposal.

No further comments were heard on this proposal. The hearing was closed.

Following later discussion, Ms. Penberthy moved to approve the request based on the resolution. The motion was seconded by Mr. Gill and carried. Ayes 5, Noes 0, Abstain 1 (Chmiel), Absent 1 (Gilmour).

RESULT:	**APPROVED [5 TO 0]**
MOVER:	Brittany Lee Penberthy, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Gill, Giuliani, Penberthy, Raffaele Jr., Kahn
ABSTAIN:	Chmiel
ABSENT:	Gilmour

MISCELLANEOUS

None

OTHER COMMUNICATIONS

None

All public hearings are completed and closed at the termination of public discussion for each agenda item unless otherwise specified by the Chair.

UNFINISHED BUSINESS

Note: All public hearings have been completed. There will be no public hearings for items listed under this section.

SITE PLANS & RELIEF FROM CONDITIONS OF SITE PLANS

6. REQUEST FOR EXTENSION OF SITE PLAN APPROVAL, OFFICE/WAREHOUSE BUILDING, SP-2019-19_A
Property located at 2425-2445 Wehrle Drive
Acquest Companies, Petitioner

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Brittany Lee Penberthy, Board Member
SECONDER:	Carrie H. Kahn, Board Member
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn
ABSENT:	Gilmour

SUBDIVISIONS & RELIEF FROM CONDITIONS OF SUBDIVISIONS

None

REZONING & RELIEF FROM CONDITIONS OF REZONINGS

None

MISCELLANEOUS

None

OTHER COMMUNICATIONS

None

DIRECTOR'S REPORT

MINUTES APPROVAL

March 17, 2022

Ms. Penberthy moved to approve the minutes. The motion was seconded by Mr. Chmiel and carried. Ayes 6, Absent 1 (Gilmour).

ADJOURNMENT

The Planning Board meeting of April 21, 2022 was adjourned at 7:28 pm.

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

ADOPTED

Meeting: 04/21/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Bryan Fadel
Initiator: Dan Howard
Sponsors:
DOC ID: 25330

PLANNING BOARD ITEM (ID # 25330)

Proposed Self Storage Facility, SP-2022-01

Property located at 321 Commerce Drive
321 Commerce, LLC, Petitioner

March 17, 2022
No comments were heard on this proposal, as the petitioner requested the project be adjourned to the April Planning Board meeting.

Ms. Penberthy moved to adjourn the subject proposal. The motion was seconded by Mr. Chmiel and carried. Ayes 7, Noes 0.

April 21, 2022
Proposed self-storage facility consisting of four single-story structures totaling approximately 19,000 s.f. of commercial space, as well as, stormwater management facilities to the west and south sides of the site with a central driveway to Commerce Drive.

Jared Johnson represented the petitioner, explained the proposal and was available to answer questions from the Board.

No comments were heard on this proposal. The hearing was closed.

Following discussion, Mr. Gill moved to approve the Negative Declaration. The motion was seconded by Mr. Chmiel and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

Following the approval of the Negative Declaration, Mr. Chmiel moved to approve the request based on the resolution. The motion was seconded by Mr. Gill and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

HISTORY:

03/17/22	**Planning Board**	**ADJOURNED**	**Next: 04/21/22**

ATTACHMENTS:

- SP-2022-01 application 031722 (PDF)
- SP-2022-01 drawings 031722 (PDF)
- SP-2022-01_draft neg dec_031722 (PDF)
- SP-2022-01_draft resolution_031722 (PDF)
- SP-2022-01 adjournment letter 031722 (PDF)
- SP-2022-01 application 042122 (PDF)
- SP-2022-01 drawings 042122 (PDF)
- SP-2022-01_draft neg dec_042122 (PDF)
- SP-2022-01_draft resolution_042122 (PDF)
- SP-2022-01_signed_neg_dec_042122 (PDF)
- SP-2022-01_signed_resolution_042122 (PDF)

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Michael Chmiel, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn
ABSENT:	Robert J. Gilmour

TOWN OF AMHERST

APPLICATION & REVIEW PROCEDURE

MAJOR SITE PLAN

MATERIALS MUST BE PROVIDED IN AN ELECTRC FORMAT THAT CONTAINS FILES OF THE APPLICATIO EAF, SITE PLAN DRAWING SURVEY, LANDSCAPE PLA PRELIMINARY BUILDING FI PLANS / ELEVATIONS & AN OTHER SUPPORTING INFORMATION. THIS MUST SUBMITTED WITH YOUR APPLICATION. APPLICATIC WILL NOT BE TRANSMITTE WITHOUT THIS ELECTRONI INFORMATION.

THIS ALSO APPLIES TO REVISED MATERIALS THAT SUBMITTED.

This application package includes the following:

- Application Procedures
- Application Form & Checklist
- Stormwater Pollution Prevention Plan Checklist
- Appendix A Town of Amherst EAF Addendum
- Appendix B Criteria for Required 8½" x 11" Sketches
- Appendix C Erie Sewer District No. 5 – Commercial / Industrial New & Existing Buildings Requirements

- IMPORTANT-

1. A pre-submittal consultation with Planning Department staff is *strongly recommended* prior to submitting an application. The pre-submittal meeting gives the applicant an opportunity to discuss w staff such items as:
   - classifying the action as a major site plan, minor site plan, or minor site plan adjustment;
   - determining what specific information will be required to be submitted with the application;
   - identifying and discussing issues that must be addressed as part of the SEQR review;
   - identifying any potential variances required to implement the project as proposed.

   An appointment is required for all meetings with Planning Department staff.

2. This site plan petition is subject to the requirements of 6 NYCRR Part 617, State Environmental Qual Review Act (SEQR), and Chapter 104 of the Town of Amherst Code, as amended. The Planning Bo cannot make a SEQR determination unless a complete Environmental Assessment Form (EAF), including Town of Amherst EAF Addendum, and any required supplementary information such as tra impact studies, archaeological reports, wetland delineations or geotechnical reports, are submitted. SEQR issues may be discussed with Planning Department staff at a recommended pre-submittal meeting. Unlisted Actions require a Short EAF; Type I Actions require a Full EAF. The following is a link to the NYSDEC website and fillable forms with instructions: http://www.dec.ny.gov/permits/6191.html.

3. **Review by the Town Design Advisory Board (DAB) is required for Major Site Plans located in t following Mixed-Use zoning districts:**

   Traditional Infill 2.5 (TI-2.5)
   Traditional Infill 4 (TI-4)
   Shallow Corridor 3 (SC-3)
   Deep Corridor 3 (DC-3)
   Deep Corridor 5 (DC-5)
   Center 2.5 (CTR-2.5)
   Center 5 (CTR-5)
   Center 8 (CTR-8)

   The application for DAB review is required to be filed in conjunction with the major site plan application.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

4. The application shall be executed or consented to in writing by the owner of the property.

5. **Any variances from the Zoning Board of Appeals, or any decision from the Town Board (e.g. removal of deed restrictions) must be obtained prior to action by the Planning Board on a Site Plan application.**

6. Submittal of an application grants permission to Town staff and Planning Board members to access t parcel(s) under consideration.

7. All site plan drawings must be prepared by a Registered Architect, Professional Engineer, Landscape Architect, or Land Surveyor (as applicable) licensed to practice in New York State.

8. If you wish to include a Coordinated Sign Plan application with the site plan petition, a separate application must be completed. Contact the Planning Department for a copy of a Coordinated Sign Plan application package.

9. All drawings should be no larger than 24 in. x 36 in. If site characteristics warrant larger plan sheets, they may be accepted subject to Planning Department concurrence. All drawings must also reserve a 4 in. x 6 in. area in the lower right hand corner for official Town use.

APPLICATION PROCEDURES

1. Applicant secures application package from the Planning Department, 5583 Main Street, Williamsville NY 14221. (716) 631-7051. Forms are also available online at: www.amherst.ny.us, (keyword: Planning).

2. Applicant prepares information as required on the Site Plan Submittal Checklist, attached. NOTE: Some proposals may not require all items on the checklist; please verify with the Planning Departmer

3. Applicant schedules an appointment with the Planning Department to review the following:
   - a complete set of site plan drawings, preliminary building elevations and floor plans (no larger tha 24" x 36" in size)
   - Environmental Assessment Form (EAF) & Town EAF Addendum
   - any supporting reports and materials
   - verification from the Town Assessor that the address in the application is correct

4. Applicant schedules an application submittal appointment with the Planning Department. NO SITE PLAN WILL BE ACCEPTED FOR REVIEW WITHOUT A PRE-SET SUBMITTAL APPOINTMENT.

5. At the submittal appointment, applicant provides fourteen (14) complete and collated sets of drawings and application information to the Planning Department **(materials will not be accepted unless folded into 9" x 12" in size),** including:
   - application form
   - Environmental Assessment Form (EAF)
   - supporting reports / materials
   - complete set of site plan drawings, preliminary building elevations and floor plans (**at least or (1) set of drawings must bear a raised or wet seal and signature of the design professional** who prepared the plans; the remaining copies may be submitted with a facsimil of the seal and signature)
   - digital files of all materials in pdf format
   - an 8½" x 11" reduction of the sketch plan or plat drawing (see Appendix B)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

6. After approval for filing by the Planning Department, applicant submits all necessary fees to the Tow Clerk. **(See Schedule of Fees on first page of application and make checks payable to: Town Amherst.)**

7. The applicant returns a copy of the filing receipt to the Planning Department.

8. The Planning Department transmits remaining thirteen (13) copies of the application and supporting materials to:
   - Assessor
   - Commissioner of Building
   - Town Engineer
   - Superintendent of Highways
   - Traffic/Safety Board
   - Fire Chiefs' Association
   - Plumbing Division
   - Right-of-Way Agent
   - Police Department (if applicable)
   - Zoning Enforcement Officer
   - Other Town and outside agencies, as applicat

9. Within 30 days of its receipt of the complete application for Site Plan approval, each agency complete its review and notifies the Planning Department in writing of its comments or recommendations as required by Ordinance.

10. The applicant may be required to submit revised plans, reports, or materials to address review agenc comments. The procedures for submittal of revised plans are as follows:

    - A cover letter addressing all comments received to date is required.
    - "Highlight" the area of change on the drawings and provide a notation describing the change.
    - Revised plans/materials are required. Planning staff should be contacted to determine the number of sets needed.
    - All revised plans and materials must also be provided in an electronic format that contains pdf files of the revised information.

11. The Planning Board reviews the EAF to determine whether a Draft Environmental Impact Statement (DEIS) is required. The petitioner will be advised in the event that a DEIS is required and afforded th opportunity to prepare it. If the petitioner declines, the Planning Board will prepare the DEIS at the petitioner's expense. The public hearing will be held on the DEIS concurrently with the Planning Boa hearing on the application.

12. Planning Board Meeting Procedures:

    The applicant or representative presents the project at the public hearing before the Planning Board and is available to answer any questions. The Planning Board may take any of the following actions:

    - Adjourn the hearing to a future Planning Board meeting (hearing remains open).
    - Close the hearing and table action on the site plan to a future Planning Board meeting. (The Planning Board may remove the item from the agenda until such time as all required informati is provided.)
    - Close the hearing and make a decision on the site plan.

    All determinations on matters before the Planning Board are made after all public hearings on that meeting's agenda are completed.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

13. A copy of the Planning Board's determination will be provided to the applicant, his / her representativ the Building Commissioner and the Town Clerk approximately 1 week following the Planning Board meeting at which it was heard.

14. If the Planning Board approves a Site Plan with conditions, the Planning Department will work with th applicant to ensure that all conditions of the approval are satisfactorily addressed. When all conditio are satisfied, the applicant submits **seven (7) final copies** of the complete set of all site plan drawing folded into 9" x 12". For site plans in the Mixed-Use zoning districts, building elevations will also be required.

    All 7 sets must have original wet seals and include the required 4 in. x 6 in area in the lower right hand corner for official Town use. These drawings will be stamped and signed "Approved" b the Planning Director and transmitted to Town Departments for their files and use.

15. A building permit will not be issued by the Building Department until the stamped and signed Site Pla is issued by the Planning Director.

NOTE: Please check with the Planning Department to determine the deadline date for filing applications. Due to the public hearing notice requirements and department reviews, no site plan application wi be placed on the Planning Board agenda after the deadline for filing has closed. Scheduling may delayed if an application is incomplete.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: _____ **Acreage** _____ **Fee $** _____

Address Verified by Assessor's Office _____ VERIFIED BY DATE

Materials Received by Planning Department _____ RECEIVED BY DATE

Fee Paid to Town Clerk _____ RECEIVED BY DATE

Site Plan Review		**Fill In Applicable Fees**
1 acre or less	$1,250.00	_____
Each additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Site Plans	$1,200.00	_____
Request for Relief of / Change to Conditions of Site Plan Approval	$1,200.00	_____
Request for Extension of Site Plan Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1 - 4.99 Acres	$ 500.00	_____
5 - 10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
	TOTAL FEE:	$_____

To Be Completed By Applicant

Petitioner: Name: 321 Commerce, LLC

Address: 6885 Campbell Blvd

North Tonawanda (city) NY (state) 14120 (zip code)

Phone: 716-807-2388 Fax: _____

E Mail: bogartlandscape@yahoo.com

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

MAJOR SITE PLAN APPLICATION (con't) ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Name: Advanced Design Group

Address: 761 Cayuga Street

Lewiston NY 14092
city state zip code

Phone: 716-754-2256 Fax: _____

E Mail: kristin.sevard@adgengineers.com

Project Location (must be verified by Town Assessor's Office):

Address: 321 Commerce Drive, Amherst, NY 14228

SBL No(s): 40.07-3-2.112

Project Name: 321 Commerce, LLC

Project Description: Four (4) single story slab on grade self-storage buildings will be constructed for a total of 19,400 ft² of available storage space. Four parking spaces will be provided on-site as well as a storm drainage management system which will be SPDES compliant.

Two Buildings → 15' x 300'

Two Buildings w/ units on both sides → 20' x 260'

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

	existing	proposed	total
Gross Floor Area (non-residential):	0	19,400 ft²	19,400 ft²
Gross Floor Area Residential:	–	–	–
Number of Residential Units:	–	–	–
Number of Parking Spaces:	0	4	4

Acreage of Parcel: 1.78 acres

(list each parcel separately)

Frontage on Public Roads: 220.54 feet on Commerce Drive

(list each road separately)

Existing Zoning District(s) RD - Research and Development

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Site Plan Submittal Requirements and Checklist

The following checklist outlines the information required by the Planning Department to accept a Site Plan application for review. ***It is strongly recommended that you make an appointment with Planning Staff to determine which items apply to your application***.

Item No.	Item	Submitted	Official use
I	**Basic Drawi Information**		
	;"	✓	
		✓	
		✓	
		✓	
	of NYS licensed architect, irveyor (as applicable)	✓	
		✓	
	cent parcels	✓	
	n date(s)	✓	
	hand corner for official Town	✓	
II	**Structures, Paved Areas, & Open Space**		
1.0	**Existing and Proposed Streets**	✓	
1.1	Names of all existing and proposed streets	✓	
1.2	Width and radii of proposed curb-cuts	✓	
1.3	Existing curb-cuts on adjacent and opposite properties	✓	
1.4	Show ROW width, pavement dimensions, lane widths, pavement markings, and proposed signage on proposed streets	✓	
1.5	Show proposed ROW consistent with planned NYSDOT, Erie County, or Town road projects (if applicable)	✓	
1.6	Show location of proposed cross access to adjacent parcels along with a draft easement	✓ NA	
1.7	Designation of Fire Lanes (if applicable)	NA	
1.8	Fire apparatus access roads	NA	
1.9	Label any proposed roads as public or private	NA	
1.10	Location and dimensions of sidewalks	NA	
1.11	Typical cross sections and profiles of proposed streets, pedestrian walkways, and bikeways	NA	
2.0	**Proposed Structures**		
2.1	Location and complete dimensions of proposed structures	✓	
2.2	Setback dimensions of structure(s) to all property lines	✓	
2.3	Proposed use of structures	✓	
2.4	Gross square feet area of each structure	✓	
2.5	Location of all building entrances	NA	
2.6	Indicate type of roof construction/materials	✓	
2.7	Location, height, and design detail of existing and proposed fences and walls	✓	
2.8	Location of light standards and building mounted lights	✓	
2.9	Location of dumpster and detail of dumpster enclosure with gate	NA	
2.10	Layout and dimensions of the lot(s) proposed for development	✓	

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Item No.	Item	Submitted	Official use
II Structures, Paved Areas, & Open Space (cont'd)			
3.0	**Floor Plans with individual rooms and spaces labeled** (fully dimensioned)	✓	
4.0	**Building elevations with height dimensions from finished grade to the highest point of the roof and to midpoint of gable or hip of a pitched roof.** (fully dimensioned)	✓	
4.1	Show screening of mechanical equipment	NA	
5.0	**Parking/Loading/Stacking Areas**	✓	
5.1	Location and complete dimensions of all paved areas	✓	
5.2	Setback dimensions of all paved areas to property lines	✓	
5.3	Dimension of typical parking space and drive aisles	✓	
5.4	Location and layout of handicapped parking spaces & access aisles	NA	
5.5	Detail of vertical signage for handicapped parking and access aisles	NA	
5.6	Indicate minimum parking requirement & number of spaces provided	✓	
5.7	Proposed signage for directing and guiding traffic	✓	
5.8	Curb cut permits from NYS, Erie County, or Town (if applicable)	✓	
5.9	Pedestrian connections (from proposed structures to public sidewalk network)	NA	
6.0	**Location and proposed development of all open spaces, including parks, playgrounds, and open reservations**	NA	
III Utilities and Drainage			
1.0	**Engineers Report** (bound separately from the Stormwater Pollution Prevention Plan [SWPPP])	✓	
1.1	Stamped/sealed and signed by NYS licensed architect or professional engineer	✓	
1.2	Proposed water service sizing, RPZ pressure and fire safety flow and pressure calculations	NA	
1.3	Proposed sanitary sewer facility load calculations (avg. & peak flows) including calculation of the peaking factor	NA	
1.4	Proposed storm drainage facility calculations (see information included with this application)	✓	
2.0	**Grading Plan**	✓	
2.1	Existing and proposed grades indicated (proposed grades may not exceed 1 on 3)	✓	
3.0	**Water Service**	✓ NA	
3.1	Location, size and material of existing and proposed facilities	NA	
3.2	Location of existing and proposed fire hydrant location(s)	NA	
3.3	Indicate use of sprinklers, location of Fire Department connection, and proposed fire protection systems	NA	
3.4	Existing and proposed meter/RPZ size and location	NA	
3.5	Applicable construction details	NA	
4.0	**Sanitary Sewers**	NA	
4.1	Locations, sizes, slopes, inverts, and materials of all existing and proposed facilities	NA	

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Item No.		Submitted	Official use
III Utilities and Drainage (cont'd)			
		NA	
	lations by a	NA	
		✓	
	existing and	✓	
	ystem	✓	
		✓	
		✓	
	tions	✓	
	wers	✓ NA	
	) as applicable	✓	
		NA	
	r mechanical ble)	NA	
	A) Report (must be an 2,500 gallons	NA	
	ream sewer nitment to (via al contribution to the ditions. The minute of mitigated	NA	
IV Li tin Plan			
	candles at	✓	
	height from	✓	
		✓	
V Landscape Plan			
	ndscape Architect	✓	
	and a calculation percentage	✓	
	posed landscape	✓	
	ees 4" caliper or tained	✓	
VI Other Required Information/General Requirements			
1.0	**Complete boundary survey that includes all existing structures, acreage, legal description with reference to a property line, street, or other known feature, and easements plotted to scale by a NYS licensed land surveyor**	✓	

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Item No.		Submitted	Official Use
VI Other Required Information/General Requirements (cont'd)			
1.1	Copies of all easements, reciprocal access agreement or similar leag documents	✓	
2.0	**Topographic Survey with a 30 ft. buffer outside all property lines by a NYS licensed land surveyor**	✓	
3.0	**Draft of any deed restrictions, covenants, provisions for home associations and common ownership, and reciprocal easement agreements (as applicable).**	NA	
4.0	**For assessment purposes, state intent to apply for condominium status (if applicable).**	NA	
5.0	**Completed and signed Environmental Assessment Form**	✓	
5.1	Soil boring report and geotechnical report prepared by a qualified Professional Engineer (if applicable)	✓ To be submitted	
5.2	Traffic Impact Study (if applicable)	NA	
5.3	Archaeological survey (if applicable	NA	
5.4	Wetland Delineation report (if applicable)	NA	
6.0	**Show existing zoning(s) of both the subject property and adjacent parcels on the Site Plan and the Landscape Plan**	✓	
7.0	**Location of NYSDEC wetlands (including buffer area) and/or federal wetlands; indicate jurisdictional status**	NA	
8.0	**Location of Floodway and floodplain** (if applicable)	NA	
9.0	**Documentation pertaining to any conditions of zonings, including copies of required deed restrictions; indicate date of rezoning and the parcel address under which it was rezoned (if applicable)**	✓	
10.0	**Documentation related to any required variances granted by the ZBA**	NA	
11.0	**For residential site plans, provide a statement from the appropriate school district that adequate school sites and facilities are available.**	NA	
12.0	**8 1/2" X 11" reduction of primary site plan drawing (see appendix "B" of application package for specifications)**	✓	
13.0	**A CD containing a PDF of all site plan drawings (Must also be provided with revised drawings)**	✓	
VII Additional Required Information for Projects in the Mixed Use Districts			
1.0	**Design Advisory Board Application**	NA	
1.1	Required for Major Site Plan		
1.2	Required at the Planning Directors Discretion for Minor Site Plans		
2.0	**Block & Street Network Plan**		
2.1	Designation of Core, Local & Alley streets		
2.2	Dimensions of Blocks		
3.0	**Block Usage Plan (as applicable)**		
3.1	Designation of site usage for each block including open space areas		
4.0	**Phasing Plan**	↓	

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For official use only:

_____
Approved/Date

X:\Current_Planning\Application Forms 2013 Working Doc\Major Site Plan\Site Plan Submittal Requirements and Checklist (3).doc

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TOWN OF AMHERST
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
-- ADDENDUM --

1. For each applicable category of proposed <u>new</u> structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads ar streets
Cv - Cosad Loamy Fine Sand				Very Limited	
Ge - Getzville Silt Loam				Very Limited	

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   __X__ Geotechnical report attached
   To Be Submitted Later
   _____ Not applicable

3. Is your property located: On Youngs Road between Dodge and Klein Roads? ☐ Yes ☒ No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? ☐ Yes ☒ No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? ☐ Yes ☒ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:

   _____

   _____

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: ☐ Yes ☒ No

   Describe _____

   _____

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project 3- am, 3- pm, 41 total day
   Source: ITE Tip Generation Rates 8th Edition - Code 151

8. Will blasting occur during construction? ☐ Yes ☒ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ☐ Yes ☒ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    N/A average flow N/A peak flow.

    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? ☐ Yes ☒ No

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Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or fundi are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respon any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not ex or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If t answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach an additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the informatio contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: 321 Commerce, LLC (Self-Storage)		
Project Location (describe, and attach a general location map): 321 Commerce Drive, Amherst, NY 14228		
Brief Description of Proposed Action (include purpose or need): New industrial development (approx. 164 self-storage unit rentals) on 1.78 +/- acre parcel located on the south side of Commerce Drive zoned RD, Research and Development. Four single story, slab on grade, buildings will be constructed sized to accommodate 10'x10' and 10'x15' units. Stormw management controls are to be installed and will be SPDES compliant including a Bio-retention area and Dry Swale.		
Name of Applicant/Sponsor: 321 Commerce, LLC	Telephone: (716) 807-2388 E-Mail: BogartLandscape@yahoo.com	
Address: 6885 Campbell Blvd		
City/PO: North Tonawanda	State: New York	Zip Code: 1412
Project Contact (if not same as sponsor; give name and title/role): Advanced Design Group (Kristin L. Savard, PE - Owner/President)	Telephone: (716) 754-2256 E-Mail: kristin.savard@adgengineers.com	
Address: 761 Cayuga Street		
City/PO: Lewiston	State: New York	Zip Code: 14092
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

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PLANNING DEPT.

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B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of finai assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes☐No	Amherst Town Board Site Plan and SEQR Approval	Jan 2022
b. City, Town or Village Planning Board or Commission ☑Yes☐No	Amherst Planning Board Site Plan and SEQR (Recommending Body)	Jan 2022
c. City, Town or Village Zoning Board of Appeals ☐Yes☑No		
d. Other local agencies ☐Yes☑No		
e. County agencies ☑Yes☐No	Erie County Planning Site Plan and SEQR (Recommending body)	Jan 2022
f. Regional agencies ☐Yes☑No		
g. State agencies ☐Yes☑No		
h. Federal agencies ☐Yes☑No		

i. Coastal Resources.
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐Yes☑No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes☐No

If Yes, identify the plan(s):
NYS Heritage Areas:West Erie Canal Corridor

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes☑No

If Yes, identify the plan(s):

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C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Classified as RD - Research and Development

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home Central School District, New York

b. What police or other public protection forces serve the project site?
Amherst Town Police Department

c. Which fire protection and emergency medical services serve the project site?
Ellicott Creek Fire Company

d. What parks serve the project site?
Ellicott Creek Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? New industrial development - Self-storage rental units

b. a. Total acreage of the site of the proposed action? 1.78 +/- acres
b. Total acreage to be physically disturbed? 1.78+/- acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 1.78 +/- acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 12 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____ year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase determine timing or duration of future phases: _____

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f. Does the project include new residential uses? ☐ Yes ☑ No
If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No
If Yes,
i. Total number of structures 4
ii. Dimensions (in feet) of largest proposed structure: 9 height; 20 width; and 260 length
iii. Approximate extent of building space to be heated or cooled: 0 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No
If Yes,
i. Purpose of the impoundment:
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other spec
iii. If other than water, identify the type of impounded/contained liquids and their source.
iv. Approximate size of the proposed impoundment. Volume: million gallons; surface area: a
v. Dimensions of the proposed dam or impounding structure: height; length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐ Yes ☑ No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)
If Yes:
i .What is the purpose of the excavation or dredging?
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards):
- Over what duration of time?

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No
If yes, describe.
v. What is the total area to be dredged or excavated? acres
vi. What is the maximum area to be worked at any one time? acres
vii. What would be the maximum depth of excavation or dredging? feet
viii. Will the excavation require blasting? ☐ Yes ☐ No
ix. Summarize site reclamation goals and plan:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☑ No
If Yes:
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description):

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ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☐No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☐No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☐Yes ☑No
If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐Yes ☐No
If Yes:

- Name of district or service area:
- Does the existing public water supply have capacity to serve the proposal? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No
- Do existing lines serve the project site? ☐Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☐No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐Yes ☑No
If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐Yes ☐No
If Yes:

- Name of wastewater treatment plant to be used:
- Name of district:
- Does the existing wastewater treatment plant have capacity to serve the project? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No

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- Do existing sewer lines serve the project site? ☐Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 1.17 acres (impervious surface)

_____ Square feet or 1.78 acres (parcel size)

ii. Describe types of new point sources. Pavement drive and four storage buildings, two 5,200 sq. ft. and two 4,500 sq. ft.

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Stormwater runoff will be directed through vegetated swales, pipes, dry swales, and bio-retention areas to the existing stormwater manhole on west side of the property and out to Ellicott Creek.

- If to surface waters, identify receiving water bodies or wetlands: Ellicott Creek
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☑No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

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h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐Morning ☐Evening ☐Weekend ☐Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, descri

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 07:00 AM to 07:00 PM
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: 07:00 AM to 07:00 PM
- Saturday: 07:00 AM to 07:00 PM
- Sunday: 07:00 AM to 07:00 PM
- Holidays: 07:00 AM to 07:00 PM

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m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Heavy equipment operations, deliveries of material, construction traffic, and select components of construction will produce noise that will excee existing ambient noise levels (only during construction hours).

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☑ Yes ☐ No

Describe: Land clearing will occur as part of the project. Proper buffer zones will be maintained.

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Wall Packs, between proposed storage buildings, 10 feet high, directed at ground 45 degrees from buildings, 55 feet to KOM Automation, Inc.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☑ Yes ☐ No

Describe: Land clearing will occur as part of the project. Proper buffer zones will be maintained.

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

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s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☑ Industrial ☑ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☑ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

There is both industrial and commercial near the project site as it is zoned research and development. Ellicott Creek is to the south of the project a

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-
• Roads, buildings, and other paved or impervious surfaces	0.0	1.17	+1.17
• Forested	0.0	0.0	0.0
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	1.78	0.61	-1.17
• Agricultural (includes active orchards, field, greenhouse etc.)	0.0	0.0	0.0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.0	0.0	0.0
• Wetlands (freshwater or tidal)	0.0	0.0	0.0
• Non-vegetated (bare rock, earth or fill)	0.0	0.0	0.0
• Other Describe: _____			

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐Yes ☑No
If Yes,
i. Identify Facilities:

e. Does the project site contain an existing dam? ☐Yes ☑No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No
If Yes:
i. Has the facility been formally closed? ☐Yes ☐ No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes ☑ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☑No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes ☑No
If yes, provide DEC ID number(s): _____
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? > 6.5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %

c. Predominant soil type(s) present on project site:

Cosad Loamy Fine Sand	66 %
Getzville Silt Loam	34 %
	%

d. What is the average depth to the water table on the project site? Average: 0.75 feet

e. Drainage status of project site soils:

☐ Well Drained:	% of site
☐ Moderately Well Drained:	% of site
☑ Poorly Drained	100 % of site

f. Approximate proportion of proposed action site with slopes:

☑ 0-10%:	100 % of site
☐ 10-15%:	% of site
☐ 15% or greater:	% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☑ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name Ellicott Creek Classification fourth order
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

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m. Identify the predominant wildlife species that occupy or use the project site:
Woodland Wildlife

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation):
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☑No
If Yes:
i. Species and listing (endangered or threatened):

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑Yes ☐No
If Yes:
i. Species and listing:
Spiny Softshell

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No
i. If Yes: acreage(s) on project site?
ii. Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

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e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NY Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: Ellicott Creek Park

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway etc.): Park

iii. Distance between project and resource: 0.19 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name 321 Commerce, LLC Date 1/21/2022

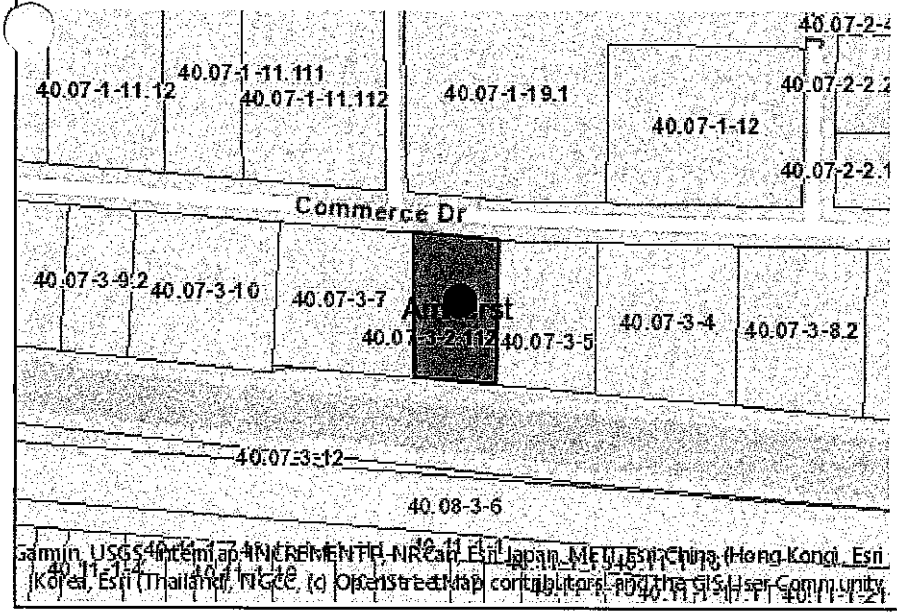
Signature [signature] Title owner

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

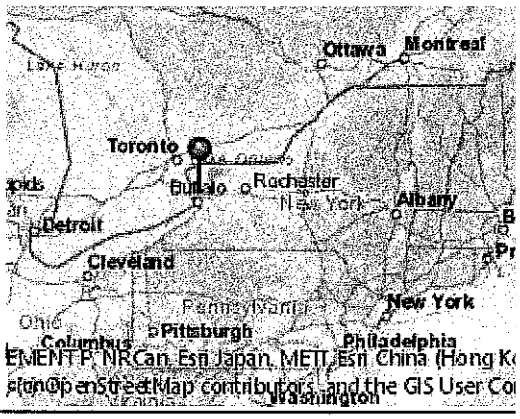
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

EAF Mapper Summary Report

Tuesday, August 3, 2021 2:21 PM



Disclaimer: The EAF Mapper is a screening tool intended project sponsors and reviewing agencies in preparing an envir assessment form (EAF). Not all questions asked in the EAF ar answered by the EAF Mapper. Additional information on any E question can be obtained by consulting the EAF Workbooks. A the EAF Mapper provides the most up-to-date digital data avai DEC, you may also need to contact local or other data sources to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Distr Refer to EAF Workbook.
2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
2.o. [Endangered or Threatened Species]	No

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

E.2.p. [Rare Plants or Animals - Name]	Spiny Softshell
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

TOWN OF AMHERST
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
-- ADDENDUM --

1. For each applicable category of proposed <u>new</u> structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads & streets
Cv - Cosad Loamy Fine Sand				Very Limited	
Ge - Getzville Silt Loam				Very Limited	

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   __X__ Geotechnical report attached — To Be Submitted Later _____ Not applicable

3. Is your property located: On Youngs Road between Dodge and Klein Roads? ☐ Yes ☒ No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? ☐ Yes ☒ No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? ☐ Yes ☒ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:

   RECEIV
   JAN 21 202
   TOWN OF AMHER
   PLANNING DEP

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: ☐ Yes ☒ No

   Describe

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project 3- am, 3- pm, 41 total day
   Source: ITE Tip Generation Rates 8th Edition - Code 151

8. Will blasting occur during construction? ☐ Yes ☒ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ☐ Yes ☒ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    N/A average flow N/A peak flow.

    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? ☐ Yes ☒ No

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

January 11, 2022

Kristin Savard
Advanced Design Group
761 Cayuga Street
Lewiston, NY 14092

Re: DEC
Commerce Drive Self-Storage Construction Project
321 Commerce Dr, Amherst, Erie County, NY
21PR06285

Dear Kristin Savard:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

R. Daniel Mackay

Deputy Commissioner for Historic Preservation
Division for Historic Preservation

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

ERIE COUNTY CLERK'S OFFICE

County Clerk's Recording Page

Return to:
BOX 145

Party 1:
EWE II LLC

Party 2:
355 PROPERTIES LLC

Book Type: D Book: 11349 Page: 6748
Page Count: 4
Doc Type: DEED
Rec Date: 09/10/2019
Rec Time: 04:34:32 PM
Control #: 2019194899
UserID: Sharon
Trans #: 19149337
Document Sequence Number
TT2019003112

Recording Fees:

RECORDING	$40.00
COE CO $1 RET	$1.00
COE STATE $14.25 GEN	$14.25
COE STATE $4.75 RM	$4.75
RP5217 CNTY $9	$9.00
RP5217 ST-NON RES $241	$241.00
TP584	$10.00

Consideration Amount: 775000.00

BASIC MT	$0.00
SONYMA MT	$0.00
ADDL MT/NFTA	$0.00
SP MT/M-RAIL	$0.00
NY STATE TT	$3,100.00
ROAD FUND TT	$3,875.00

Total: $7,295.00

STATE OF NEW YORK
ERIE COUNTY CLERK'S OFFICE

WARNING – THIS SHEET CONSTITUTES THE CLERK'S ENDORSEMENT REQUIRED BY SECTION 319&316-a (5) OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH. THIS IS NOT A BILL.

Michael P. Kearns
Erie County Clerk

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Box 145

BS/Dw/Cov(Corp.)

BARGAIN & SALE DEED

THIS INDENTURE, made the 9th day of September, 2019,

BETWEEN **EWE II, LLC**, a New York limited liability company having its office at 60 Buttonwood Court, East Amherst, New York 14051, (the **"Grantor"**), and

355 PROPERTIES LLC, a New Jersey limited liability company, having its office at 28 Fox Hill Drive, Tabernacle, New Jersey 08088, (the **"Grantee"**).

WITNESSETH, that the Grantor, in consideration of ONE AND MORE DOLLARS ($1.00 & more), lawful money of the United States, paid by the Grantee, does hereby grant and release unto the Grantee, the successors and assigns of the Grantee forever,

Parcel "A": **ALL THAT TRACT OR PARCEL OF LAND**, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 82, Township 12, Range 7 of the Holland Land Company's Survey, described as follows: Beginning at a point in the southerly boundary line of Commerce Drive (Commerce Drive being 100.0 feet wide) at a distance of 235.54 feet S 86° 36′ 49″ E, measured along the southerly boundary of Commerce Drive from its intersection with the westerly line of Lot No. 82; thence S 86° 36′ 49″ E along the southerly boundary of Commerce Drive, a distance of 36.01 feet, thence N 90° 00′ 00″ E along the southerly boundary of Commerce Drive, a distance of 214.05 feet; thence S 00° 00′ 00″ E, a distance of 376.68 feet to the northerly line of the lands acquired by the New York State Department of Environmental Conservation for the Ellicott Creek Flood Protection Project as shown on Map No. 28, Parcel No. 34 of said project; thence N 85° 39′ 14″ W along the northerly line of said acquired land, a distance of 86.09 feet; thence continuing along the northerly line of said acquired lands, N 86° 20′ 53″ W, a distance of 164.49 feet; thence N 00° 00′ 00″ W, a distance of 361.81 feet to the point of beginning.

Parcel "B": **ALL THAT TRACT OR PARCEL OF LAND**, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 82, Township 12, Range 7 of the Holland Land Company's Survey, described as follows: Beginning at a point in the southerly boundary line of Commerce Drive (Commerce Drive being 100.00 feet wide) at a distance of 235.54 feet S 86° 36′ 49″ E, measured along the southerly boundary of Commerce Drive from its intersection with the westerly line of Lot 82, said point of beginning being the northwesterly corner of the lands conveyed to B.G. Sulzle, Inc., Sulzle Marketing, Inc. and Sulzle Eye Suturing Needles, Inc. by deed recorded in

194899
175,000
2P
AmH
Dept 3

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

the Erie County Clerk's Office in liber 9519 of Deeds at page 430; thence S 00° 00′ 00″ E along the westerly line of the said Sulzle, a distance of 361.81 feet to a point in the northerly line of the lands acquired by the New York State Department of Environmental Conservation for the Ellicott Creek Flood Protection Project as shown on Map No. 28, Parcel No. 34 of said project; thence N 86° 20′ 53″ W along the northerly line of said acquired land, a distance of 208.80 feet to its intersection with the easterly line of the lands conveyed to the Town of Amherst Industrial Development Agency by deed recorded in Erie County Clerk's Office in liber 9188 of Deeds at page 576; thence N 01° 52′ 00″ W along the easterly line of said Development Agency, a distance of 361.72 feet to the northeasterly corner thereof; thence S 86° 36′ 49″ E along the southerly boundary line of Commerce Drive a distance of 220.54 feet to the point of beginning.

TOGETHER with the appurtenances and all the estate and rights of the Grantor in and to said premises, and

TOGETHER with the ownership and rights, if any, of the Grantor to land lying in the bed or any street or highway, adjoining said premises to the center line thereof; and

SUBJECT to easements, agreements, rights of way and restrictions of record, if any.

TO HAVE and to hold the premises herein granted unto the Grantee, the successors and assigns of the Grantee forever.

AND the Grantor covenants that it has not done or suffered anything whereby the said premises have been encumbered in any way whatever.

THE Grantor, in compliance with Section 13 of the Lien Law, covenants that the Grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

IN WITNESS WHEREOF, the Grantor has caused these presents to be signed by its duly authorized officer the day and year first above written.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

EWE II, LLC

By: Angela Sue Lamb
Name: Angela Sue Lamb
Title: Sole Member

STATE OF NEW YORK)
) SS:
COUNTY OF ERIE)

On the 9th day of September in the year 2019, before me, the undersigned, personally appeared Angela Sue Lamb, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public

PATRICK THOMAS FITZGERALD
No. 02FI6371635
Notary Public, State of New York
Qualified in Erie County
My Commission Expires 3/5/2022

Record and Return to:
==========
Colligan Law LLP
Attn: Robert Townsley, Esquire
12 Fountain Plaza, Suite 600
Buffalo, NY 14202
==========

Doc #4161026.1

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

INSTRUCTIONS(RP-5217-PDF-INS): www.orps.state.ny.us

FOR COUNTY USE ONLY

C1. SWIS Code: 1,4,2,2,8,9

C2. Date Deed Recorded: 9 / 10 / 19 (Month / Day / Year)

C3. Book: 1,1,3,4,9 C4. Page: 6,7,4,8

New York State Department of **Taxation and Finance**

Office of Real Property Tax Services

RP- 5217-PDF

Real Property Transfer Report (8/10)

PROPERTY INFORMATION

1. Property Location: 321 & 355 (* STREET NUMBER) Commerce Drive (* STREET NAME)

Amherst (* CITY OR TOWN) (VILLAGE) 14228 (* ZIP CODE)

2. Buyer Name: 355 Properties LLC (* LAST NAME/COMPANY) (FIRST NAME)

(LAST NAME/COMPANY) (FIRST NAME)

3. Tax Billing Address: Indicate where future Tax Bills are to be sent if other than buyer address(at bottom of form) (LAST NAME/COMPANY) (FIRST NAME)

(STREET NUMBER AND NAME) (CITY OR TOWN) (STATE) (ZIP CODE)

4. Indicate the number of Assessment Roll parcels transferred on the deed: 2 # of Parcels OR ☐ Part of a Parcel

5. Deed Property Size: ____ (* FRONT FEET) X ____ (* DEPTH) OR 3.88 (*ACRES)

6. Seller Name: EWE II, LLC (* LAST NAME/COMPANY) (FIRST NAME)

(LAST NAME/COMPANY) (FIRST NAME)

(Only if Part of a Parcel) Check as they apply:

4A. Planning Board with Subdivision Authority Exists ☐

4B. Subdivision Approval was Required for Transfer ☐

4C. Parcel Approved for Subdivision with Map Provided ☐

*7. Select the description which most accurately describes the use of the property at the time of sale:

F. Commercial

Check the boxes below as they apply:

8. Ownership Type is Condominium ☐

9. New Construction on a Vacant Land ☐

10A. Property Located within an Agricultural District ☐

10B. Buyer received a disclosure notice indicating that the property is in an Agricultural District ☐

SALE INFORMATION

11. Sale Contract Date: 06/26/2019

* 12. Date of Sale/Transfer: 09/10/19

*13. Full Sale Price: 775,000.00

(Full Sale Price is the total amount paid for the property including personal property. This payment may be in the form of cash, other property or goods, or the assumption of mortgages or other obligations.) *Please round to the nearest whole dollar amount.*

15. Check one or more of these conditions as applicable to transfer:

- ☐ A. Sale Between Relatives or Former Relatives
- ☐ B. Sale between Related Companies or Partners in Business.
- ☐ C. One of the Buyers is also a Seller
- ☐ D. Buyer or Seller is Government Agency or Lending Institution
- ☐ E. Deed Type not Warranty or Bargain and Sale (Specify Below)
- ☐ F. Sale of Fractional or Less than Fee Interest (Specify Below)
- ☐ G. Significant Change in Property Between Taxable Status and Sale Dates
- ☐ H. Sale of Business is Included in Sale Price
- ☐ I. Other Unusual Factors Affecting Sale Price (Specify Below)
- ☒ J. None

Comment(s) on Condition:

14. Indicate the value of personal property included in the sale: 0.00

ASSESSMENT INFORMATION - Data should reflect the latest Final Assessment Roll and Tax Bill

16. Year of Assessment Roll from which information taken(YY): 19

*17. Total Assessed Value: 710,000

*18. Property Class: 449

*19. School District Name: Sweet Home

*20. Tax Map Identifier(s)/Roll Identifier(s) (If more than four, attach sheet with additional identifier(s))

40.07-3-2.112 40.07-3-5

CERTIFICATION

I Certify that all of the items of information entered on this form are true and correct (to the best of my knowledge and belief) and I understand that the making of any willful false statement of material fact herein subject me to the provisions of the penal law relative to the making and filing of false instruments.

SELLER SIGNATURE

SELLER SIGNATURE DATE

BUYER SIGNATURE

BUYER SIGNATURE DATE

BUYER CONTACT INFORMATION

(Enter information for the buyer. Note: If buyer is LLC,society, association, corporation, joint stock company, estate or entity that is not an individual agent or fiduciary, then a name and contact information of an individual/responsible party who can answer questions regarding the transfer must be entered. **Type or print clearly.**)

355 Properties LLC (* LAST NAME) (FIRST NAME)

(*AREA CODE) (*TELEPHONE NUMBER (Ex: 9999999))

28 (* STREET NUMBER) Fox Hill Drive (* STREET NAME)

Tabernacle (*CITY OR TOWN) NJ (*STATE) 08088 (*ZIP CODE)

BUYER'S ATTORNEY

Townsley (LAST NAME) Robert (FIRST NAME)

(716) (AREA CODE) 885-1150 (TELEPHONE NUMBER (Ex: 9999999))

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

INSTRUCTIONS(RP-5217-PDF-INS): www.orps.state.ny.us

FOR COUNTY USE ONLY

C1. SWIS Code 142289

C2. Date Deed Recorded 9 / 10 / 19 (Month / Day / Year)

C3. Book 11349 C4. Page 6748

New York State Department of **Taxation and Finance**

Office of Real Property Tax Services

RP- 5217-PDF

Real Property Transfer Report (8/10)

PROPERTY INFORMATION

1. Property Location: 321 & 355 (* STREET NUMBER) Commerce Drive (* STREET NAME)

Amherst (* CITY OR TOWN) (VILLAGE) 14228 (* ZIP CODE)

2. Buyer Name: 355 Properties LLC (* LAST NAME/COMPANY) (FIRST NAME)

(LAST NAME/COMPANY) (FIRST NAME)

3. Tax Billing Address: Indicate where future Tax Bills are to be sent if other than buyer address(at bottom of form) (LAST NAME/COMPANY) (FIRST NAME)

(STREET NUMBER AND NAME) (CITY OR TOWN) (STATE) (ZIP CODE)

4. Indicate the number of Assessment Roll parcels transferred on the deed 2 # of Parcels OR ☐ Part of a Parcel

5. Deed Property Size (* FRONT FEET) X (* DEPTH) OR 3.88 (*ACRES)

6. Seller Name: EWE II, LLC (* LAST NAME/COMPANY) (FIRST NAME)

(LAST NAME/COMPANY) (FIRST NAME)

*7. Select the description which most accurately describes the use of the property at the time of sale:

F. Commercial

(Only if Part of a Parcel) Check as they apply:

4A. Planning Board with Subdivision Authority Exists ☐

4B. Subdivision Approval was Required for Transfer ☐

4C. Parcel Approved for Subdivision with Map Provided ☐

Check the boxes below as they apply:

8. Ownership Type is Condominium ☐

9. New Construction on a Vacant Land ☐

10A. Property Located within an Agricultural District ☐

10B. Buyer received a disclosure notice indicating that the property is in an Agricultural District ☐

SALE INFORMATION

11. Sale Contract Date 06/26/2019

* 12. Date of Sale/Transfer 09/10/2019

*13. Full Sale Price 775,000.00

(Full Sale Price is the total amount paid for the property including personal property. This payment may be in the form of cash, other property or goods, or the assumption of mortgages or other obligations.) *Please round to the nearest whole dollar amount.*

15. Check one or more of these conditions as applicable to transfer:

- ☐ A. Sale Between Relatives or Former Relatives
- ☐ B. Sale between Related Companies or Partners in Business.
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- ☐ D. Buyer or Seller is Government Agency or Lending Institution
- ☐ E. Deed Type not Warranty or Bargain and Sale (Specify Below)
- ☐ F. Sale of Fractional or Less than Fee Interest (Specify Below)
- ☐ G. Significant Change in Property Between Taxable Status and Sale Dates
- ☐ H. Sale of Business is Included in Sale Price
- ☐ I. Other Unusual Factors Affecting Sale Price (Specify Below)
- ☒ J. None

Comment(s) on Condition:

14. Indicate the value of personal property included in the sale 0.00

ASSESSMENT INFORMATION - Data should reflect the latest Final Assessment Roll and Tax Bill

16. Year of Assessment Roll from which information taken(YY) 19

*17. Total Assessed Value 710,000

*18. Property Class 449

*19. School District Name Sweet Home

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40.07-3-2.112 40.07-3-5

CERTIFICATION

I Certify that all of the items of information entered on this form are true and correct (to the best of my knowledge and belief) and I understand that the making of any willful false statement of material fact herein subject me to the provisions of the penal law relative to the making and filing of false instruments.

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Angela Swelanb 9.10.19

SELLER SIGNATURE DATE

BUYER SIGNATURE

BUYER SIGNATURE DATE

BUYER CONTACT INFORMATION

(Enter information for the buyer. Note: If buyer is LLC,society, association, corporation, joint stock company, estate or entity that is not an individual agent or fiduciary, then a name and contact information of an individual/responsible party who can answer questions regarding the transfer must be entered. ***Type or print clearly.***)

355 Properties LLC (* LAST NAME) (FIRST NAME)

(*AREA CODE) (*TELEPHONE NUMBER (Ex: 9999999))

28 (* STREET NUMBER) Fox Hill Drive (* STREET NAME)

Tabernacle (*CITY OR TOWN) NJ (*STATE) 08088 (*ZIP CODE)

BUYER'S ATTORNEY

Townsley (LAST NAME) Robert (FIRST NAME)

(716) (AREA CODE) 885-1150 (TELEPHONE NUMBER (Ex: 9999999))

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Design Report &

STORMWATER POLLUTION PREVENTION PLAI

for

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, New York 14228

Prepared for:

321 Commerce, LLC
6885 Campbell Blvd
North Tonawanda, New York 14120

Date:

January 21, 2022



Prepared by:

Advanced Design Group
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716)754-2256
Fax (716)754-4252

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

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APPENDICES

Appendix A Drainage Calculations

- A-1 Existing Conditions
- A-2 Proposed Conditions
- A-3 WQv, RRv, Q_{WQv} and CPv Calculations

Appendix B *New York State Department of Environmental Conservation SPDES General Permi Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001.

Appendix C Copy of Completed and Signed MS4 SWPPP Acceptance Form and Notice of Intent (NOI) Form

- C-1 MS4 SWPPP Acceptance Form
- C-2 Notice of Intent (N.O.I.)

Appendix D Blank copy of Notice of Termination (NOT) Form

Appendix E Contractor Certification Forms

Appendix F NYSDEC Phase II SPDES Permit Letter (envelope to store future letter)

Appendix G Soil Erosion & Sediment Control Details and Specifications

Appendix H Inspection Forms, Checklists and Maintenance Guidelines

Appendix I Environmental Assessment Form (Long Form EAF)

Appendix J NYS Stormwater Management Design Manual Appendix H

Appendix K Project Correspondence

Appendix L Project Drawings

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

DESIGN REPORT & STORMWATER POLLUTION PREVENTION PLAN
(The Stormwater Management and Erosion Control Plan)

This Design Report & Stormwater Pollution Prevention Plan (SWPPP) has been prepared to address construction activities associated with the site clearing, preparation and construction of the Briar Oaks Estates subdivision project. This document is intended to be a dynamic document which will be amended, as necessary, to reflect any changes occurring as part of the construction process.

This Stormwater Pollution Prevention Plan (hereafter to be called "The Plan") has been prepared in conformance with the requirements set forth in the *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001 (see Appendix B). The Plan has been designed to address:

1. Impacts to surface water quality caused by soil erosion and sedimentation during construction and immediately following construction

2. Post-construction increases in stormwater runoff

3. Stormwater pollution caused by the use of the site after construction is complete

4. Green Infrastructure per NYSDEC Phase 2 permit requirements

The Plan must do the following:

Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

(i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;
(ii) Control stormwater *discharge*s to *minimize* channel and streambank erosion and scour in the immediate vicinity of the *discharge* points;
(iii) *Minimize* the amount of soil exposed during *construction activity*;
(iv) *Minimize* the disturbance of *steep slopes*;
(v) *Minimize* sediment *discharge*s from the site;
(vi) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;
(vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted; and
(viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover.

A complete copy of The Plan shall be kept on site throughout the duration of the project.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

The permittee shall be responsible to comply with the requirements and conditions as described in The Plan and in the *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001.

A complete copy of The Plan includes the following items:

1. Drainage Calculations for the design of the stormwater management system to meet the Phase II SPDES regulations – see Appendix A.

2. A copy of the *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001 – see Appendix B.

3. A copy of the signed "MS4 SWPPP Acceptance" form – See Appendix C.

4. A copy of the signed and filed Notice of Intent – See Appendix C.

5. Contractor Certification Forms – see Appendix E.

6. Document referred to hereafter as the Project Drawings (see Appendix L for an 11" x 17" set):

   Latest revision of the drawing set of construction plans (as filed with the Town of Amherst):

321 Commerce, LLC
Prepared for:
321 Commerce, LLC
6885 Campbell Blvd
North Tonawanda, New York 14120

The intent of The Plan is to:

- Provide background information about the scope of the project.

- Provide a statement of stormwater management objectives.

- Compare post-development stormwater runoff conditions with pre-development conditions.

- Describe proposed structural and vegetative stormwater measures to ensure that the quantity, temporal distribution and quality of stormwater runoff during and after development are not substantially altered from pre-development conditions.

- Identify the type and frequency of maintenance required by the stormwater management and erosion control facilities utilized.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Owner/Operator Contact Information:

Contact Person:	Eric Bogart
Mailing Address:	6885 Campbell Blvd North Tonawanda, NY 14120
Email Address:	bogartlandscape@yahoo.com
Phone Number:	(716) 807-2388

Engineer of Record Information:

Firm:	Advanced Design Group Professional Engineering & Surveying, P.C.
Contact Person:	Kristin L. Savard, P.E.
Mailing Address:	761 Cayuga Street Lewiston, New York 14092
Email Address:	kristin.savard@adgengineers.com
Phone Number:	(716) 754-2256

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

I. PROJECT DESCRIPTION

The 321 Commerce, LLC storage facility will be situated on a 1.78+/- acre parcel in the Town of Amherst, Erie County, New York. The site is located at 321 Commerce Drive (SBL 40.07-3-2.112) on the south side of the roadway, approximately 1350’ east of Woodridge Drive. The site is currently vacant land with minimal brush and small tree cover.

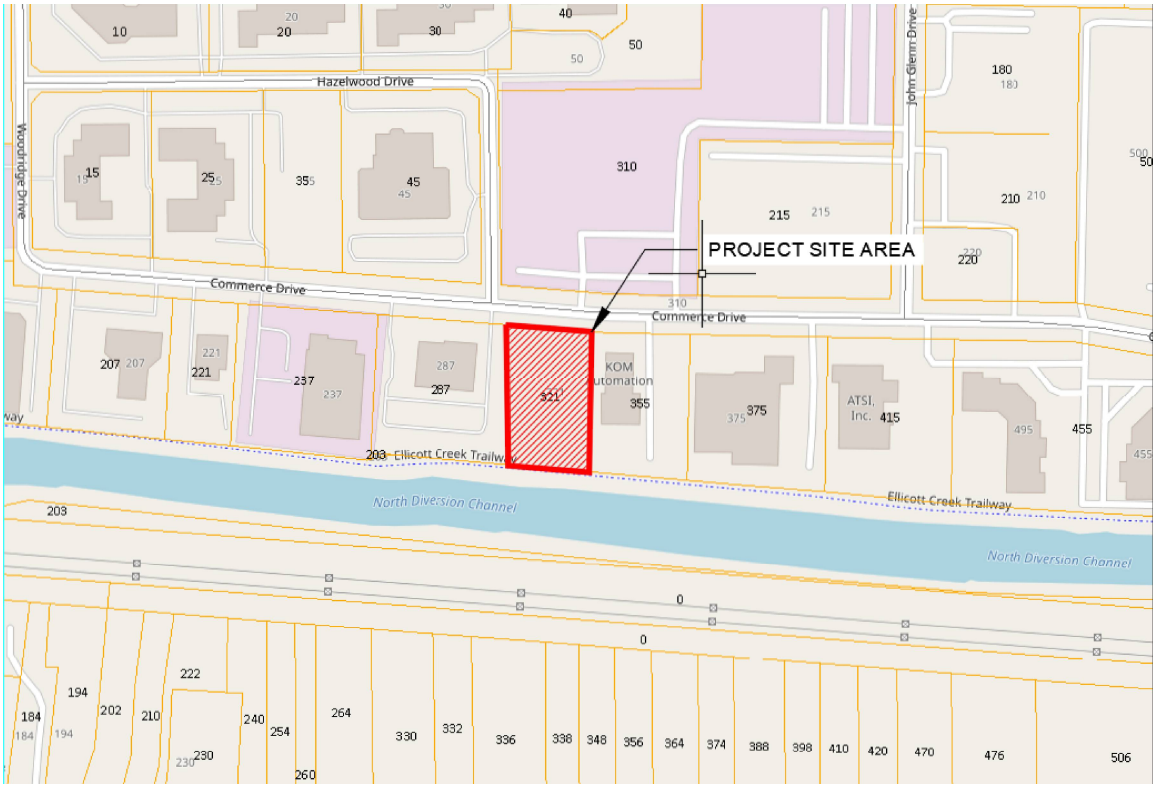
The project will consist of four single-story buildings, the buildings along the east and west property lines will be 15’x300’ with the interior buildings being 20’x260’. A variety of individual storage units of various sizes will be available for a total of 19,400 sq.ft. An overhead door will be provided for each unit. The buildings will be located roughly perpendicular to Commerce Drive while spaced 30’ apart.

Access to the proposed development will be provided by a single 24’ wide drive on Commerce Drive located at about 27 feet to the right of the midpoint of the parcel. The interior of the site will be paved to allow maneuverability and access to the individual units. The project will be constructed in one phase.

A NYSDEC SPDES compliant stormwater management system will be installed consisting of vegetated swales, a level spreader, bio-retetnion area and a dry swale to service the proposed layout. Regrading and establishment of permanent vegetation and landscaped areas will also be included.

All work shall conform to the Town of Amherst and NYSDEC SPDES requirements.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)



Site Location Map



Site Location Map w/ Aerial

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

II. DESCRIPTION OF SITE CONDITIONS AND UTILITY IMPROVEMENTS

Note: See the Project Drawings for additional information on site conditions

A. SOILS INFORMATION

There are three predominant soil types at the project site:

Cosad Loamy Fine Sand, 0 – 3% slopes	(Cv – Hydrologic Soil Group "C/D"); 58.9% +/- of the site
Getzville Silt Loam, 0 – 3% slopes	(Ge– Hydrologic Soil Group "B/D") 41.1% +/- of the site

See Appendix A – Drainage Calculations for a copy of the soil survey map and soils information obtained from the USDA Natural Resources Conservation Service Web Soil Survey National Cooperative Soil Survey.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

B. STORMWATER MANAGEMENT

The project site is generally flat, but is divided into 2 drainage sub-areas (see Appendix A - Drainage Calculations - for the Existing and Proposed Drainage Maps), as follows:

- Drainage Area Overland to North Offsite
- Drainage Area Overland to Existing 6" Culvert to Ellicott Creek

a. EXISTING CONDITIONS

The entire project area is composed of grass, brushland, and some trees. A six inch culvert exists in the southwestern corner of the property that is piped under the bike path and ultimately drains into Ellicott Creek. There is a storm sewer along the west property line, but there are no features from the site draining into it. The majority of the project area eventually drains to the existing six inch culvert leaving the property following some ponding. The northern portion of the property drains overland offsite to the north. Therefore, the entire project area can be divided into 2 main catchment areas; overland to the North and overland to the existing 6" culvert discharging to Ellicott Creek.

Drainage Area Overland to North (0.36+/- acres): Approximately 15,540+/- sq.ft. of the northerly portion of the site drains overland to the northwestern corner of the property off-site.

Overland to the Existing 6" Culvert to Ellicott Creek (1.57+/- acres): The entire drainage area to the 6" culvert discharging to Ellicott Creek can be divided into five (5) subcatchment areas due to ponding, as follows:

Drainage Area Overland to East: 9,090+/- sq.ft. located around the middle of the eastern property line drains overland and ponds within the lot.

Drainage Area Overland to South East: The area towards the center of the property and the south east corner (22,050+/- sq.ft.) drains overland and ponds at about 58 feet to the north west of the south east corner.

Drainage Area Overland to South West: The southwesterly portion of the site (11,430+/- sq.ft.) drains overland and field inlets to a six inch culvert under the Ellicott Creek Trailway, spilling overland into Ellicott Creek.

Drianage Area Overland to West: 18,737+/- sq.ft. along the west property line drains overland to a ponding area about 50 feet north of the existing storm manhole.

Drianage Area Overland to Center: Just north of the center of the property is a 7,210+/- sq.ft. drainage area that drains overland and ponds about 110 feet from the middle of the frontage.

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b. PROPOSED CONDITIONS

Under the proposed conditions, the entire 1.78+/- acre project area will be disturbed during this project. All stormwater flows will be directed through a stormwater management system connecting to the existing storm sewer manhole along the west property line discharging into Ellicott Creek. The entire proposed project area will ultimately discharge to Ellicott Creek, eliminating the overland flows offsite to the North, and can be broken into five (5) subcatchment areas, as follows:

- *Area to Front Vegetated Swale (0.89+/- acres):* All the proposed building roof leaders will be piped to the storm system within the pavement areas between the buildings. The pavement areas will be graded and sloped to provide positive drainage overland to the catch basins. Flows from the pavement and building roof leaders will be conveyed through pipes discharging to the vegetated swale at the Northwestern portion of the site. The overland area surrounding the swale will be graded to direct flows to the swale. The swale will ultimately discharge through rock protection onto the surface of the bio-retention area.

- *Area to Bio-Retention Area (0.21+/- acres):* A 3,200+/- square foot bio-retention area will receive flows from the front vegetated swale and the area surrounding it. Flows will filter through soil media and enter a perforated 6" HDPE pipe before discharging through a catch basin to a proposed manhole along the Western property line.

- *Area to East Vegetated Swale (0.14+/- acres):* A 362 L.F. vegetated swale will convey overland flows to the Southwestern portion of the site along the Eastern property line. The swale will ultimately discharge through rock protection onto the surface of the dry swale.

- *Area to the Dry Swale (0.57+/- acres):* A 900+/- square foot dry swale will receive flows from the East vegetated swale and from the southern portion of the pavement areas. Three catch basins will be utilized to collect a portion of the overland flows from the pavement areas and pipe them to the level spreader discharging onto the surface of the dry swale. The remaining pavement area will be graded to drain flows overland to the dry swale. At the edge of the pavement area a 6-inch wide pea gravel diaphragm will be utilized to pre-treat the flows before going into the dry swale. Stormwater flows will filter through the soil media before collecting in a 4-inch perforated HDPE pipe discharging through a catch basin to a 12-inch HDPE pipe coveying the flows to the proposed manhole along the Western property line.

- *Area Overland to Yard Drain (0.12+/- acres):* A 6-inch yard drain at the Southwestern portion of the site will collect overland flows coveying them to the enclosed 12-inch HDPE pipe discharging to the proposed manhole.

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All flows will enter the proposed storm manhole before discharging to the existing manhole along the Western property line.

The following table indicates a composite summary of the site discharging to the four design points under both existing and proposed conditions for the 1, 10, 25 and 100-year design storms, as well as a cumulative total site discharge.

Design Point	**Design Storm**							
	1-year		10-year		25-year		100-year	
	Existing Q_{peak} **(cfs)**	Proposed Q_{peak} **(cfs)**	Existing Q_{peak} **(cfs)**	Proposed Q_{peak} **(cfs)**	Existing Q_{peak} **(cfs)**	Proposed Q_{peak} **(cfs)**	Existing Q_{peak} **(cfs)**	Proposed Q_{peak} **(cfs)**
Area Overland to the North Offsite	0.3	0	0.8	0	1.1	0	1.7	0
Area to Ellicott Creek	0.4	0.6	2.3	1.6	2.8	2.6	5.9	3.1
Total Site Discharge	0.6	0.6	2.5	1.6	3.7	2.6	7.5	3.1

- **WATER QUALITY VOLUME (WQ_v) and GREEN INFRASTRUCTURE TECHNIQUES**

The Water Quality volume (WQv) for the proposed development has been calculated to be 0.097 ac-ft. (see Appendix A – Drainage Calculations for the WQv calculations). The New York State Stormwater Management Design Manual requires the incorporation of green infrastructure techniques and standard stormwater management practices (SMPs) with Runoff Reduction Volume (RRv) capacity. As described on the following page, the minimum RRv requirement for the proposed development, based on an increase in impervious cover of 1.19 acres, has been calculated to be 0.019 ac-ft.

The Manual requires that Green Infrastructure techniques be incorporated in the site design to allow for micro management of runoff, promote groundwater recharge, increase losses through evapotranspiration and emulate the preconstruction hydrology, resulting in reduced water quality treatment volume and thereby providing a Runoff Reduction Volume (RRv). (See below for RRv requirements.) Green Infrastructure techniques utilize the natural features of the site and promote runoff reduction.

By utilizing a combination of Runoff Reduction Techniques and standard SMPs with runoff reduction capacity, the Green Infrastructure requirements can be met. A Bio-Retention Area (standard SMP with RRv Capacity) and a Dry Swale (standard SMP

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with RRv Capacity) will be constructed. The Dry Swale will be grassed lined and constructed with a permeable soil layer and a 4" perforated underdrain in a gravel layer. The Bio-Retention Area will be constructed with a planting soil bed, mulch layer and surface ponding area, along with an underdrain. Both systems will be utilized to provide a portion of peak flow attenuation, filter flow and promote infiltration.

According the Table 3.5 in the NYS Stormwater Management Design Manual (the Manual), Dry Swales can utilize 20% of the WQv provided by the practice towards meeting the RRv requirement. The dry swale will be constructed to help address the WQv and RRv requirements for the development. The dry swale will provide a WQv o 0.019 ac-ft and a RRv of 0.004 ac-ft.

According the Table 3.5 in the NYS Stormwater Management Design Manual (the Manual), Bio-Retention Areas can utilize 40% of the WQv provided by the practice towards meeting the RRv requirement. The bio-retention area will be constructed to help address the WQv and RRv requirements for the development. The bio-retention area will provide a WQv of 0.081 ac-ft and a RRv of 0.032 ac-ft.

Pretreatment for the stormwater runoff to the Dry Swale will be provided by a pea-gravel diaphragm along the edge of the pavement area to treat sheet flow prior to entering the Dry Swale. A level spreader will also be utilized to provide pre-treatment for the piped flows from the pavement area before discharging to the Dry Swale. Pretreatment for the bio-retention area will be provided by a vegetated swale collecting flows prior to discharging to the bio-retention area. Calculations for the Water Quality flowrates can be found in Appendix A – Drainage Study – Proposed Conditions.

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- **RUNOFF REDUCTION VOLUME (RR_v)**

The current NYSDEC Stormwater Management Design Manual (Manual) was adopted in August, 2010 to address stormwater runoff reduction and to provide planning, desigr and implementation of green infrastructure techniques for new construction. The regulations are intended to control the quality and flow-rate of stormwater runoff from a developed site and to control the volume of runoff from a developed site (runoff reduction). The Manual promotes that the runoff reduction requirement is to be achieved through the use or re-use and infiltration of the runoff. The Manual requires the incorporation of green infrastructure techniques and standard stormwater management practices (SMPs) with Runoff Reduction Volume (RRv) capacity.

Eleven Green Infrastructure Techniques are allowed by the N.Y.S.D.E.C. Stormwater Management Design Manual to provide the required RRv, as follows:

1. Conservation of Natural Areas
2. Sheetflow to Riparian Buffers or Filter Strips
3. Vegetated Swale
4. Tree Planting/Tree Pit
5. Disconnection of Rooftop Runoff
6. Stream Daylighting
7. Rain Gardens
8. Green Roofs
9. Stormwater Planters
10. Rain Barrels and Cisterns
11. Porous Pavement

Each of these Techniques has been reviewed for implementation at the site with the following results:

1. Conservation of Natural Areas

   There are no significant natural areas on the site.

2. Sheetflow to Riparian Buffers or Filter Strips

   There are no riparian buffer areas on the site.

3. Vegetated Swale

   Vegetated swales will be utilized to increase the time of concentration, reduce the peak discharge, provide pre-treatment and provide infiltration.

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4. Tree Planting/Tree Pit

   The runoff reduction for tree planting is limited to the pervious area in which the trees are planted. The size and type of development, as well as potential utility conflicts preclude any significant runoff reduction by this method.

5. Disconnection of Rooftop Runoff

   There is no significant advantage to disconnecting the roof leaders due to the treatment areas being provided.

6. Stream Daylighting

   There are no previously culverted/piped streams on the site.

7. Rain Gardens

   This technique cannot be used for infiltration when used in HSG D soils and must have an underdrain and an overflow for larger storm events, both connected to a conveyance system (storm sewer). Runoff reduction in poor soils is limited to 40% of the WQv for the contributing area.

8. Green Roofs

   Green roofs are most effective in commercial, industrial and multifamily housing uses in urban areas; however, given the time frame for construction of the proposed facility, green roofs are not considered a feasible alternative and have not been utilized in the project.

9. Stormwater Planters

   This technique is used for filtration only in poor soils and must have an underdrain system and overflow connected to a conveyance system (storm sewer). The technique is geared toward urban sites. Stormwater planters have not been utilized in the project.

10. Rain Barrels and Cisterns

    Overflow discharge must be provided and operation during cold weather conditions is difficult. The facility has no significant re-use for retained water, therefore the technique has not been utilized.

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11. Porous Pavement

    Porous pavement on poor soils cannot be utilized for infiltration and must have an underdrain system connected to a conveyance system (storm sewer). There are no advantages for using porous pavement on this project.

As indicated, the New York State Stormwater Management Design Manual requires the incorporation of green infrastructure techniques and standard stormwater management practices (SMPs) with Runoff Reduction Volume (RRv) capacity. The Runoff Reduction volume required for the increase in impervious cover (1.19+/- ac.) at the site has been calculated to be 0.019 ac-ft. (see Appendix A-3 – Drainage Calculations for RRv calculations). The RRv requirement will be met utilizing the dry swale and bio-retetnion areas (Standard SMPs with RRv Capacity). An RRv of 0.036 ac-ft will be provided.

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- **STREAM CHANNEL PROTECTION VOLUME REQUIREMENTS (Cp_v)**

  Stream Channel Protection Volume Requirements are designed to protect stream channels from erosion. This is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event. The Cp_v requirement has been calculated to be 0.049 ac-ft. A CPv of 0.063 ac-ft will be provided by the vegetated swales, bio-retetnion area, and dry swale (see Appendix A – Drainage Calculations - for the Stream Channel Protection Volume Calculations).

- **OVERBANK FLOOD CONTROL CRITERIA (Q_p)**

  Overbank Flood Control requires storage to attenuate the post development 10-year, 24 –hour peak discharge rate (Qp) to predevelopment rates. The site discharges meet this requirement – see table above and Appendix A - Drainage Calculations.

- **EXTREME FLOOD CONTROL CRITERIA (Q_f)**

  Extreme Flood Control requires storage to attenuate the post development 100-year, 24 hour peak discharge rate (Qf) to predevelopment rates. The proposed site discharges meet this requirement – see table above and Appendix A - Drainage Calculations. Both the Qp and Qf requirements have been met through detaining flows onsite within the retention pond as well as adjusting site slopes and routing flow through vegetated areas thereby increasing the time the flow is on site.

A ten-year design recurrence has been used as design criteria for storm system sizing for the site. The Project Drawings depict the overall drainage improvements for the site. Appendix A-1 and A-2 – Drainage Calculations – contains the overall storm drainage hydraulic analysis for the 1, 10, 25 and 100-year storm events for the Existing and Proposed conditions, respectively.

The storm drainage system will be constructed to the Town of Amherst standards. A private entity will be created to assume the responsibility and maintenance for the bio-retention area and dry swale.

The completed Notice of Intent will be submitted to the NYSDEC upon receipt of the signed MS4 Acceptance Form (See Appendix C).

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C. UTILITIES

The proposed buildings will be served by National Grid (electricity). Existing overhead utility lines run along the south side of Commerce Drive which will be used for connection.

D. ARCHAEOLOGICAL

The site is located within an area designated as a potentially archaeologically sensitive area on the on-line mapping provided by the New York State Office of Parks, Recreation and Historic Preservation (SHPO) (see Appendix I for the Full Environmental Assessment Form). NYSHPO has deemed that the proposed project will have no impact on archaeologically sensitive areas (see Appendix K Project Correspondence for their letter).

E. FLOODPLAIN

The project site is not located within a FEMA 100-year floodplain. FEMA maps indicate that the site is located within "Other Flood Areas" from FEMA delineated floodplains. Please refer to Appendix A-1 for a copy of the applicable Flood Insurance Rate Maps No. 36029C0068H, effective date June 7, 2019.

F. SEQR

A completed Long Environmental Assessment Form can be found in Appendix I.

G. ENVIRONMENTAL

According to the NYSDEC EAF Mapper, the proposed Commerce Storage site is not located in a Critical Environmental Area and does not contain any Natural Communities or Endangered or Threatened Species. It does contain Spiny Softshells which are listed as a Rare Animal (see Appendix I for the Full Environmental Assessment Form).

H. WETLANDS

There are no wetlands within the Commerce Storage project site.

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III. EROSION AND SEDIMENT CONTROL

A. Temporary Erosion and Sediment Control Measures

The temporary erosion and sediment control measures that will be implemented are described below. The anticipated locations of these temporary measures are indicated on the Project Drawings. The quantity and location(s) of the erosion and sediment control measures will be finalized with the Permittee and/or Contractor prior to the star of construction and will be modified as field conditions and construction activities warrant. The Permittee and/or Contractor shall be responsible for implementation of all required sediment control measures as described in The Plan. All erosion and sediment control measures are to be installed as specified in The Plan and the project details. The details and specifications for materials, sizing and installation requirements can be found in Appendix G and on the Project Drawings.

- Stabilized Construction Entrance (CE) – Construction vehicles will enter the site from Commerce Drive at the proposed permanent site access point. A stabilized construction entrance will be installed to reduce or eliminate the tracking or deposition of sediment onto the public right-of-way during construction.

- Silt Fence (SF) – The silt fence will be installed as shown on the Project Drawings and as necessary during construction to reduce sheet-flow and runoff velocity and reduce the amount of sediment within the sheet-flow/runoff.

- Fiber Roll (FR) –Fiber rolls may be utilized in place of silt fence for sediment control and as inlet protection if installed according to manufacturer's specifications. Maintenance shall be performed as needed. Maintenance includes replacing slumping rolls, removing accumulated sediment, and filling in rills.

- Storm Drain Inlet Protection (IP) – Storm drain inlet protection will be installed, as necessary during construction, to reduce the amount of sediment that may enter the storm drain system through the inlets.

- Dust Control – Dust control will be implemented routinely to limit dust movement from disturbed soil surfaces to off-site areas where it may cause health hazards, inconvenience and traffic safety problems.

- Check Dams – The check dams may be utilized, as necessary, to reduce erosion in temporary ditches during regrading and/or installation of the proposed pipe culverts and in the permanent vegetated swales by restricting the velocity of flow in the channel until permanent vegetation/stabilization can be established.

- Temporary Vegetation (TV) – Temporary vegetation will be established on all areas as shown on the Project Drawings and as necessary on all other disturbed areas that remain inactive for more than seven (7) days. This will significantly reduce the erosion of the disturbed soils until the area becomes active again.

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- Sediment Traps –Sediment traps may be used, as necessary, to intercept runoff, trap the sediment and protect the downstream drainage-way.

The proposed construction activity is not anticipated to result in more than five (5) acres of disturbance at one time. Should construction activities be modified such that it appears likely that there will be more than 5 acres of disturbance, Owner or Agenowner must submit a request to the MS4 in writing prior to disturbing greater than 5 acres. Once more than 5 acres is disturbed at one time, Owner must implement stormwater inspections two times per week while greater than 5 acres are disturbed.

B. Permanent Erosion and Sediment Control Measures

The following permanent erosion and sediment control measures, vegetative practices and green infrastructure techniques will be used to provide long-term control of erosion and sedimentation when construction activities are completed and the project site is stabilized:

- Enclosed Storm Drainage System –An enclosed storm drainage system will be constructed to convey the runoff from the roadway areas.

- Rock Outlet Protection (OP) – The rock protection (rip-rap) will be installed as shown on the Project Drawings at the pipe outlets from the enclosed storm drainage system and at the end of the vegetated swales. It will be utilized to reduce the depth velocity and energy of the water leaving the stormwater conveyance system and minimize the erosion of the receiving downstream channel.

- Permanent Vegetation (PV) – Permanent vegetation will be established on all areas as shown on the Project Drawings and as necessary on all other disturbed areas upon the completion of construction. This will significantly reduce the erosion of the disturbed soils while the site stabilizes and during daily use of the site following construction.

- Bio-retetenion Area – A Bio-retention Area will be established and maintained in order to treat flow from the roof leaders and pavement area to remove pollutantns through filtration and infiltration.

- Dry Swale – A Dry Swale will be established and maintained in order to treat flow from the pavement areas to remove pollutants through filtration and infiltration.

- Vegetated Swale – Vegetataed swales will be established along the western and southern property lines to increase the time of concentration, reduce peak discharge and provide infiltration. A vegetated swale will also be established prior to the Bio-retention Area to serve as pre-treatment by conveying stormwater at a low velocity, promoting natural treatment and infiltration.

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The location and construction information for implementation of the permanent measures for the project are indicated on the Project Drawings. The details showing materials, sizing and installation requirements can be found in Appendix L and on the Project Drawings.

C. Sequence of Construction and Erosion Control Installation

The following is the anticipated construction sequence for each phase. The contractor must notify the owner of any significant deviations from this sequence:

1. Install the stabilized construction entrance/exit per Project Drawings and Appendix L.

2. Install the silt fence/fiber roll per Project Drawings and Appendix L.

3. Begin clearing of the project area. Strip and stockpile any topsoil and sub-soil in designated areas (see Project Drawings). All stockpiled material shall be seeded and silt fence placed around perimeter immediately.

4. Begin earthwork and grading.

5. Additional silt fence, storm drain inlet protection and dust control will be implemented as necessary in conjunction with the earthwork construction activities.

6. Install storm drainage as shown on the Project Drawings.

7. Complete construction of utilities, roadway and rough grading.

8. Complete remaining site construction, fine grade and topsoil remaining disturbed areas. Vegetation should be established as soon as possible as detailed on the Project Drawings.

9. Remove temporary soil erosion and sediment controls after permanent vegetation has been established and project site is stabilized. A project site is considered stabilized only after a minimum of 80% vegetative density is established on the entire project site.

All soil erosion and sediment control measures must be installed and maintained in conformance with The Plan, the Project Drawings and the *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001.

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D. Construction Site Wastes

The following best management practices shall be implemented to ensure proper storage and handling of construction site wastes:

- Designate an onsite water / concrete waste collection area that does not receive a substantial amount of runoff from upland area and does not drain directly to a water body.
- Ensure that any containers have lids so they can be covered before periods of rain. Material / chemical containers should be kept in a covered area whenever possible.
- Ensure waste collection frequency is adequate to prevent receptacles from overfilling.
- Clean up spills immediately. For hazardous materials, follow cleanup instructions on package. For smaller spills, use an absorbent material such as sawdust or kitty litter to contain the spill.
- Collect, remove and dispose of all construction site wastes at authorized disposal areas. A local environmental agency can be contacted to identify the disposal sites.

If pesticides are required, the following practices should be used to reduce health and environmental risks associated with pesticides as well as reduce the amount of pesticides that may come in contact with stormwater:

- Follow all federal, state and local regulations that apply to the use, handling or disposal of pesticides.
- Do not handle the materials any more than necessary.
- Store pesticides/fertilizers in a dry, covered area.
- Construct curbs or dikes to contain pesticides in case of spillage.
- Follow the recommended application rates and methods.
- Have equipment and absorbent materials available in areas where pesticides are stored and used in order to contain and clean up any spills that occur.

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The following management practices should be followed to reduce the contamination risk associated with petroleum products:

- Store petroleum products and fuel for vehicles in covered areas with dikes in place to contain any spills.
- Immediately contain and clean up any spills with absorbent materials.
- Have equipment available in fuel storage areas and in vehicles to contain and clean up any spills that occur.

To reduce risks of nutrient pollution, the following management practices shall apply:

- Have equipment available in storage areas and in vehicles to contain and clean up any spills that occur.
- Apply fertilizers at the minimum rate and to the minimum area needed.
- Work the fertilizer deeply into the soil to reduce exposure of nutrients to storm water runoff.
- Apply fertilizer at lower application rates with a higher application frequency.
- Limit hydroseeding, which is the simultaneous application of lime and fertilizers.
- Ensure that erosion and sediment controls are in place to prevent fertilizers and sediments from being transported off-site.
- Use detergents only as recommended and limit their onsite use. Wash water containing detergents should not be mixed with storm water. All polluted waste waters shall be directed to a sanitary sewer or be otherwise contained so that polluted waters may be appropriately treated at a wastewater treatment plant.

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IV. INSPECTIONS AND MAINTENACE

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices and all post construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with the General Permit (GP-0-20-001).

2. The terms of the Permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The owner or operator of each construction activity shall have a trained contractor inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame. The erosion control measures must be maintained/repaired/replaced as necessary such that each measure will meet the specifications included in Appendix G and the latest version of the New York State Standards and Specifications for Erosion and Sediment Control. The specifications include standard maintenance practices for each or the proposed measures.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of the General Permit, as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

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C. Qualified Inspector Inspection Requirements

During construction, the *owner or operator* will provide a qualified inspector to inspect all erosion and sediment control practices to ensure integrity and effectiveness, all areas of disturbance that have not achieved final stabilization, and all points of discharge to natural surface water bodies located within, or immediately adjacent to, the boundaries of the construction site, and all points of discharge from the construction site. Inspection forms can be found in Appendix H.

Site inspections shall be performed according to the following schedule:

a. For construction sites where soil disturbance activities are on going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on going and the *owner or operator* has received authorization in accordance with Part II.C.3 of the General Permit to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the Regional Office stormwater contact person or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the Regional Office stormwater contact person or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector(s)* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements

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on the Notice of Termination (NOT). The *owner or operator* shall then submit the completed NOT form to the address in Part II.A.1 of Permit No. GP-0-20-001.

e. For construction sites that directly discharge to one of the 303(d) segments listed in Appendix E of the General Permit or is located in one of the watersheds listed in Appendix C of the General Permit, the qualified inspector shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

At a minimum, the qualified inspector shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved final stabilization, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection reports shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface water body.

f. Identification of all erosion and sediment control practices that need repair or maintenance;

g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

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i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards; and

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s).

k. Identification and status of all corrective actions that were required by previous inspection

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

m. All inspection reports shall be signed by the qualified inspector.

Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor (or subcontractor) of any corrective actions that need to be taken. The contractor (or subcontractor) shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame. The erosion control measures must be maintained/repaired/replaced as necessary such that each measure will meet the specifications included in Appendix G. The specifications include standard maintenance practices for each or the proposed measures. The Plan shall be revised and the measures updated in accordance with sound engineering practices, the guidelines of the General Permit and the Project Drawings. The Project Engineer is to be notified of any significant revisions to the implemented measures or The Plan.

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V. POST-CONSTRUCTION OPERATION AND MAINTENANCE

A private entity will be established to provide, post-construction, a qualified inspector to inspect and maintain the Stormwater conveyance system and the outlet structures at least twice annually and after a 25-year or greater storm event. During each inspection, the qualified inspector shall inspect the permanent stormwater management practices and stormwater conveyance system to ensure they are clear of silt, debris, weeds and woody plants. Removal of material shall be by mechanical methods or by hand. All material removed shall be disposed of by an approved method. All areas of permanent vegetation shall be fertilized, as necessary, to keep the vegetation healthy and vigorous and at a minimum density of eighty (80) percent over the entire pervious surface. The Maintenance and Management Inspection Checklist from Appendix H of the NYSDEC Stormwater Management Design Manual can be found in Appendix J for use by the qualified inspector.

The private entity shall maintain the bio-retention and dry swale areas and repair any damage such as animal burrows.

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VI. ADDITIONAL INFORMATION

1. Contractor and subcontractors must review the New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity permit No. GP-0-20-001, effective January 29, 2020. Any questions or concerns regarding material discussed in this General Permit should be immediately directed to the permittee.

   Each contractor and subcontractor that will perform on the site actions which may reasonably be expected to cause or have the potential to cause pollution of the waters of the State of New York, shall sign the contractor's certification statement at the back of this Stormwater Pollution Prevention Plan (SWPPP) in Appendix E

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, and all documentation necessary to demonstrate eligibility with this permit at the construction site until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection. All inspection reports shall be submitted to the MS4.

3. The owner or operator shall ensure that the provisions of the SWPPP are implemented from the commencement of construction activity until all areas of disturbance have achieved final stabilization and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP.

4. The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years form the date that the site achieves final stabilization. This period may be extended by the Department of Environmental Conservation, in its sole discretion, at any time upon written notification

5. The owner operator of a construction activity shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a regulated, traditional land use control MS4, the MS4. At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at one time:

   a) The *owner or operator* shall have a qualified inspector conduct at least two (2) site inspections every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

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b) In areas where soil disturbance activity ha been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of technical standard, New York State Standards and Specifications for Erosion and Sediment Control.
c) The *owner of operator* shall prepare a phasing plan (if applicable) that defines maximum disturbed area per phase and shows required cuts and fills.
d) The *owner or operator* shall install any additional site specific practices needed to protect water quality.
e) The *owner or operator* shall include the requirements above in their SWPPP.

6. The following list describes some of the construction materials that may be stored at the project site:

- Drainage construction materials (PVC pipe, plastic pipe, concrete pipe, corrugated metal pipe, manholes, catch basins, end-sections)
- Stone
- Fill and Topsoil
- Soil Erosion and Sediment Control Materials for immediate repairs
- Construction Equipment
- Building construction materials

7. A Notice of Termination (N.O.T.) must be filed with the NYS DEC upon completion o the project. The Notice of Termination form can be found in Appendix D of this plan.

An *owner or operator* may terminate coverage when one or more the following conditions have been met:

a. Total project completion - All construction activity identified in the SWPPP has been completed; and all areas of disturbance have achieved final stabilization; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved final stabilization; and all temporary, structural erosion and sediment control measures have been removed; and all postconstruction stormwater management

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practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under The Permit in accordance with Part II.E of the General Permit.

d. The owner or operator obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

For *construction activities* meeting a. or b. above, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The qualified inspector shall, by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of the General Permit have been achieved.

For construction activities that are subject to the requirements of a regulated, traditional land use control MS4 and meeting a. or b. above, the owner or operator shall have the regulated, traditional land use control MS4 sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of the General Permit. The regulated, traditional land use control MS4 official, by signing this statement, has determined that it is acceptable for the owner or operator to submit the NOT in accordance with the requirements of this Part. The regulated, traditional land use control MS4 can make this determination by performing a final site inspection themselves or by accepting the qualified inspector's final site inspection certification(s) as required above.

8. Permittee, Contractor and Sub-contractor to implement best management practices (BMP) to prevent litter, debris, building materials, or similar material from being discharged into waters of the State of New York.

9. The Plan shall be revised, and the measures updated, as site conditions require, in accordance with sound engineering practices, the guidelines of the General Permit and the Project Drawings. The Project Engineer is to be notified of any significant revisions to the implemented measures or The Plan.

10. Upon the completion of construction, the enclosed storm drainage system, bio-retention area, and dry swale will become the responsibility of the private entity established for such purposes.

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VII. OWNER/OPERATOR CERTIFICATION STATEMENT

The following certification shall be made in accordance with the SPDES General Permit for Stormwater Discharges from Construction Activity, Permit GP-0-20-001

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

Signature: _____ Date: _____

Print Name: Eric Bogart

Title: Owner

Address: 6885 Campbell Blvd
North Tonawanda, NY 14120 Phone: (716) 807-2388

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Appendix .
Drainage Calculatior

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Appendix A-
Drainage Calculatior
Existing Condition

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Dwellings and Small Commercial Buildings

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Dwellings and Small Commercial Buildings

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Dwellings and Small Commercial Buildings–Erie County, New York							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Cv—Cosad loamy fine sand							
Cosad	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.01	Shrink-swell	0.09	Shrink-swell	0.01

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Dwellings and Small Commercial Buildings–Erie County, New York							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ge—Getzville silt loam							
Getzville	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 21, Aug 29, 2021

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Soil Map—Erie County, New York



Map Scale: 1:758 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP

The soil surveys that com
1:15,800.

Warning: Soil Map may n

Enlargement of maps bey
misunderstanding of the c
line placement. The maps
contrasting soils that coul
scale.

Please rely on the bar sca
measurements.

Source of Map: Natural
Web Soil Survey URL:
Coordinate System: We

Maps from the Web Soil S
projection, which preserv
distance and area. A proj
Albers equal-area conic p
accurate calculations of d

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of the version date(s) liste

Soil Survey Area: Erie C
Survey Area Data: Vers

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1:50,000 or larger.

Date(s) aerial images wer
2020

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compiled and digitized pr
imagery displayed on thes
shifting of map unit bounc

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cv	Cosad loamy fine sand	1.4	58.9%
Ge	Getzville silt loam	1.0	41.1%
Totals for Area of Interest		2.3	100.0%

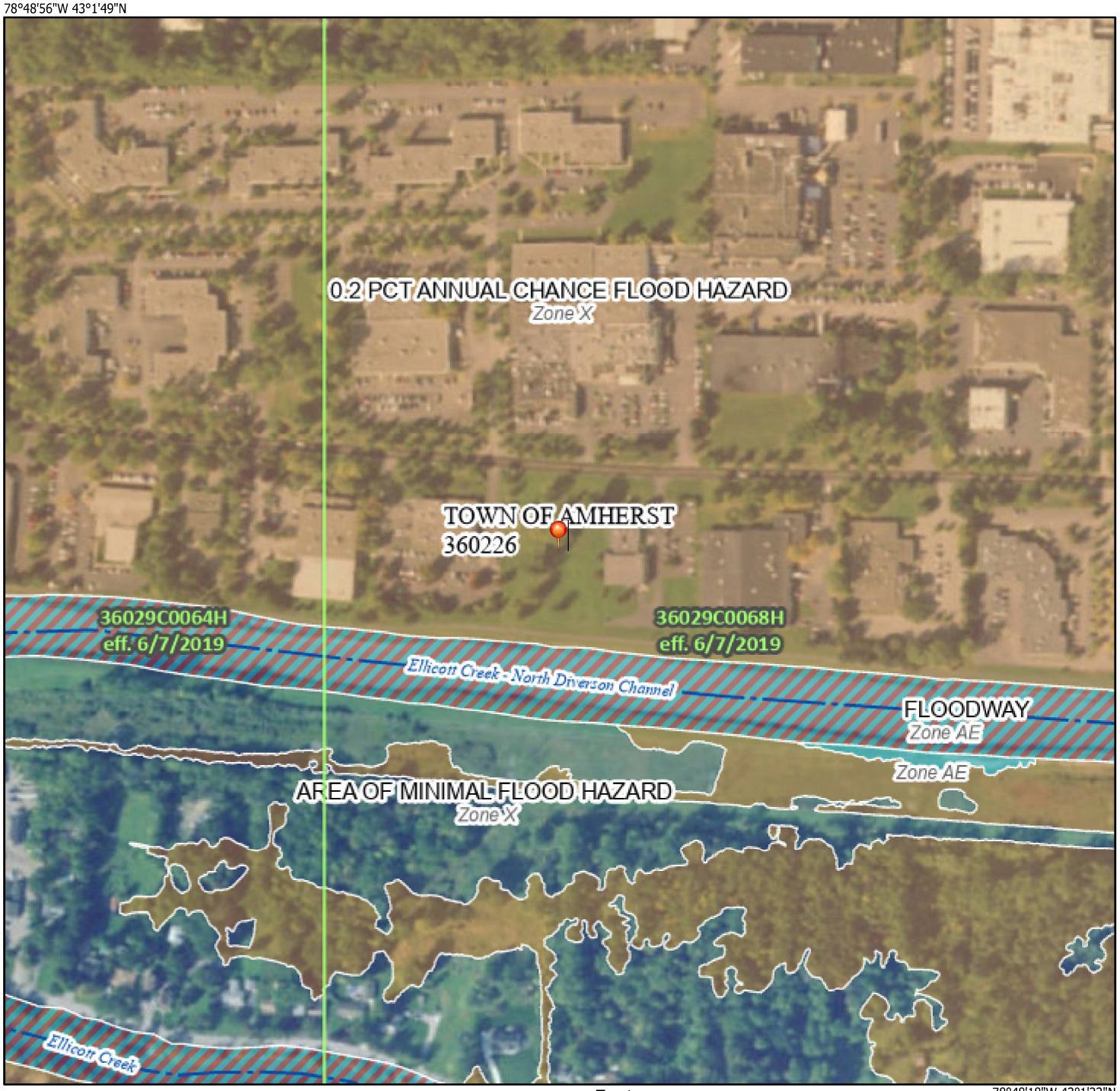
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

National Flood Hazard Layer FIRMette

FEMA

78°48'56"W 43°1'49"N



78°48'18"W 43°1'23"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

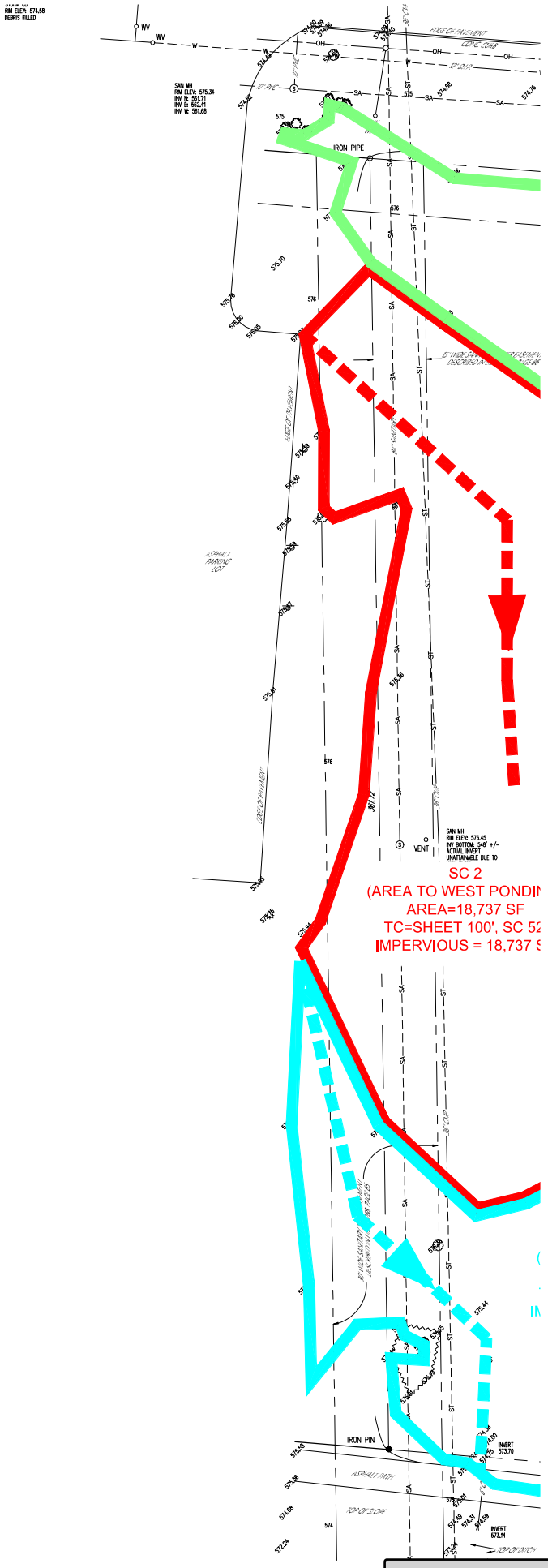
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C		UNDERGROUND ELEC/TELE/CABLE
OH / W	OW	OVERHEAD ELEC/TELE WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE



GRAPHIC SCALE

20 0 10 20 40 80

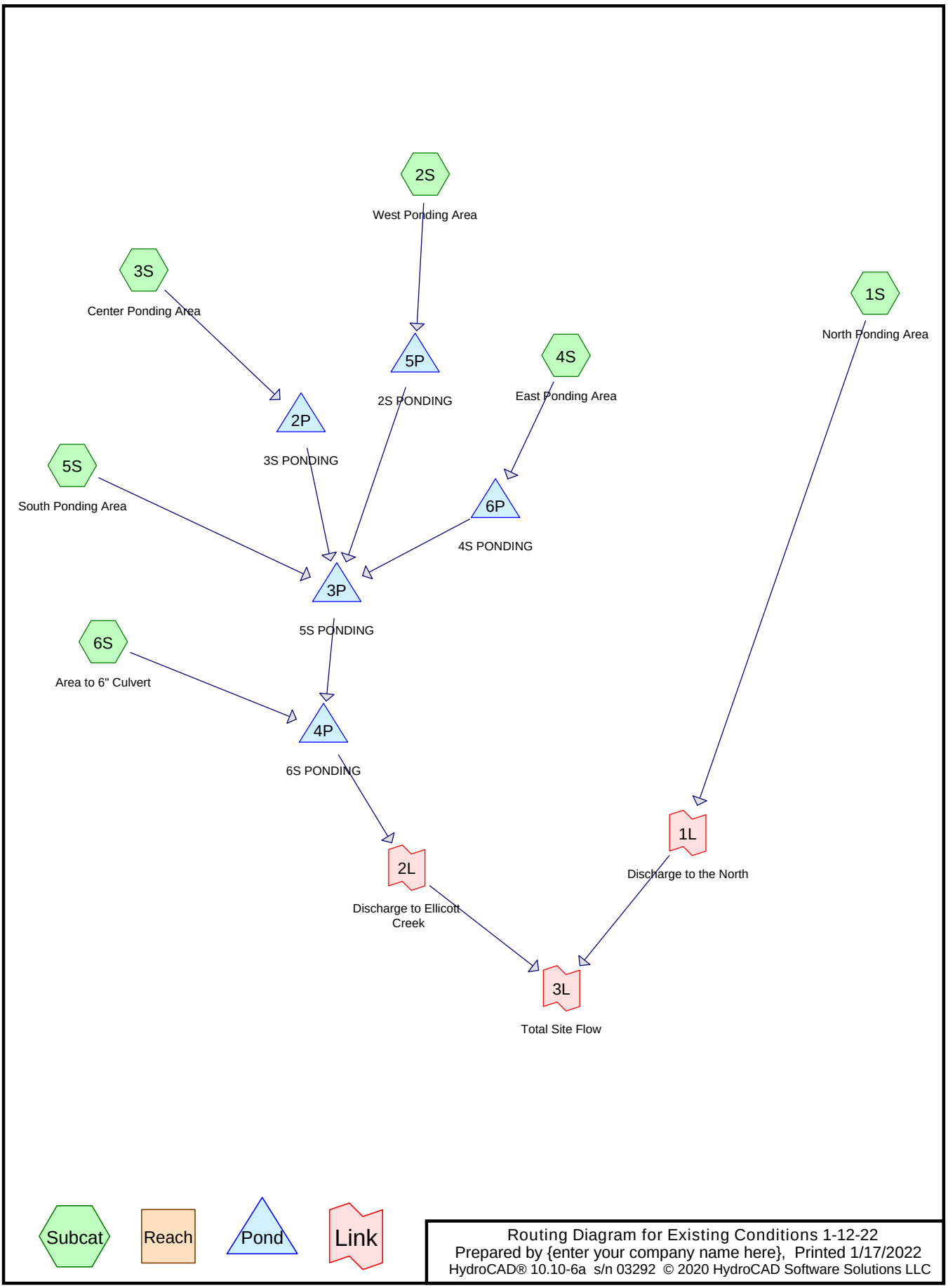
(IN FEET)

1 inch = 20 ft.

Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG-Layout Plan 1-21-22.dwg

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)



Routing Diagram for Existing Conditions 1-12-22
Prepared by {enter your company name here}, Printed 1/17/2022
HydroCAD® 10.10-6a s/n 03292 © 2020 HydroCAD Software Solutions LLC

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	1.79	2
2	2-yr	Type II 24-hr		Default	24.00	1	2.16	2
3	10-yr	Type II 24-hr		Default	24.00	1	3.02	2
4	25-yr	Type II 24-hr		Default	24.00	1	3.66	2
5	100-yr	Type II 24-hr		Default	24.00	1	4.91	2

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.804	74	>75% Grass cover, Good, HSG C (2S, 3S, 4S)
1.125	80	>75% Grass cover, Good, HSG D (1S, 5S, 6S)
1.930	77	TOTAL AREA

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.804	HSG C	2S, 3S, 4S
1.125	HSG D	1S, 5S, 6S
0.000	Other	
1.930		TOTAL AREA

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchn Numbers
0.000	0.000	0.804	1.125	0.000	1.930	>75% Grass cover, Good	1S, 2S, 3S, 4S, 5S, 6S
0.000	0.000	0.804	1.125	0.000	1.930	TOTAL AREA	

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area	Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>0.44" Tc=0.0 min CN=80 Runoff=0.26 cfs 0.013 af
Subcatchment2S: West Ponding Area	Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>0.26" Tc=0.0 min CN=74 Runoff=0.15 cfs 0.009 af
Subcatchment3S: Center Ponding Area	Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>0.26" Tc=0.0 min CN=74 Runoff=0.06 cfs 0.004 af
Subcatchment4S: East Ponding Area	Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>0.26" Tc=0.0 min CN=74 Runoff=0.07 cfs 0.004 af
Subcatchment5S: South Ponding Area	Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>0.44" Tc=0.0 min CN=80 Runoff=0.37 cfs 0.019 af
Subcatchment6S: Area to 6" Culvert	Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>0.44" Tc=0.0 min CN=80 Runoff=0.19 cfs 0.010 af
Pond 2P: 3S PONDING	Peak Elev=575.17' Storage=154 cf Inflow=0.06 cfs 0.004 af Outflow=0.00 cfs 0.000 af
Pond 3P: 5S PONDING	Peak Elev=575.07' Storage=223 cf Inflow=0.52 cfs 0.031 af Outflow=0.36 cfs 0.027 af
Pond 4P: 6S PONDING	Peak Elev=574.18' Storage=28 cf Inflow=0.42 cfs 0.037 af Outflow=0.36 cfs 0.037 af
Pond 5P: 2S PONDING	Peak Elev=575.44' Storage=0 cf Inflow=0.15 cfs 0.009 af Outflow=0.15 cfs 0.009 af
Pond 6P: 4S PONDING	Peak Elev=575.56' Storage=76 cf Inflow=0.07 cfs 0.004 af Outflow=0.01 cfs 0.003 af
Link 1L: Discharge to the North	Inflow=0.26 cfs 0.013 af Primary=0.26 cfs 0.013 af
Link 2L: Discharge to Ellicott Creek	Inflow=0.36 cfs 0.037 af Primary=0.36 cfs 0.037 af
Link 3L: Total Site Flow	Inflow=0.55 cfs 0.050 af Primary=0.55 cfs 0.050 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.058 af Average Runoff Depth = 0.3
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 a

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

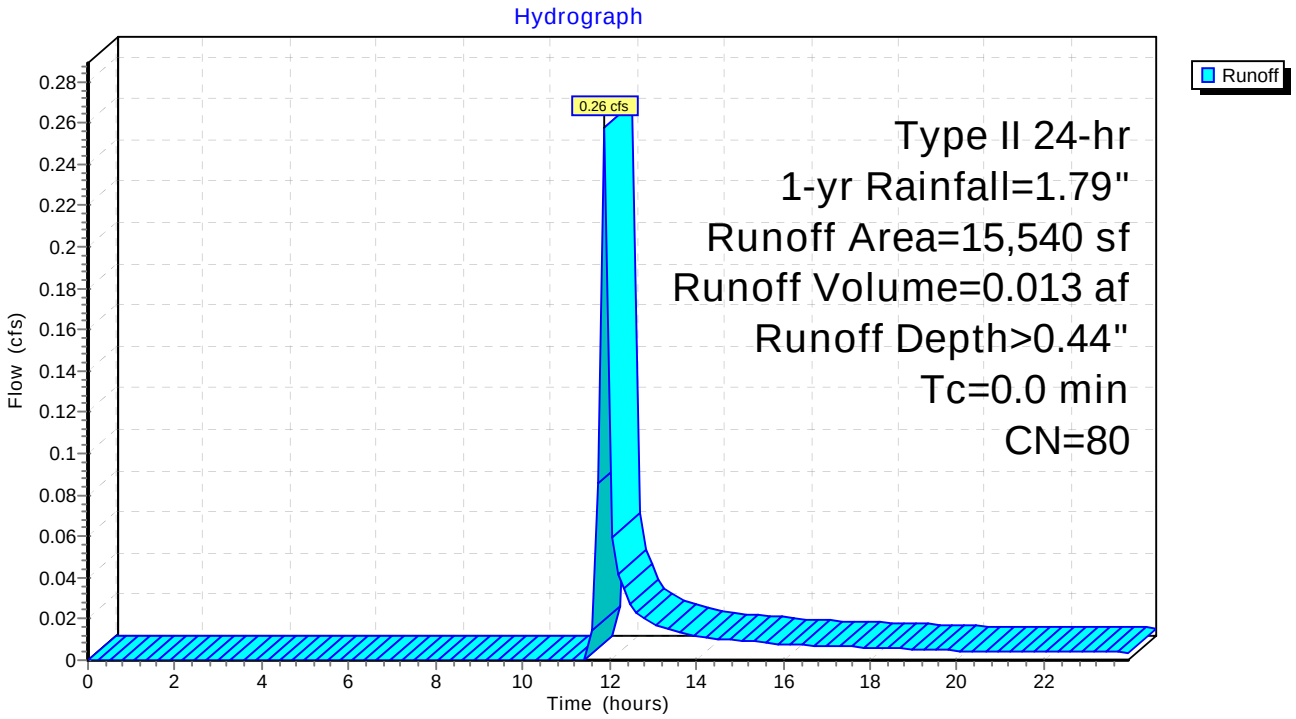
Summary for Subcatchment 1S: North Ponding Area

Runoff = 0.26 cfs @ 11.90 hrs, Volume= 0.013 af, Depth> 0.44"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

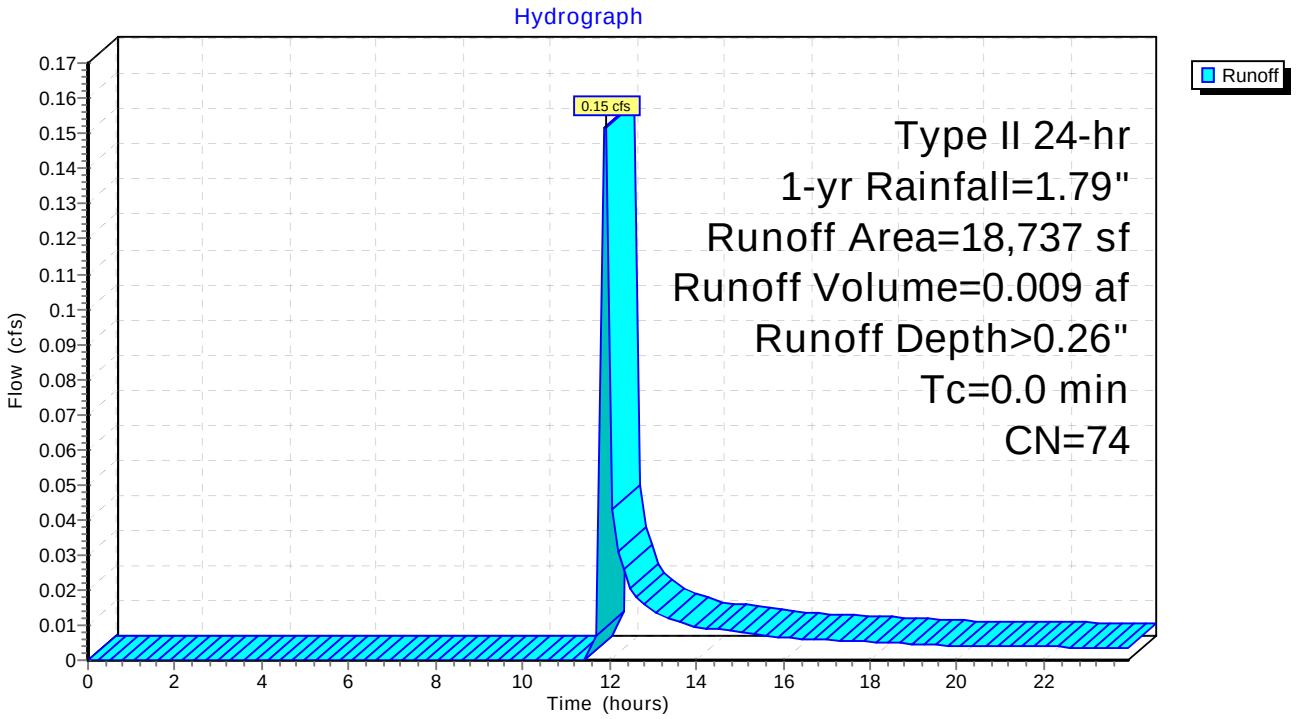
Summary for Subcatchment 2S: West Ponding Area

Runoff = 0.15 cfs @ 11.91 hrs, Volume= 0.009 af, Depth> 0.26"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

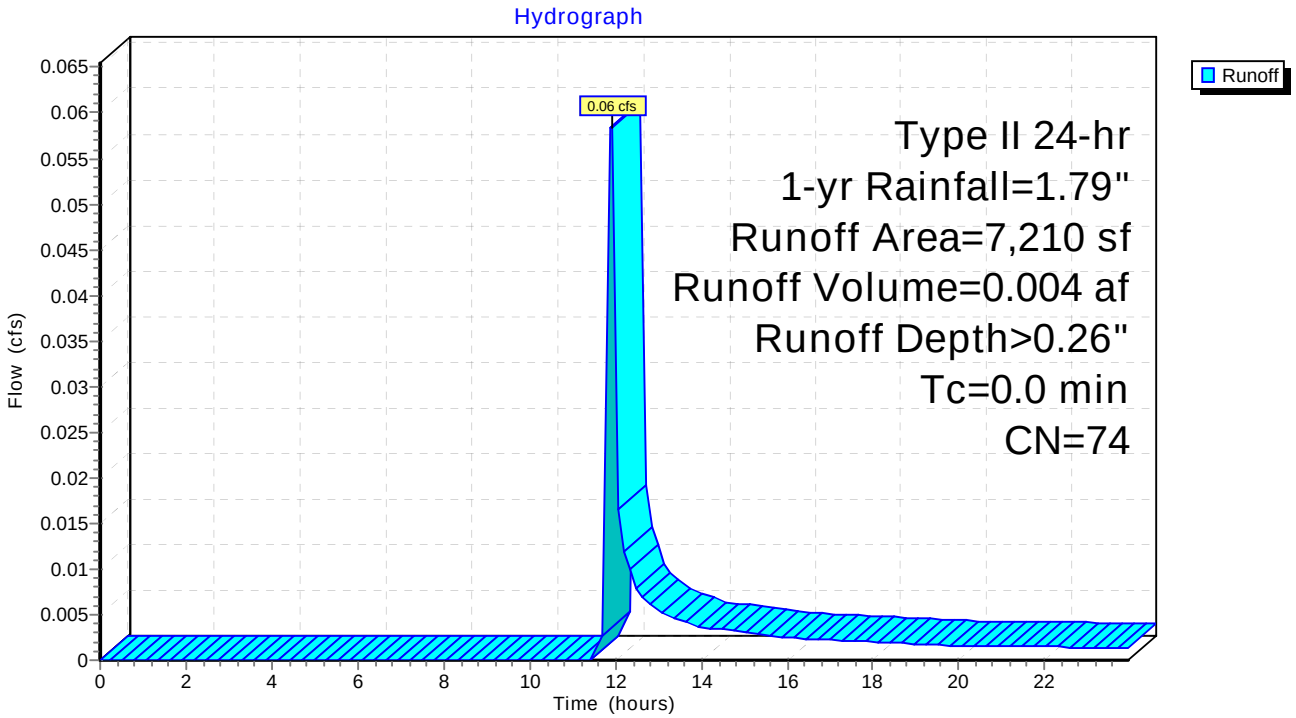
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.06 cfs @ 11.91 hrs, Volume= 0.004 af, Depth> 0.26"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

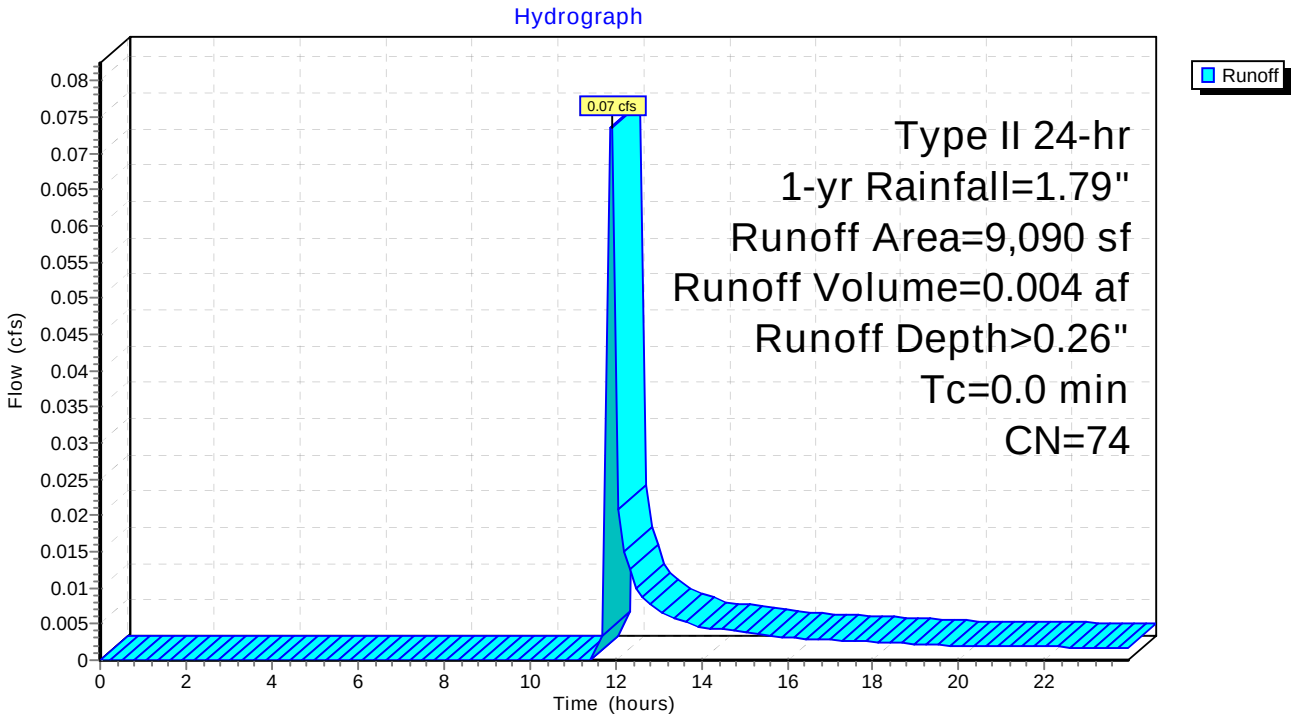
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.07 cfs @ 11.91 hrs, Volume= 0.004 af, Depth> 0.26"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

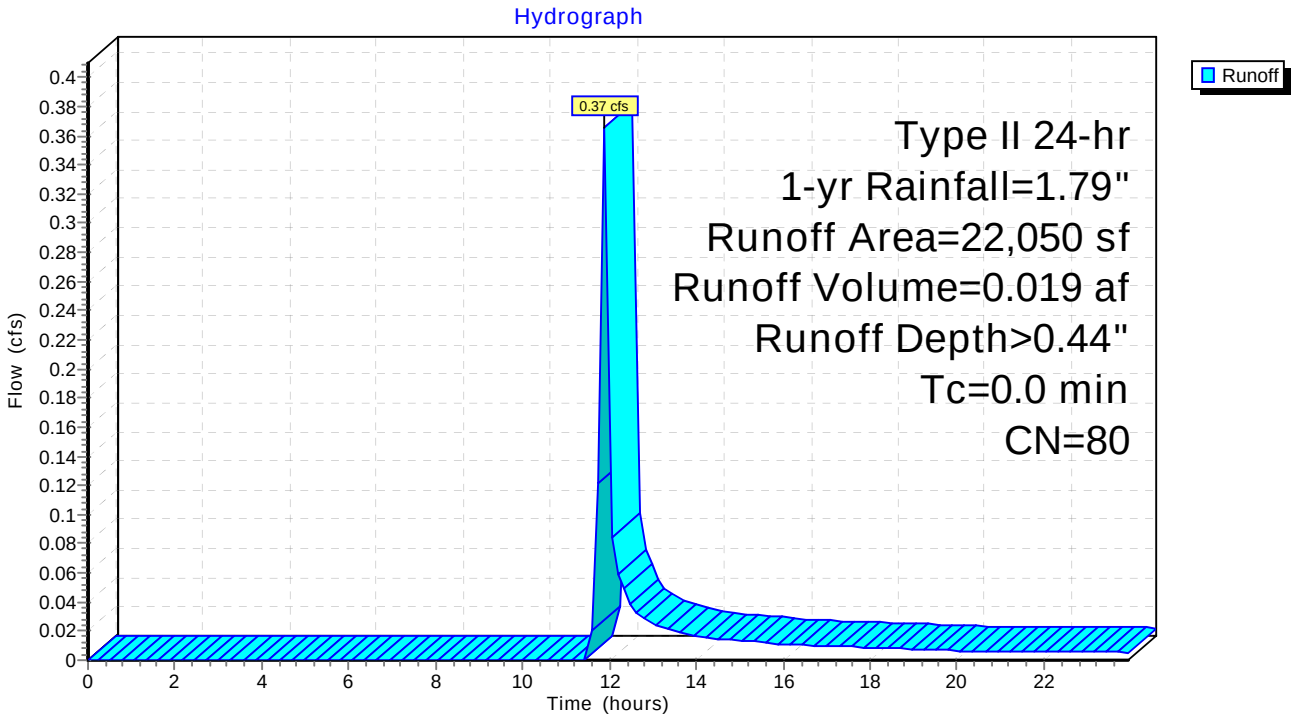
Summary for Subcatchment 5S: South Ponding Area

Runoff = 0.37 cfs @ 11.90 hrs, Volume= 0.019 af, Depth> 0.44"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

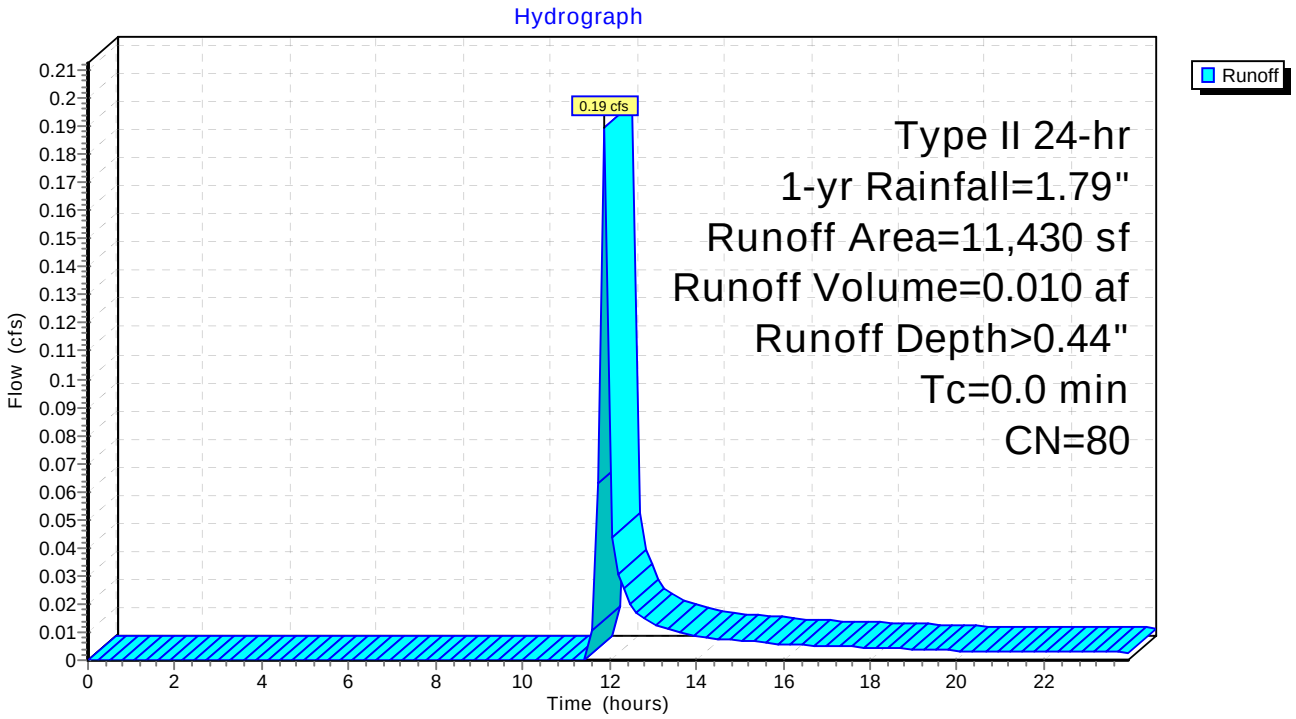
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 0.19 cfs @ 11.90 hrs, Volume= 0.010 af, Depth> 0.44"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 0.26" for 1-yr event
Inflow = 0.06 cfs @ 11.91 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.17' @ 23.94 hrs Surf.Area= 1,673 sf Storage= 154 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

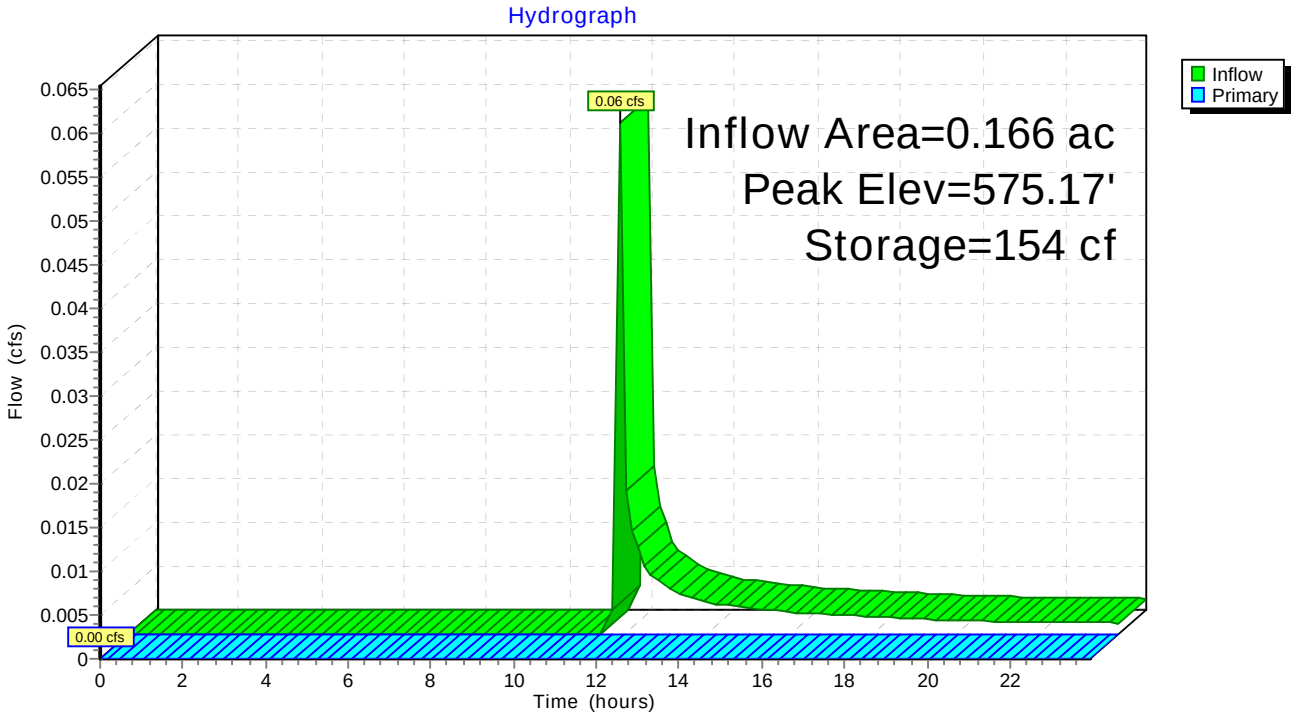
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.94' TW=574.82' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 0.28" for 1-yr event
Inflow = 0.52 cfs @ 11.90 hrs, Volume= 0.031 af
Outflow = 0.36 cfs @ 12.03 hrs, Volume= 0.027 af, Atten= 30%, Lag= 8.1 min
Primary = 0.36 cfs @ 12.03 hrs, Volume= 0.027 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.07' @ 12.03 hrs Surf.Area= 2,709 sf Storage= 223 cf

Plug-Flow detention time= 84.3 min calculated for 0.027 af (88% of inflow)
Center-of-Mass det. time= 27.7 min (922.2 - 894.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

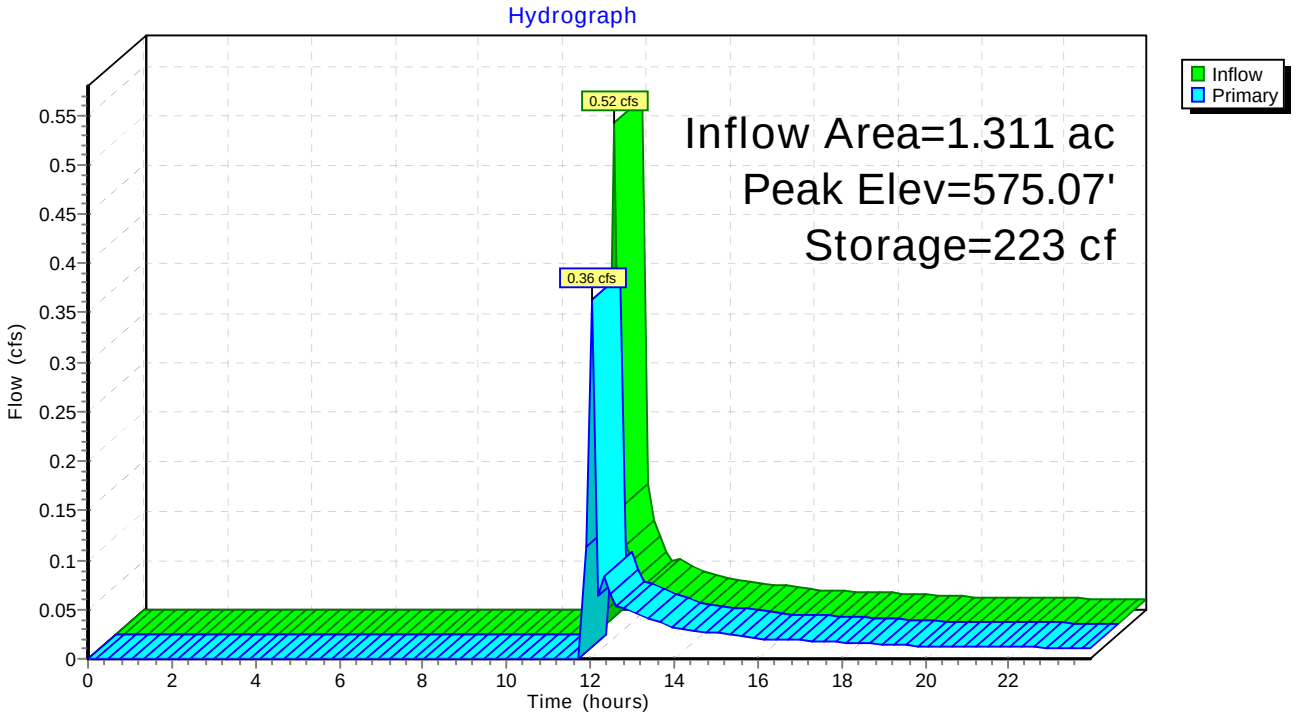
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.35 cfs @ 12.03 hrs HW=575.07' TW=574.17' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Weir Controls 0.35 cfs @ 0.57 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.28" for 1-yr event
Inflow = 0.42 cfs @ 12.01 hrs, Volume= 0.037 af
Outflow = 0.36 cfs @ 12.03 hrs, Volume= 0.037 af, Atten= 15%, Lag= 1.4 min
Primary = 0.36 cfs @ 12.03 hrs, Volume= 0.037 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.18' @ 12.03 hrs Surf.Area= 296 sf Storage= 28 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

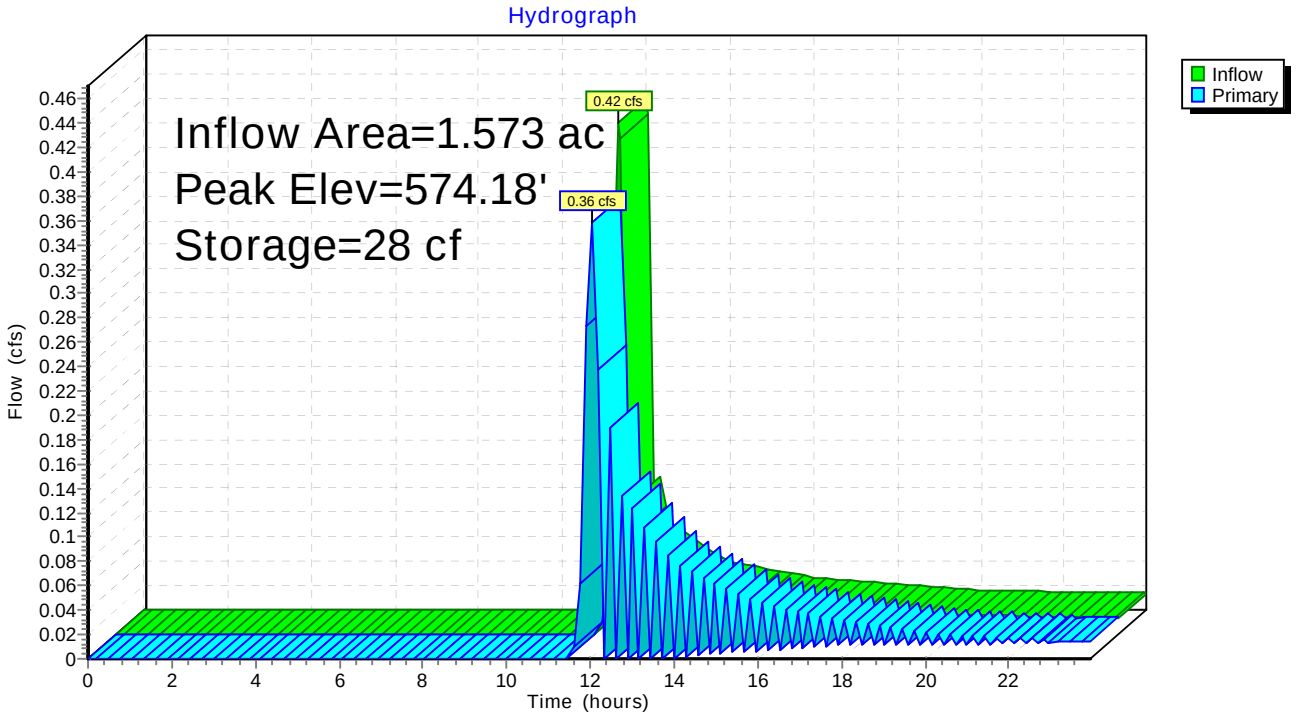
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	6.0" Round 6" CULVERT L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.35 cfs @ 12.03 hrs HW=574.17' TW=0.00' (Dynamic Tailwater)
1=6" CULVERT (Inlet Controls 0.35 cfs @ 1.84 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 0.26" for 1-yr event
Inflow = 0.15 cfs @ 11.91 hrs, Volume= 0.009 af
Outflow = 0.15 cfs @ 11.91 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 11.91 hrs, Volume= 0.009 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

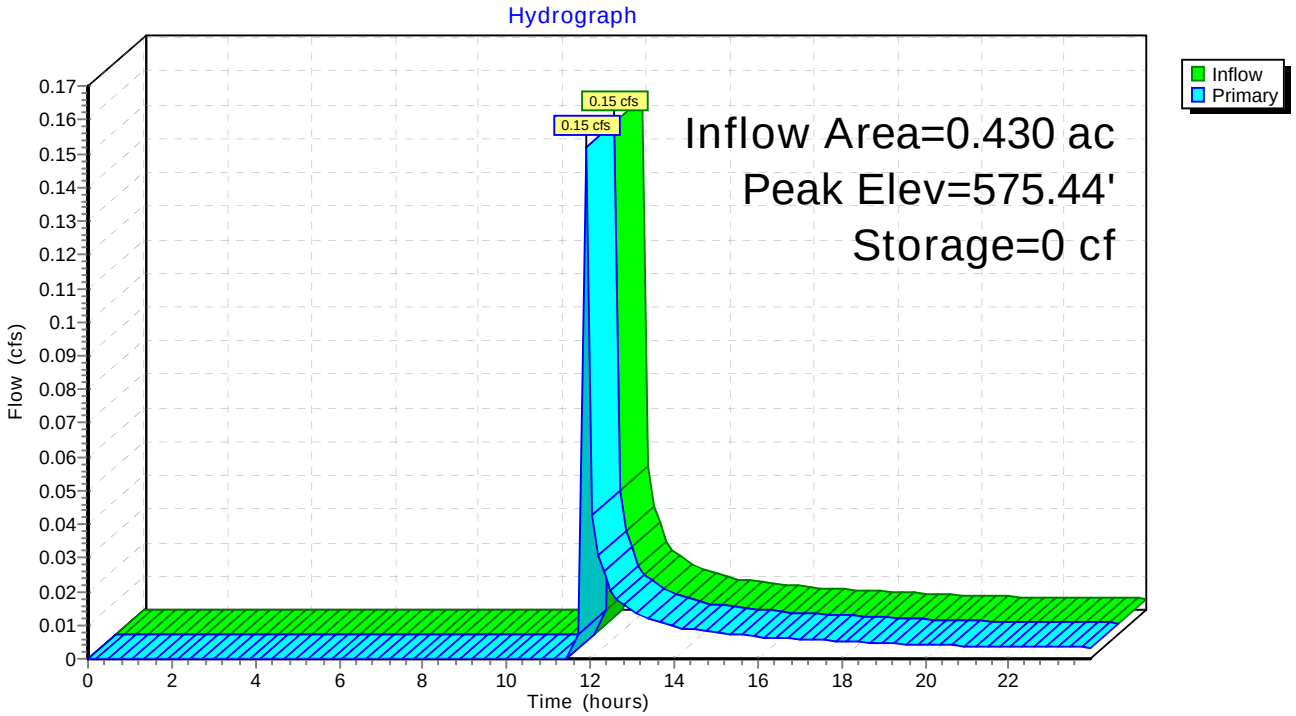
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.91 hrs HW=575.44' TW=575.06' (Dynamic Tailwater)
↑1=Sharp-Crested Rectangular Weir (Passes 0.00 cfs of 14.66 cfs potential flow)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 0.26" for 1-yr event
Inflow = 0.07 cfs @ 11.91 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.93 hrs, Volume= 0.003 af, Atten= 89%, Lag= 61.3 min
Primary = 0.01 cfs @ 12.93 hrs, Volume= 0.003 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.56' @ 12.93 hrs Surf.Area= 1,232 sf Storage= 76 cf

Plug-Flow detention time= 257.6 min calculated for 0.003 af (62% of inflow)
Center-of-Mass det. time= 114.5 min (1,019.9 - 905.3)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

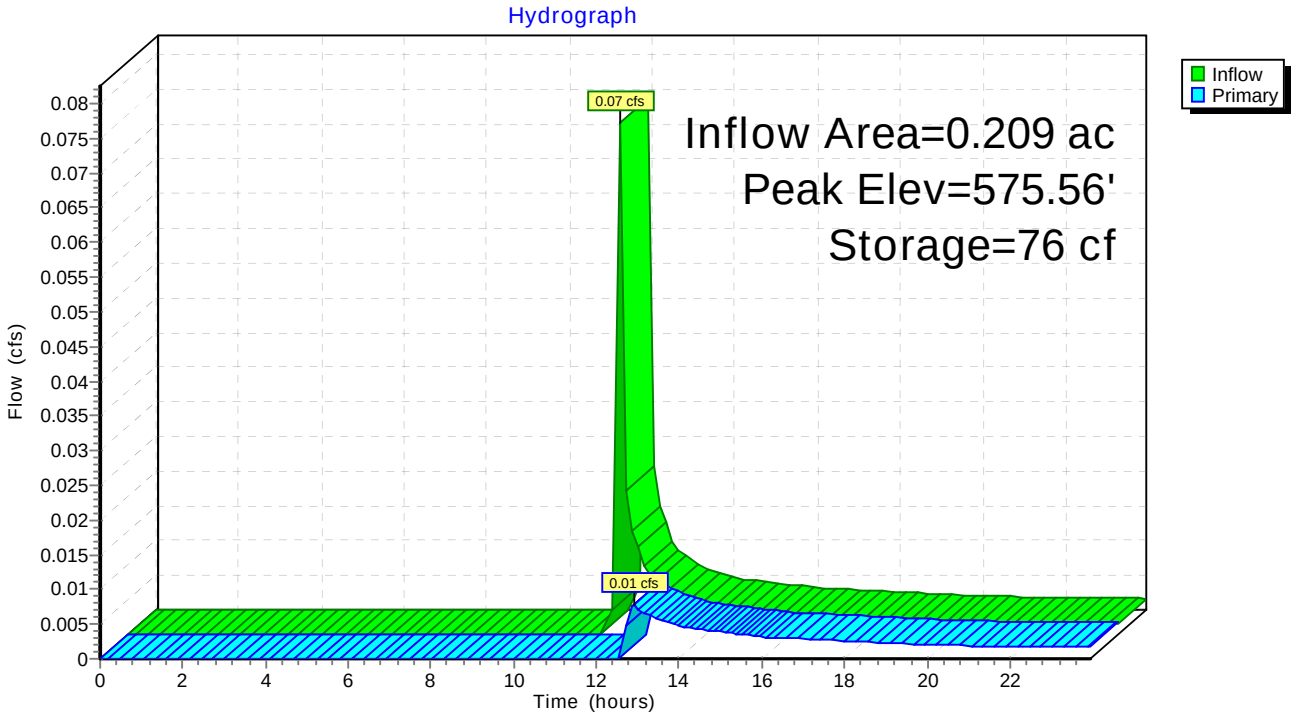
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.01 cfs @ 12.93 hrs HW=575.56' TW=575.05' (Dynamic Tailwater)
↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.16 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING



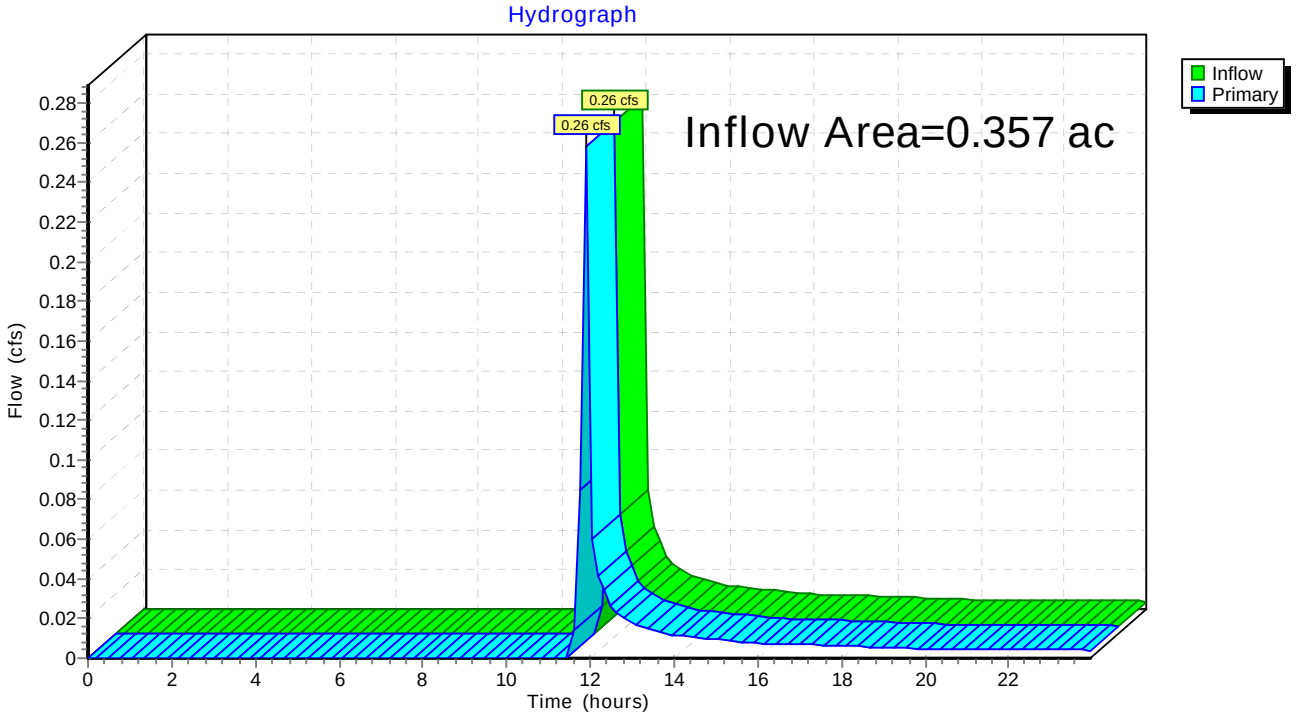
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 0.44" for 1-yr event
Inflow = 0.26 cfs @ 11.90 hrs, Volume= 0.013 af
Primary = 0.26 cfs @ 11.90 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



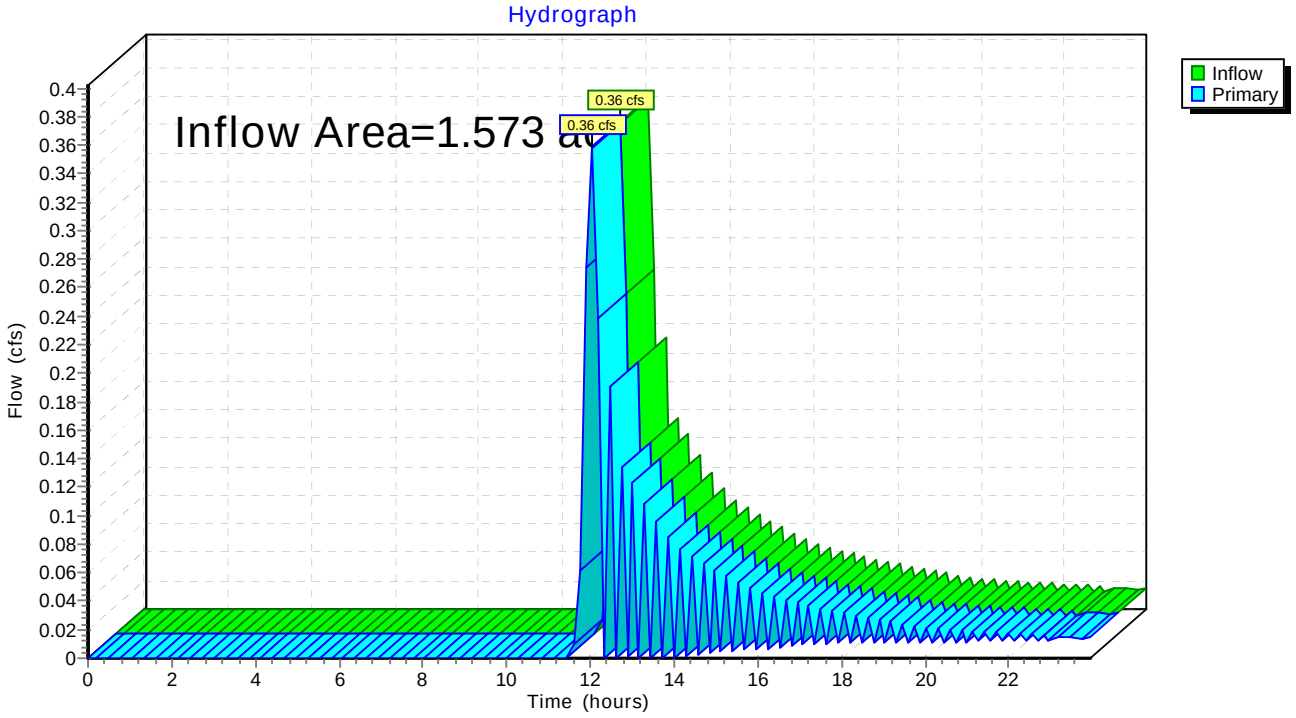
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.28" for 1-yr event
Inflow = 0.36 cfs @ 12.03 hrs, Volume= 0.037 af
Primary = 0.36 cfs @ 12.03 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



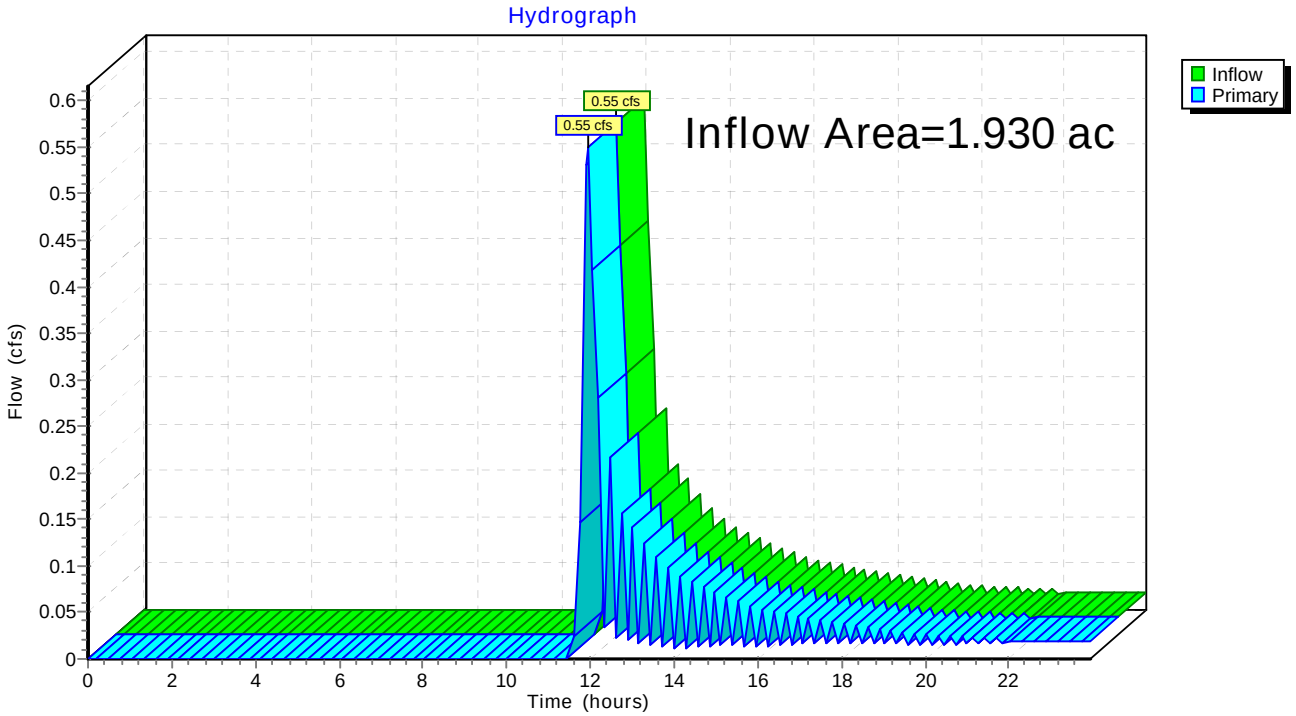
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 0.31" for 1-yr event
Inflow = 0.55 cfs @ 11.94 hrs, Volume= 0.050 af
Primary = 0.55 cfs @ 11.94 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area	Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>0.66" Tc=0.0 min CN=80 Runoff=0.40 cfs 0.020 af
Subcatchment2S: West Ponding Area	Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>0.43" Tc=0.0 min CN=74 Runoff=0.29 cfs 0.015 af
Subcatchment3S: Center Ponding Area	Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>0.43" Tc=0.0 min CN=74 Runoff=0.11 cfs 0.006 af
Subcatchment4S: East Ponding Area	Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>0.43" Tc=0.0 min CN=74 Runoff=0.14 cfs 0.007 af
Subcatchment5S: South Ponding Area	Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>0.66" Tc=0.0 min CN=80 Runoff=0.57 cfs 0.028 af
Subcatchment6S: Area to 6" Culvert	Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>0.66" Tc=0.0 min CN=80 Runoff=0.29 cfs 0.014 af
Pond 2P: 3S PONDING	Peak Elev=575.22' Storage=256 cf Inflow=0.11 cfs 0.006 af Outflow=0.00 cfs 0.000 af
Pond 3P: 5S PONDING	Peak Elev=575.09' Storage=279 cf Inflow=0.86 cfs 0.049 af Outflow=0.65 cfs 0.045 af
Pond 4P: 6S PONDING	Peak Elev=574.52' Storage=223 cf Inflow=0.92 cfs 0.060 af Outflow=0.56 cfs 0.060 af
Pond 5P: 2S PONDING	Peak Elev=575.44' Storage=0 cf Inflow=0.29 cfs 0.015 af Outflow=0.29 cfs 0.015 af
Pond 6P: 4S PONDING	Peak Elev=575.57' Storage=84 cf Inflow=0.14 cfs 0.007 af Outflow=0.05 cfs 0.006 af
Link 1L: Discharge to the North	Inflow=0.40 cfs 0.020 af Primary=0.40 cfs 0.020 af
Link 2L: Discharge to Ellicott Creek	Inflow=0.56 cfs 0.060 af Primary=0.56 cfs 0.060 af
Link 3L: Total Site Flow	Inflow=0.90 cfs 0.080 af Primary=0.90 cfs 0.080 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.091 af Average Runoff Depth = 0.5
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 a

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

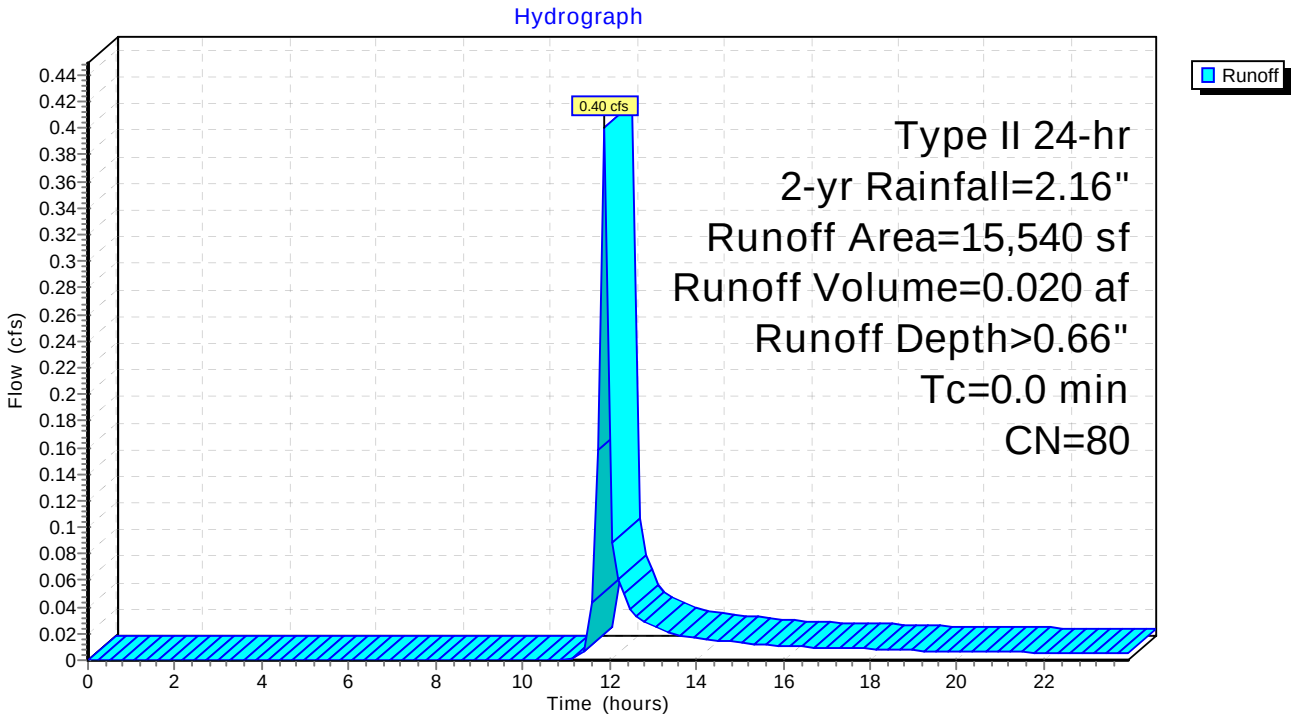
Summary for Subcatchment 1S: North Ponding Area

Runoff = 0.40 cfs @ 11.89 hrs, Volume= 0.020 af, Depth> 0.66"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

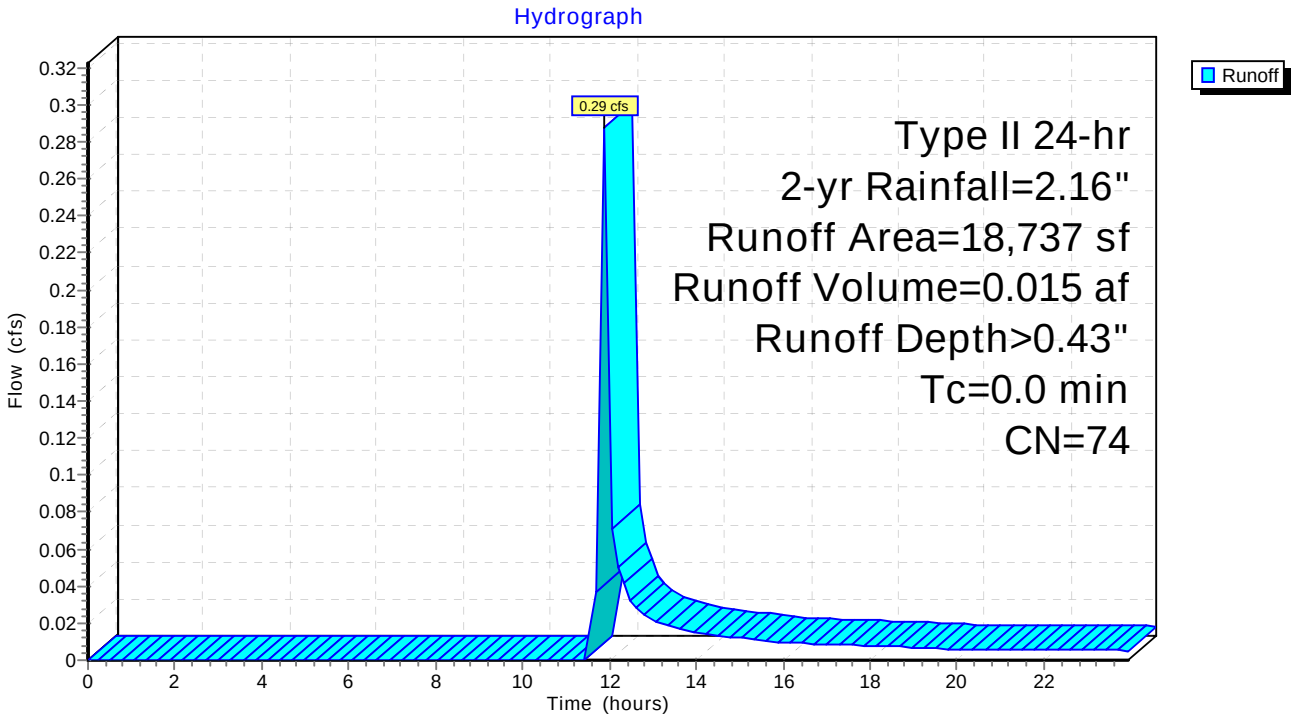
Summary for Subcatchment 2S: West Ponding Area

Runoff = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af, Depth> 0.43"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

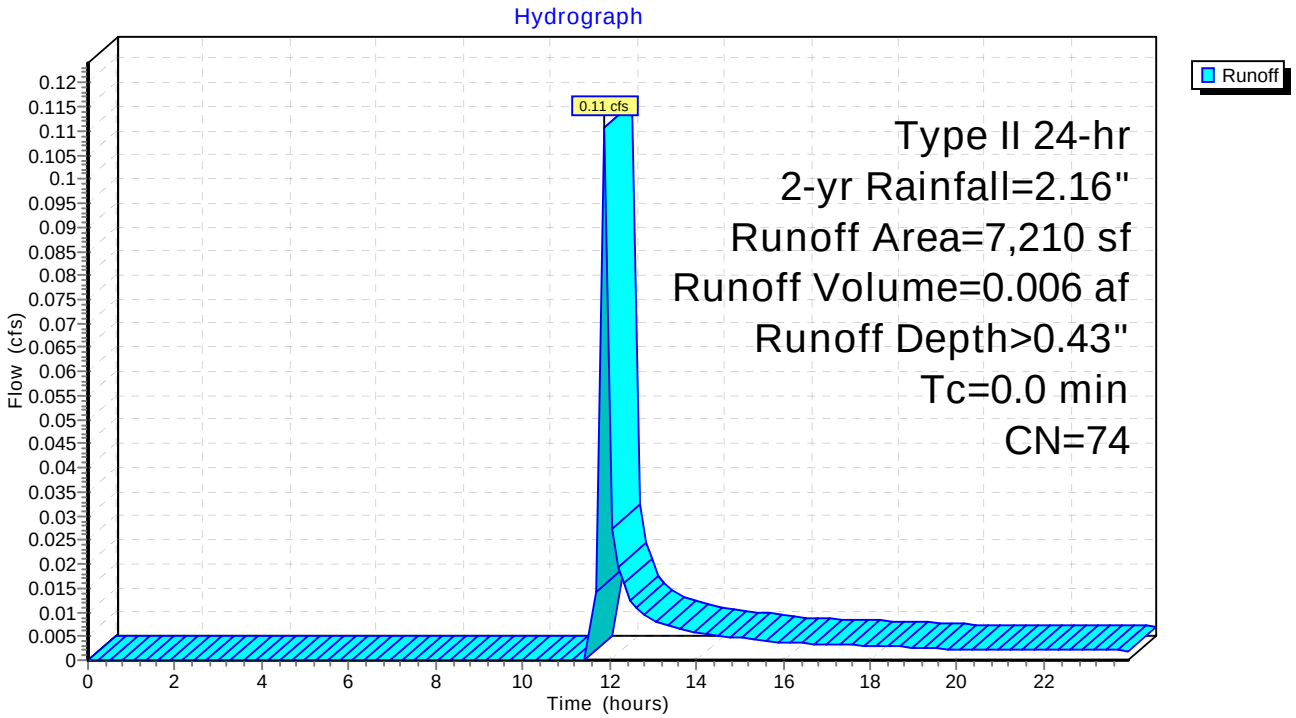
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.11 cfs @ 11.90 hrs, Volume= 0.006 af, Depth> 0.43"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

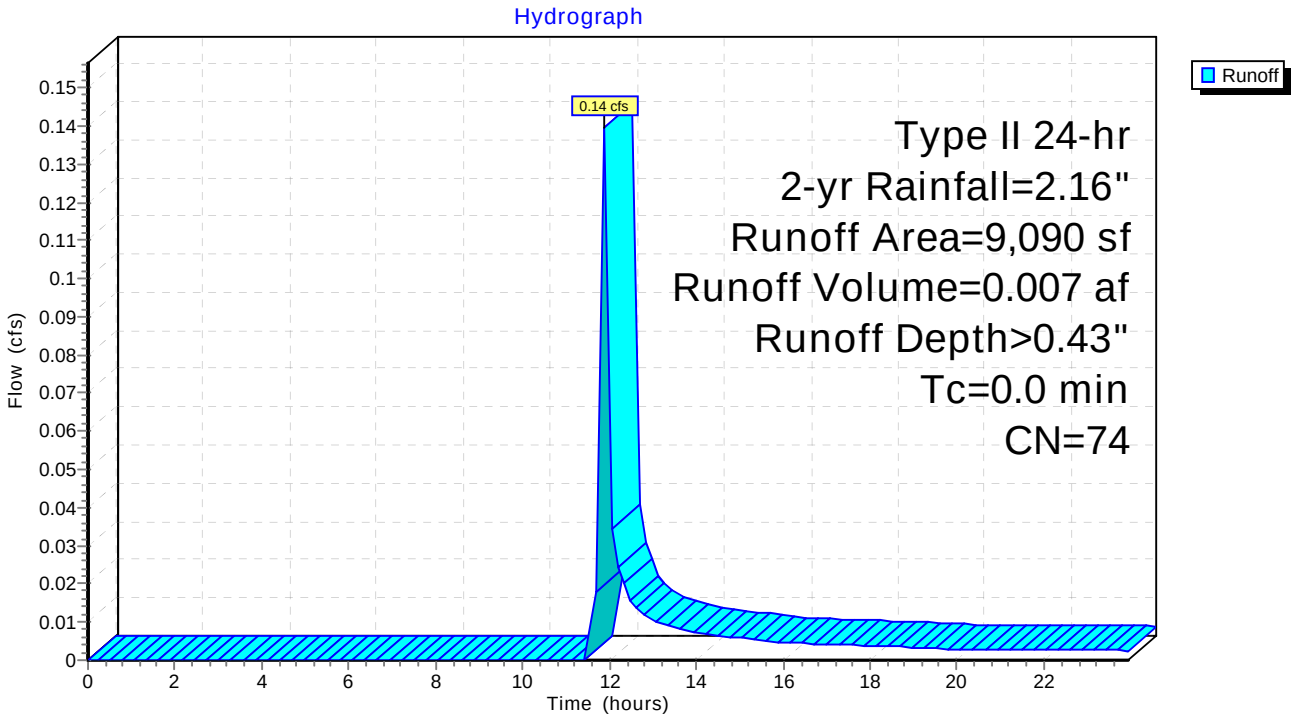
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.14 cfs @ 11.90 hrs, Volume= 0.007 af, Depth> 0.43"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

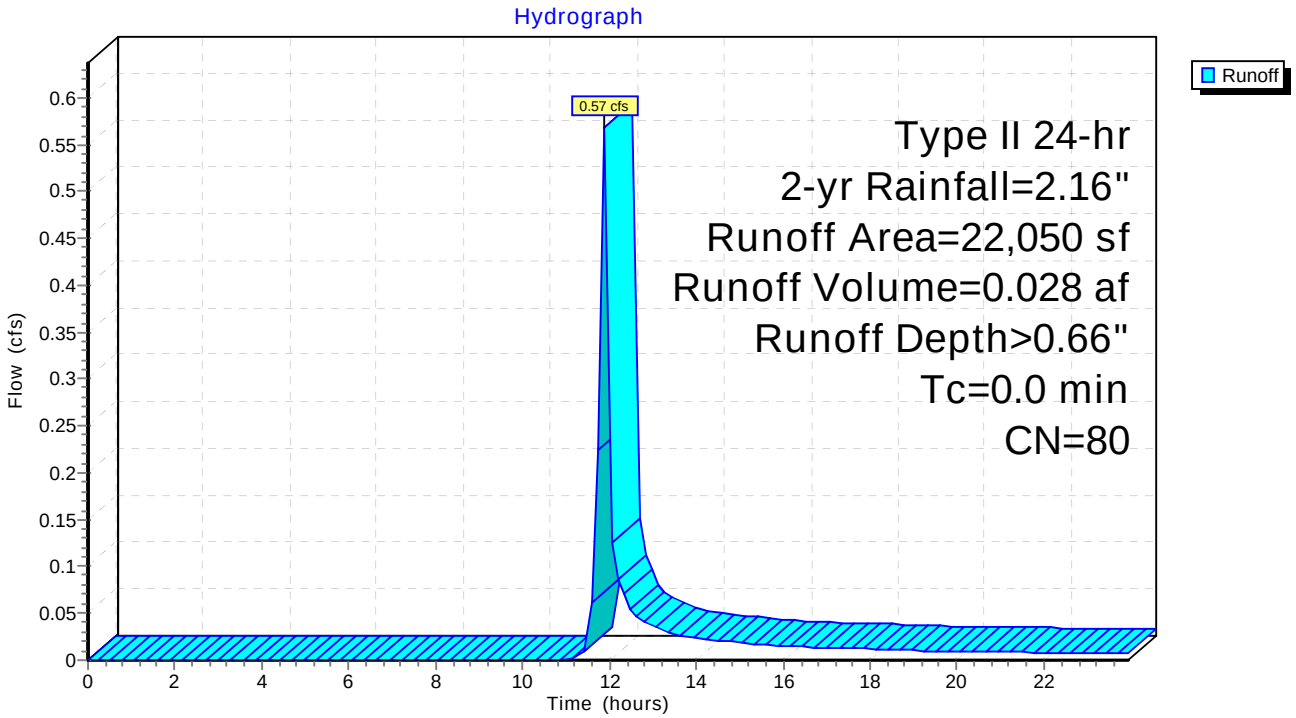
Summary for Subcatchment 5S: South Ponding Area

Runoff = 0.57 cfs @ 11.89 hrs, Volume= 0.028 af, Depth> 0.66"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

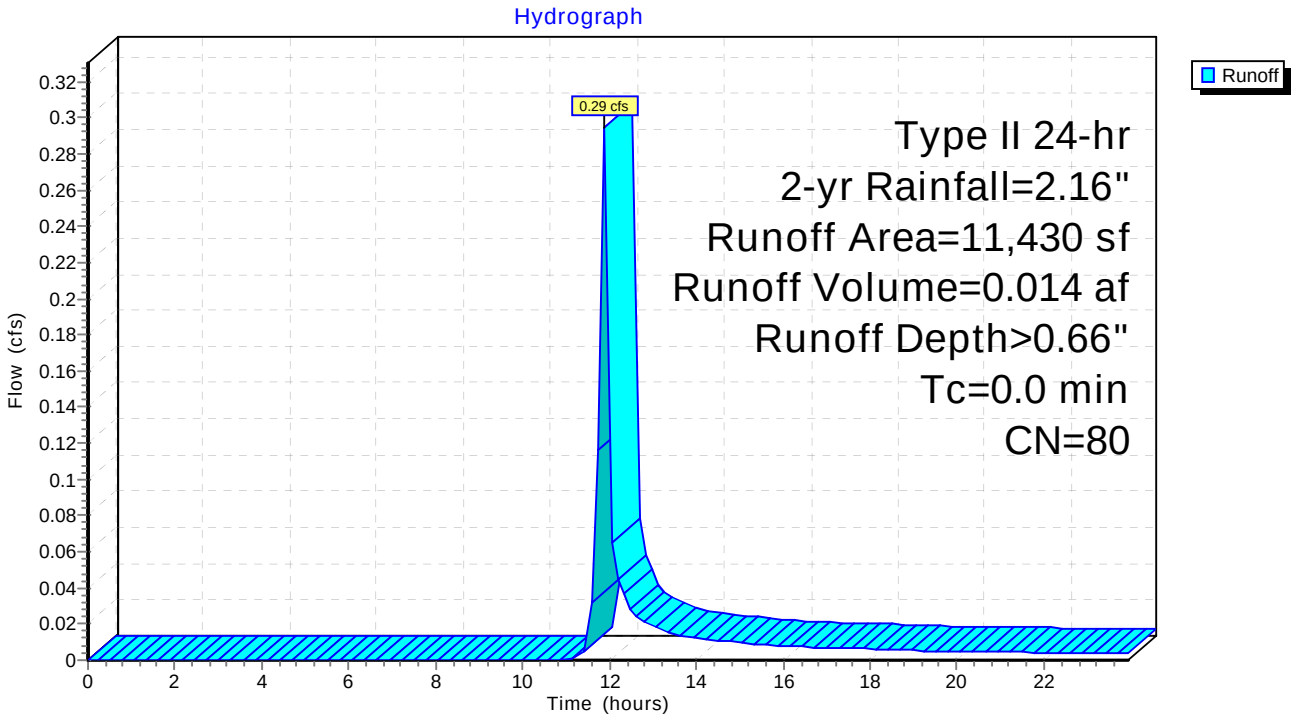
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 0.29 cfs @ 11.89 hrs, Volume= 0.014 af, Depth> 0.66"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 0.43" for 2-yr event
Inflow = 0.11 cfs @ 11.90 hrs, Volume= 0.006 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.22' @ 23.94 hrs Surf.Area= 2,165 sf Storage= 256 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

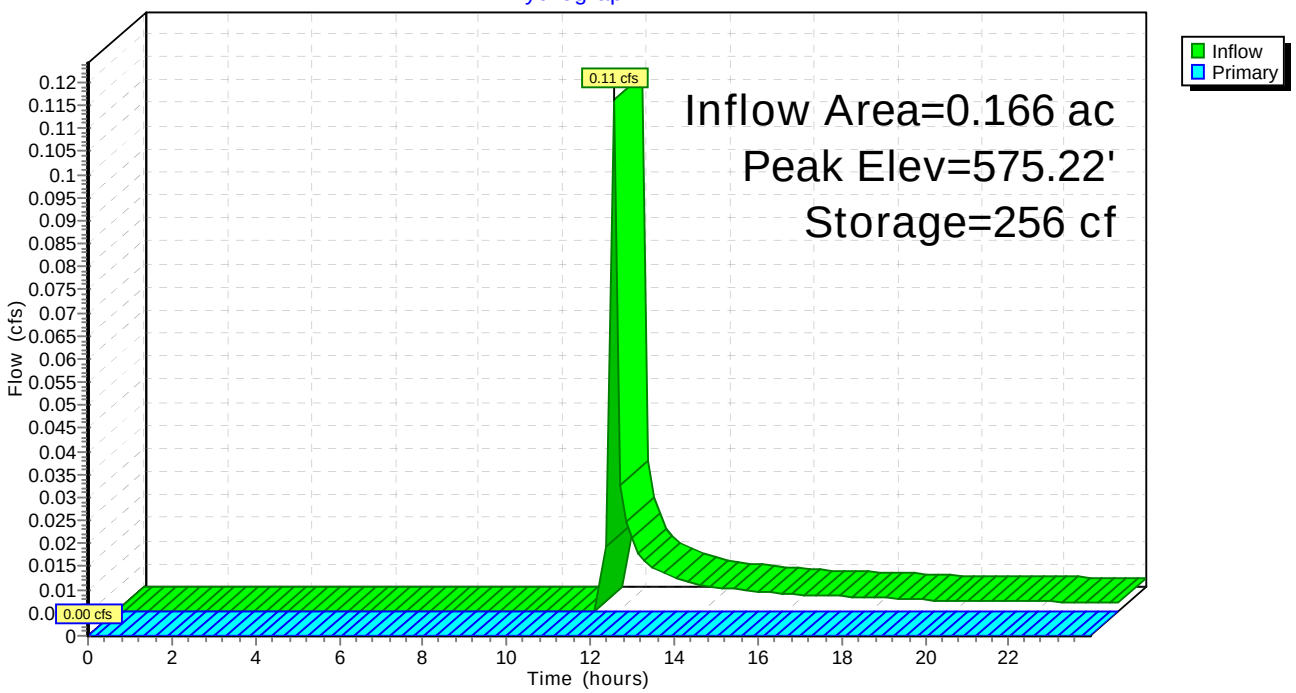
Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.94' TW=574.82' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 0.45" for 2-yr event
Inflow = 0.86 cfs @ 11.90 hrs, Volume= 0.049 af
Outflow = 0.65 cfs @ 11.96 hrs, Volume= 0.045 af, Atten= 24%, Lag= 3.7 min
Primary = 0.65 cfs @ 11.96 hrs, Volume= 0.045 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.09' @ 11.96 hrs Surf.Area= 3,162 sf Storage= 279 cf

Plug-Flow detention time= 54.2 min calculated for 0.045 af (92% of inflow)
Center-of-Mass det. time= 16.4 min (891.1 - 874.7)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

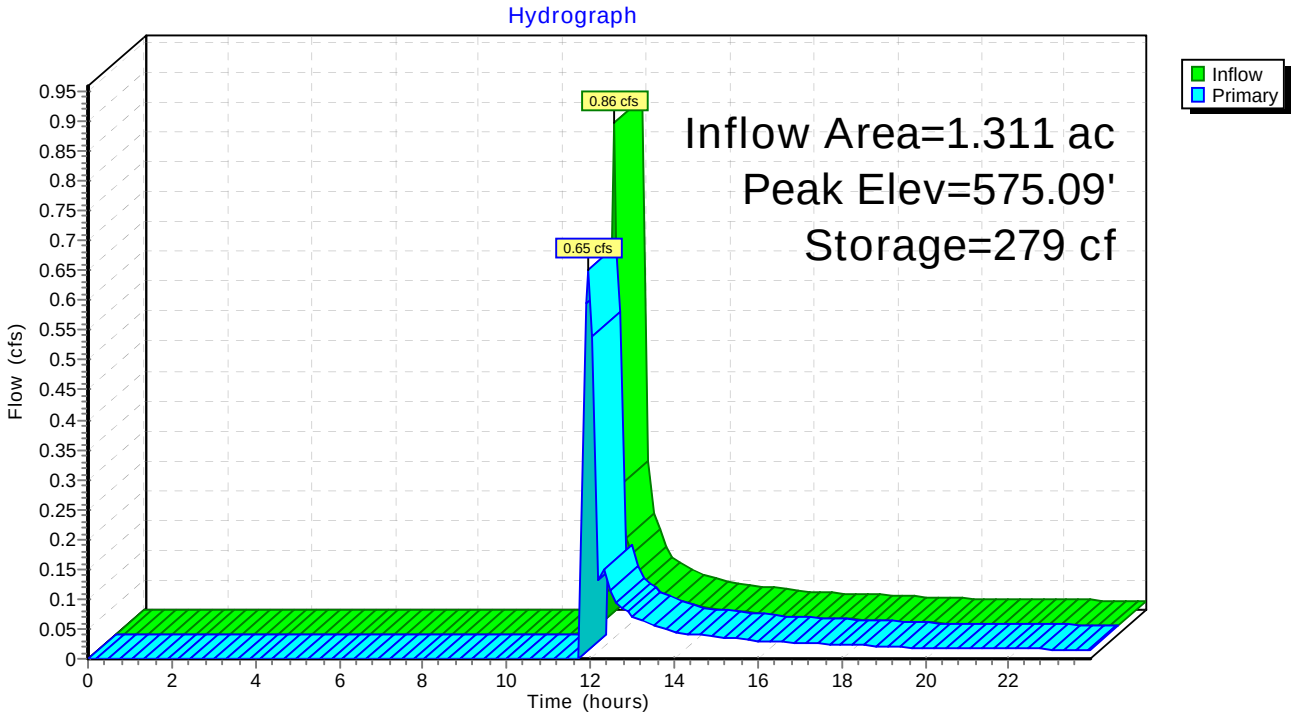
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.57 cfs @ 11.96 hrs HW=575.08' TW=574.42' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Weir Controls 0.57 cfs @ 0.67 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.46" for 2-yr event
Inflow = 0.92 cfs @ 11.93 hrs, Volume= 0.060 af
Outflow = 0.56 cfs @ 12.06 hrs, Volume= 0.060 af, Atten= 39%, Lag= 7.6 min
Primary = 0.56 cfs @ 12.06 hrs, Volume= 0.060 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.52' @ 12.06 hrs Surf.Area= 852 sf Storage= 223 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.6 min (884.3 - 882.7)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

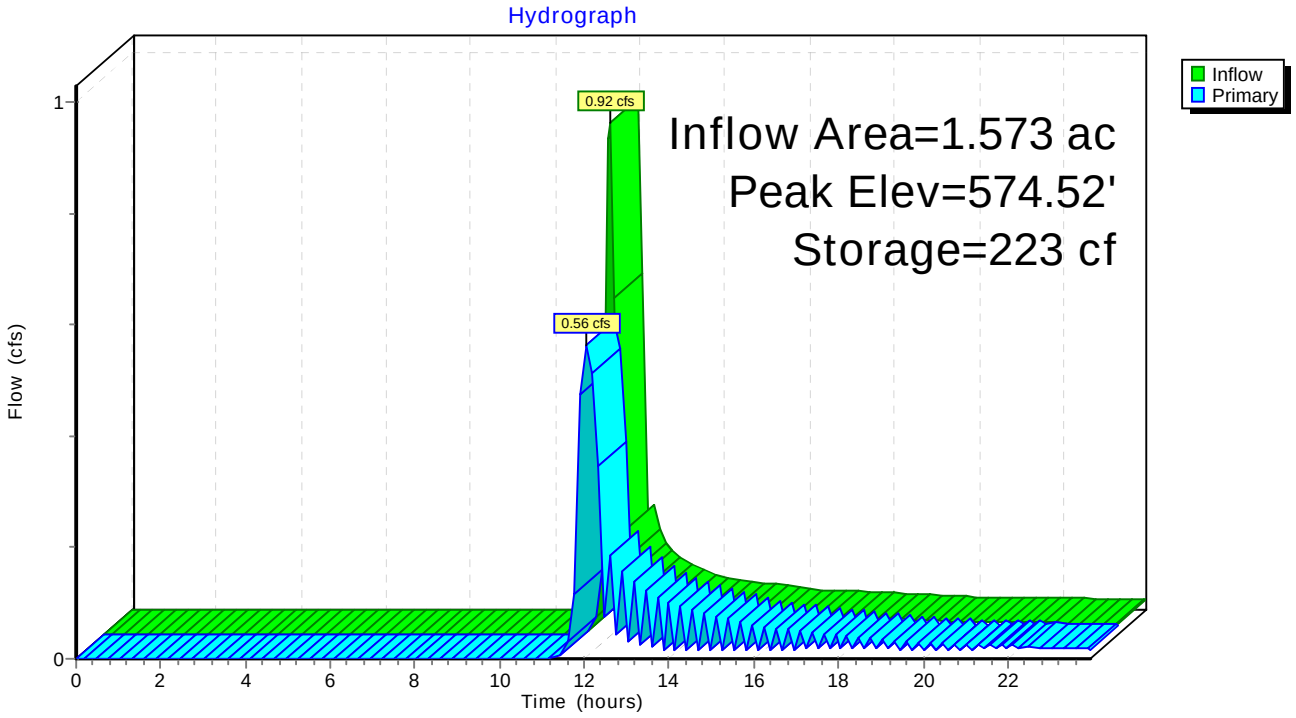
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	6.0" Round 6" CULVERT L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.55 cfs @ 12.06 hrs HW=574.50' TW=0.00' (Dynamic Tailwater)
1=6" CULVERT (Inlet Controls 0.55 cfs @ 2.83 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 0.43" for 2-yr event
Inflow = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af
Outflow = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

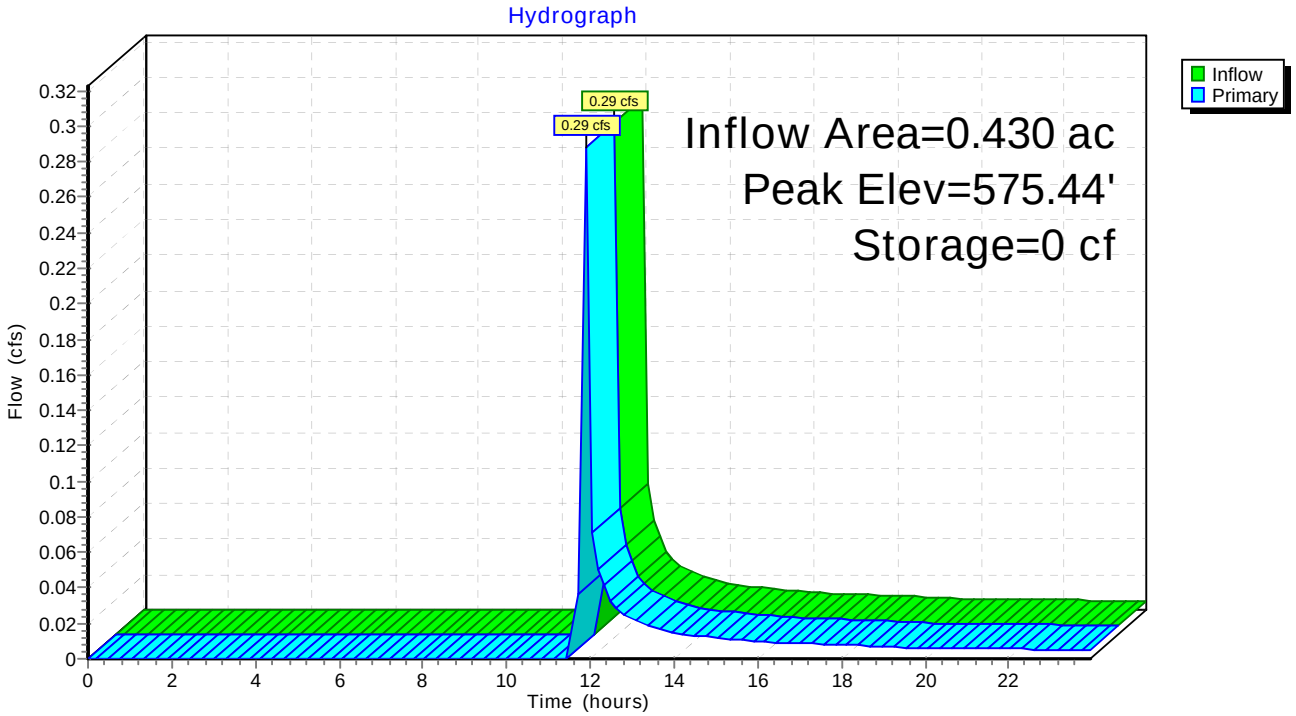
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.90 hrs HW=575.44' TW=575.08' (Dynamic Tailwater)
↑1=Sharp-Crested Rectangular Weir (Passes 0.00 cfs of 14.62 cfs potential flow)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 0.43" for 2-yr event
Inflow = 0.14 cfs @ 11.90 hrs, Volume= 0.007 af
Outflow = 0.05 cfs @ 12.06 hrs, Volume= 0.006 af, Atten= 62%, Lag= 9.6 min
Primary = 0.05 cfs @ 12.06 hrs, Volume= 0.006 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.57' @ 12.04 hrs Surf.Area= 1,294 sf Storage= 84 cf

Plug-Flow detention time= 153.6 min calculated for 0.006 af (77% of inflow)
Center-of-Mass det. time= 54.2 min (938.2 - 883.9)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

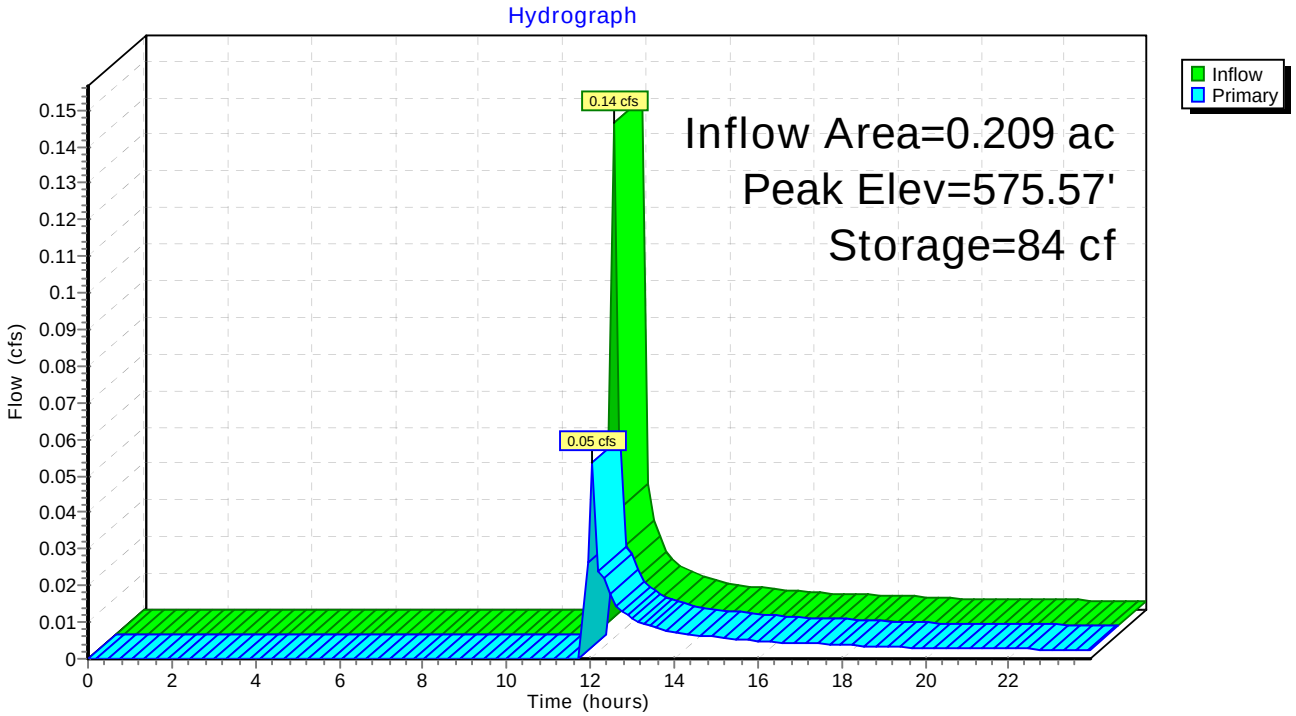
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.05 cfs @ 12.06 hrs HW=575.57' TW=575.08' (Dynamic Tailwater)
↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.05 cfs @ 0.30 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING



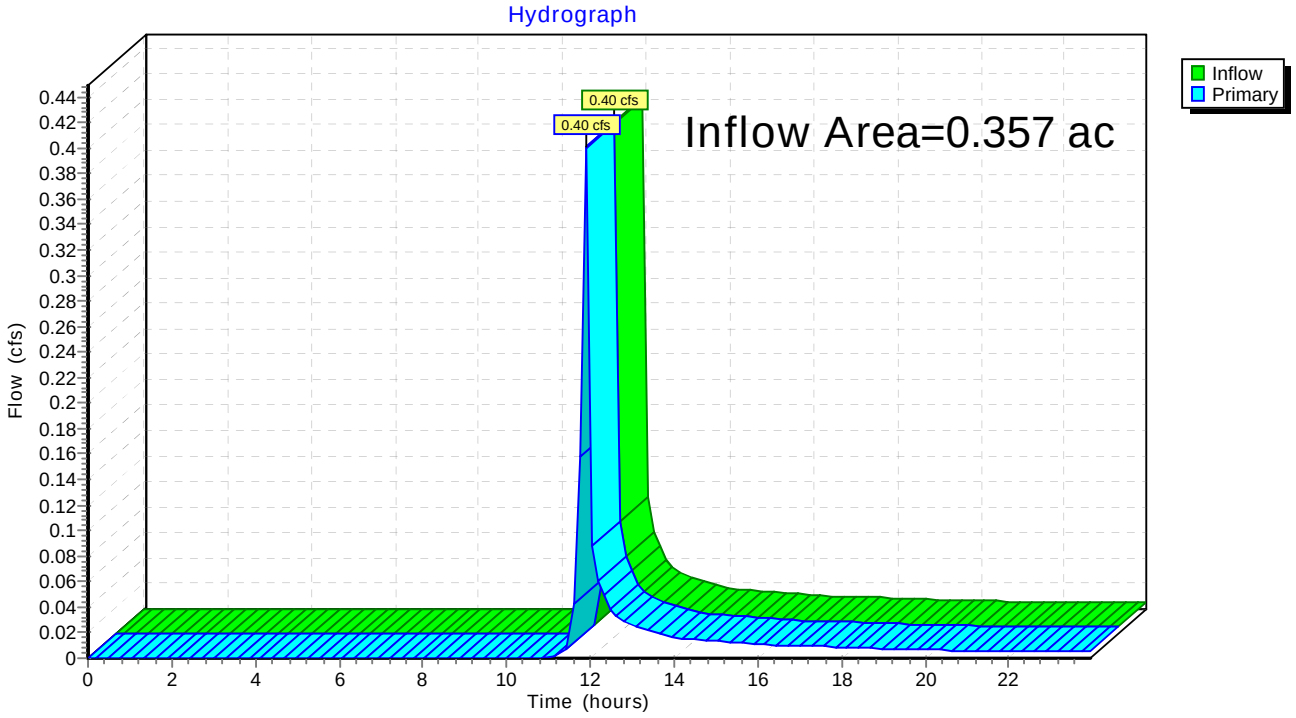
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 0.66" for 2-yr event
Inflow = 0.40 cfs @ 11.89 hrs, Volume= 0.020 af
Primary = 0.40 cfs @ 11.89 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



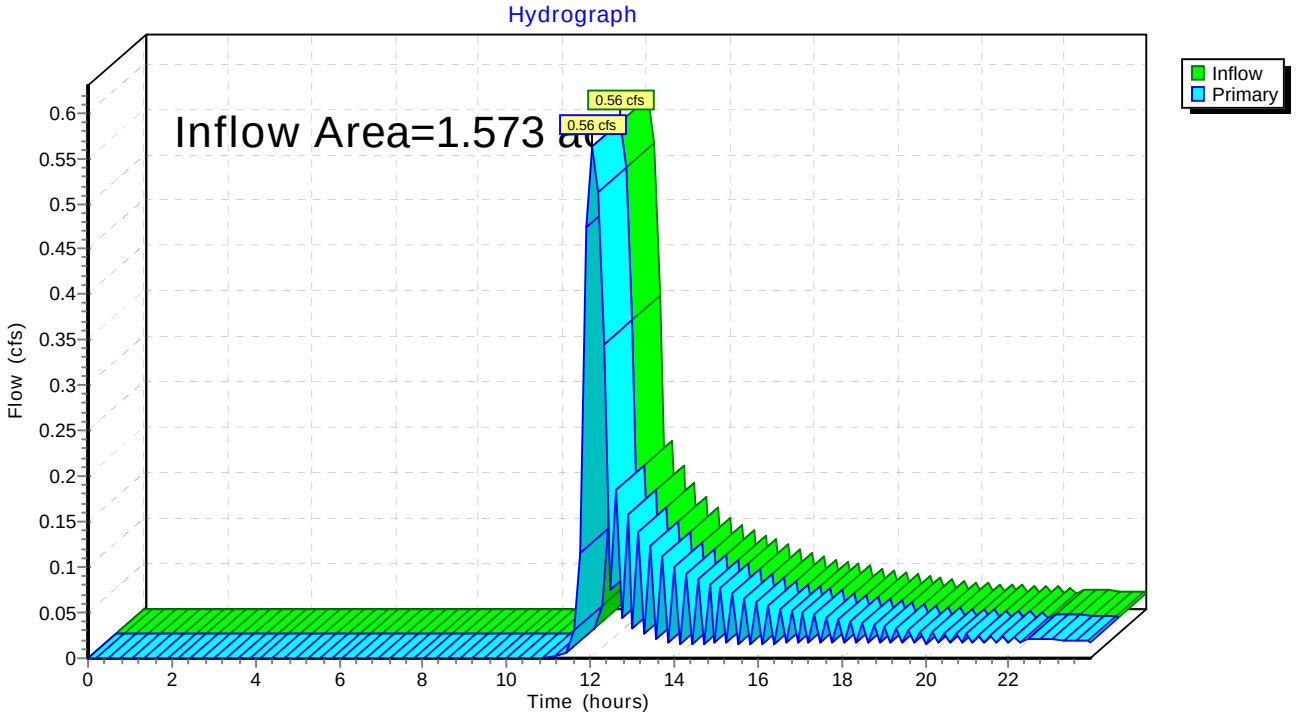
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.46" for 2-yr event
Inflow = 0.56 cfs @ 12.06 hrs, Volume= 0.060 af
Primary = 0.56 cfs @ 12.06 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



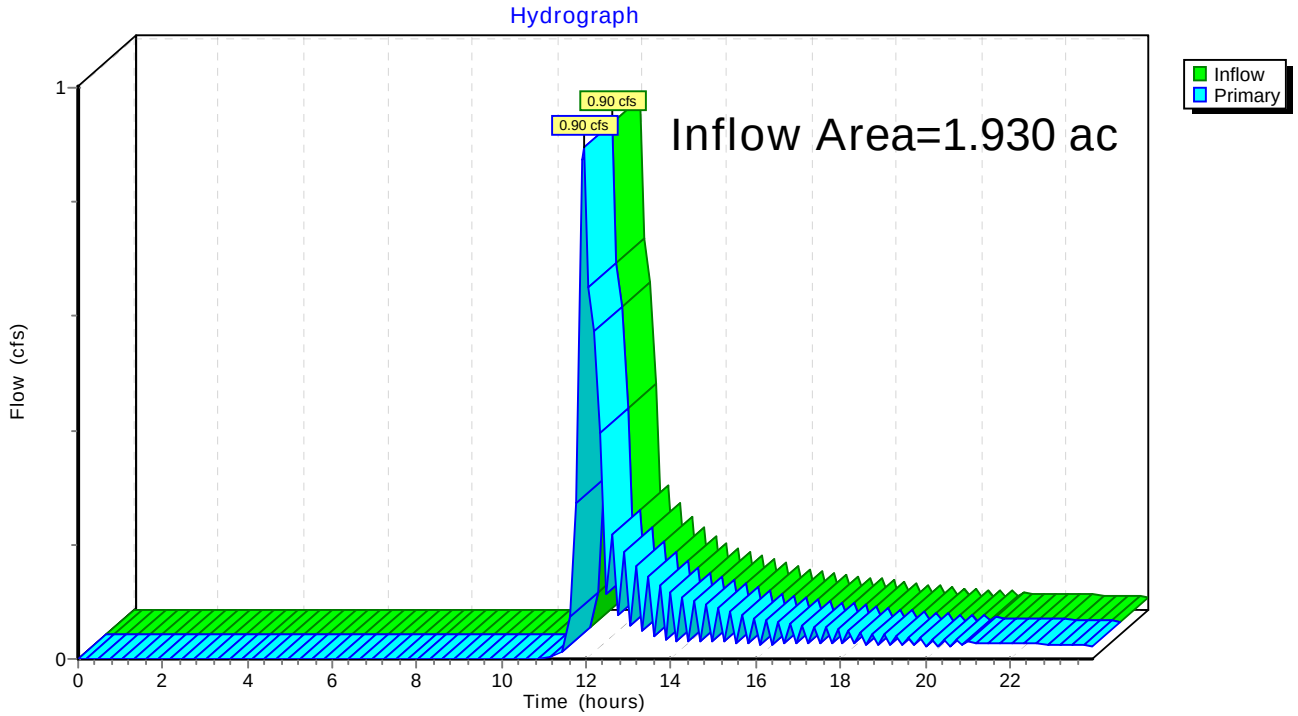
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 0.49" for 2-yr event
Inflow = 0.90 cfs @ 11.93 hrs, Volume= 0.080 af
Primary = 0.90 cfs @ 11.93 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area	Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>1.27" Tc=0.0 min CN=80 Runoff=0.78 cfs 0.038 af
Subcatchment2S: West Ponding Area	Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>0.92" Tc=0.0 min CN=74 Runoff=0.67 cfs 0.033 af
Subcatchment3S: Center Ponding Area	Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>0.92" Tc=0.0 min CN=74 Runoff=0.26 cfs 0.013 af
Subcatchment4S: East Ponding Area	Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>0.92" Tc=0.0 min CN=74 Runoff=0.33 cfs 0.016 af
Subcatchment5S: South Ponding Area	Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>1.27" Tc=0.0 min CN=80 Runoff=1.10 cfs 0.053 af
Subcatchment6S: Area to 6" Culvert	Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>1.27" Tc=0.0 min CN=80 Runoff=0.57 cfs 0.028 af
Pond 2P: 3S PONDING	Peak Elev=575.34' Storage=553 cf Inflow=0.26 cfs 0.013 af Outflow=0.00 cfs 0.000 af
Pond 3P: 5S PONDING	Peak Elev=575.13' Storage=408 cf Inflow=2.02 cfs 0.101 af Outflow=1.65 cfs 0.097 af
Pond 4P: 6S PONDING	Peak Elev=574.90' Storage=666 cf Inflow=2.20 cfs 0.125 af Outflow=2.30 cfs 0.125 af
Pond 5P: 2S PONDING	Peak Elev=575.44' Storage=0 cf Inflow=0.67 cfs 0.033 af Outflow=0.67 cfs 0.033 af
Pond 6P: 4S PONDING	Peak Elev=575.59' Storage=111 cf Inflow=0.33 cfs 0.016 af Outflow=0.27 cfs 0.014 af
Link 1L: Discharge to the North	Inflow=0.78 cfs 0.038 af Primary=0.78 cfs 0.038 af
Link 2L: Discharge to Ellicott Creek	Inflow=2.30 cfs 0.125 af Primary=2.30 cfs 0.125 af
Link 3L: Total Site Flow	Inflow=2.49 cfs 0.162 af Primary=2.49 cfs 0.162 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.180 af Average Runoff Depth = 1.1
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 a

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

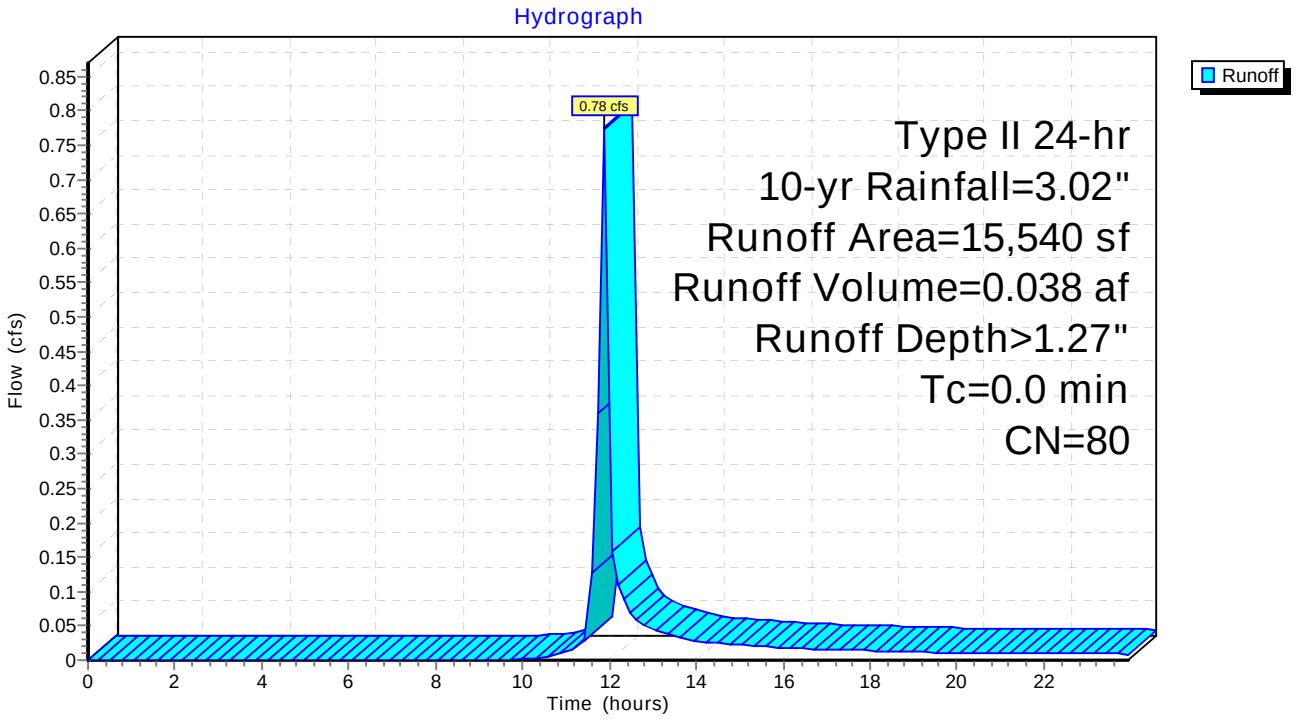
Summary for Subcatchment 1S: North Ponding Area

Runoff = 0.78 cfs @ 11.89 hrs, Volume= 0.038 af, Depth> 1.27"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

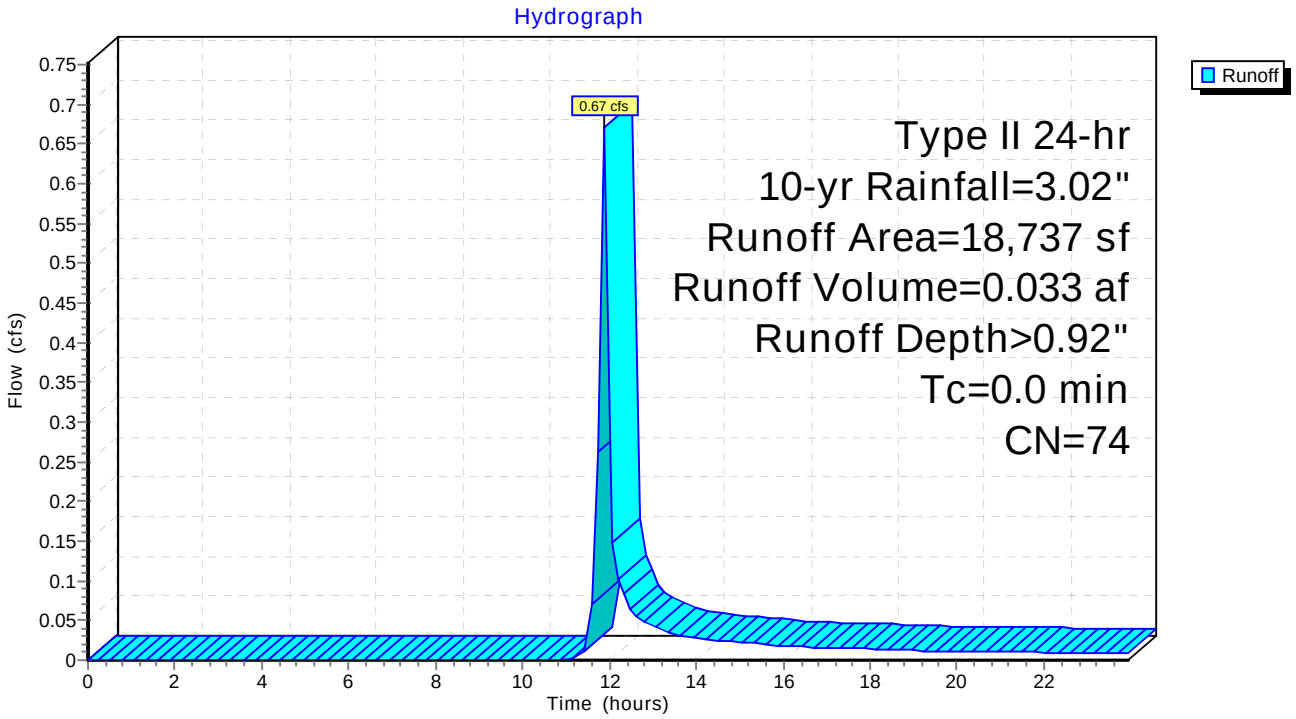
Summary for Subcatchment 2S: West Ponding Area

Runoff = 0.67 cfs @ 11.89 hrs, Volume= 0.033 af, Depth> 0.92"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

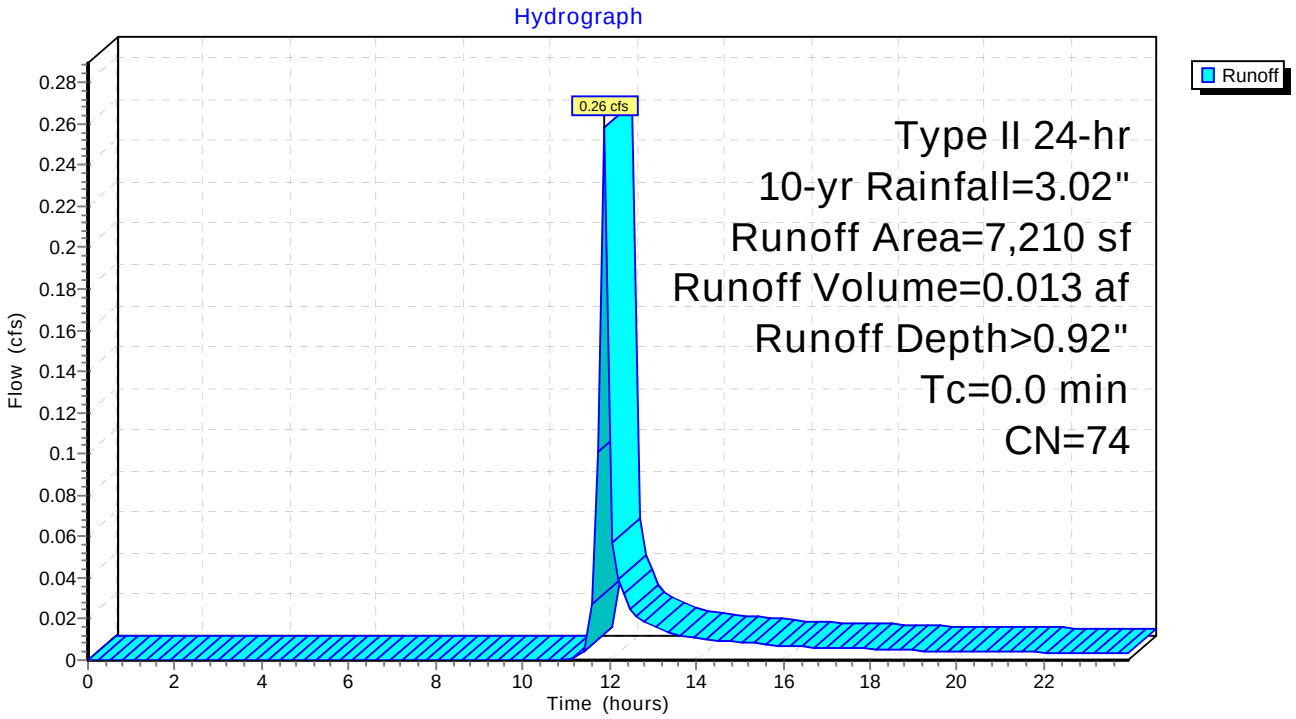
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.26 cfs @ 11.89 hrs, Volume= 0.013 af, Depth> 0.92"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

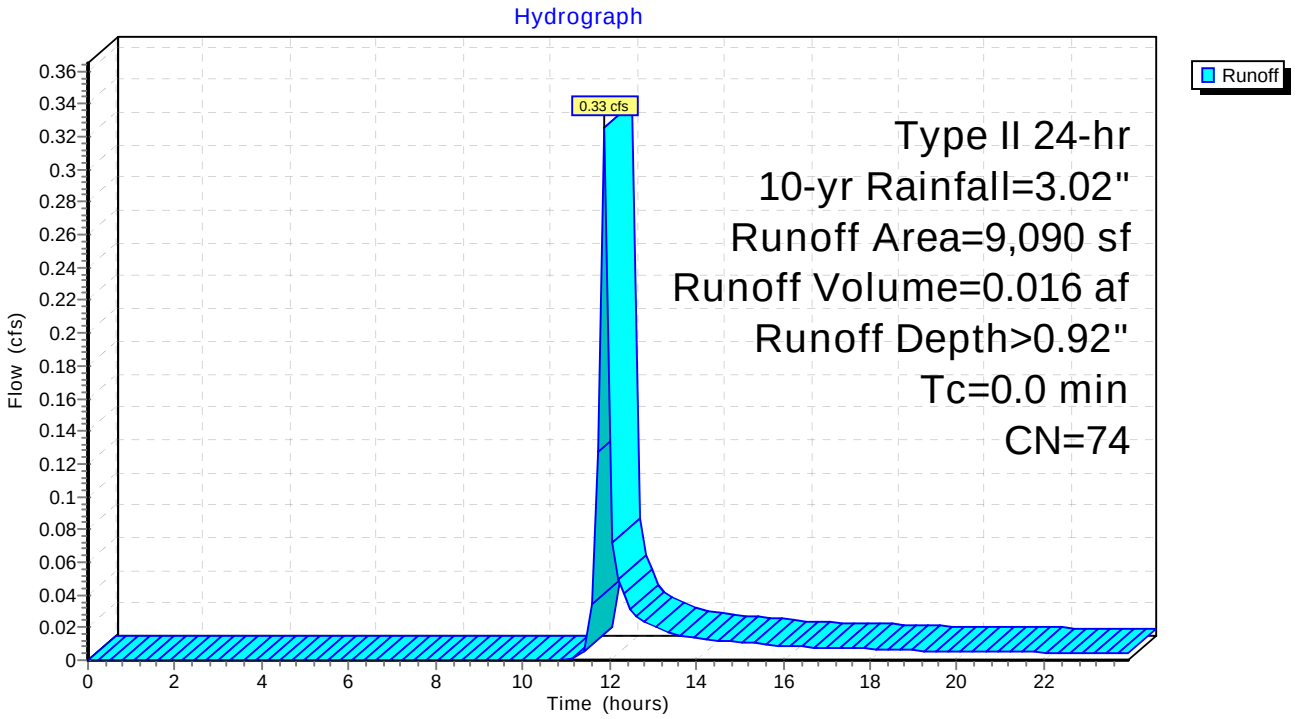
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.33 cfs @ 11.89 hrs, Volume= 0.016 af, Depth> 0.92"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

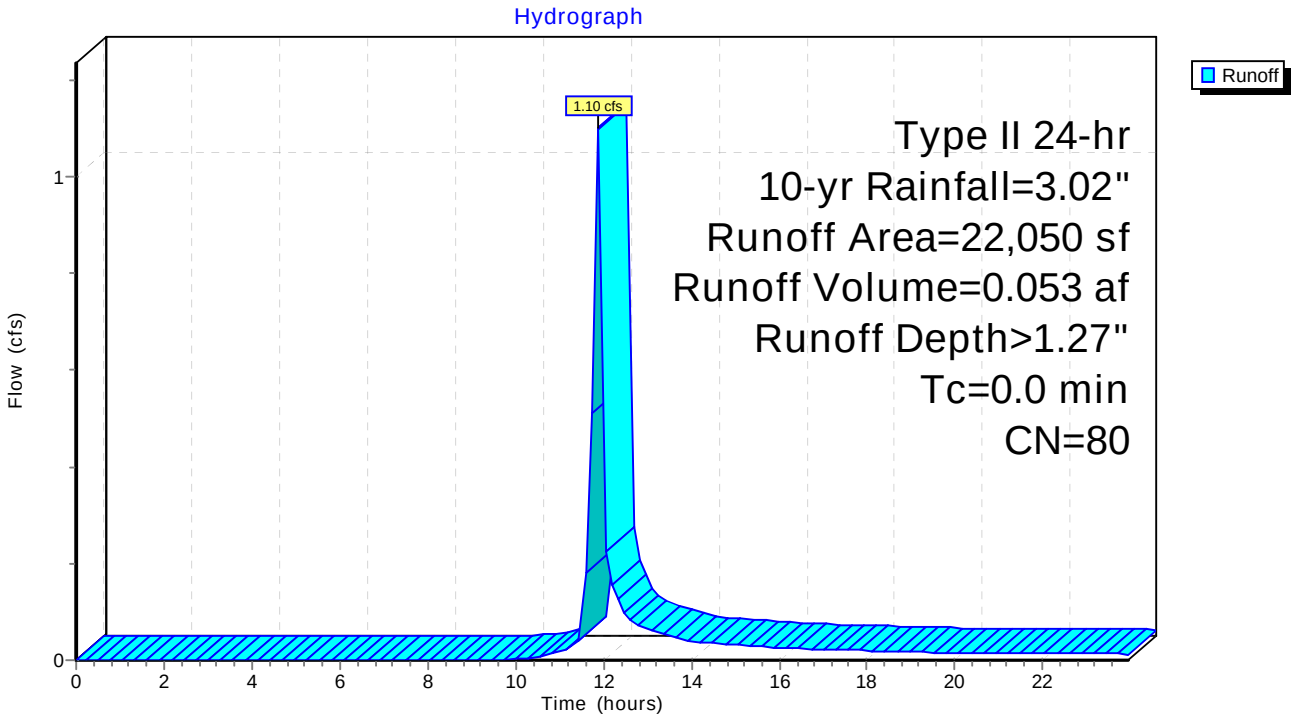
Summary for Subcatchment 5S: South Ponding Area

Runoff = 1.10 cfs @ 11.89 hrs, Volume= 0.053 af, Depth> 1.27"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

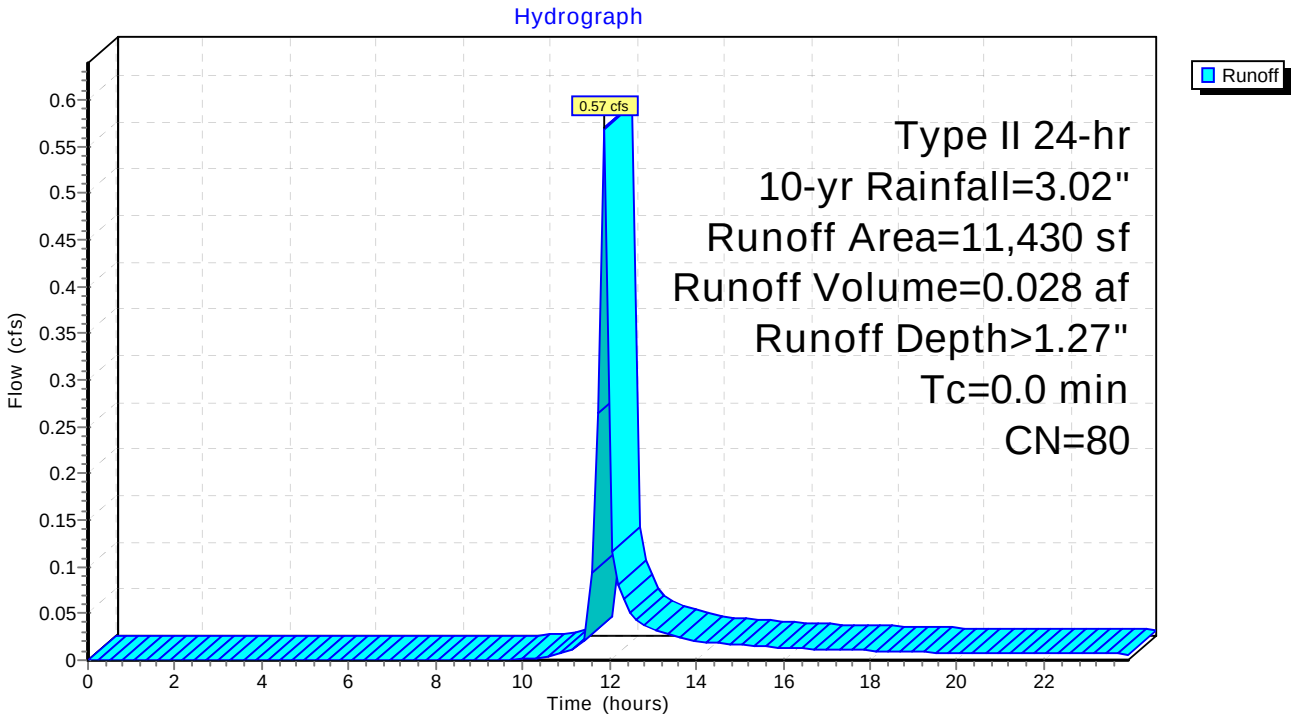
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 0.57 cfs @ 11.89 hrs, Volume= 0.028 af, Depth> 1.27"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-yr event
Inflow = 0.26 cfs @ 11.89 hrs, Volume= 0.013 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.34' @ 23.94 hrs Surf.Area= 3,187 sf Storage= 553 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

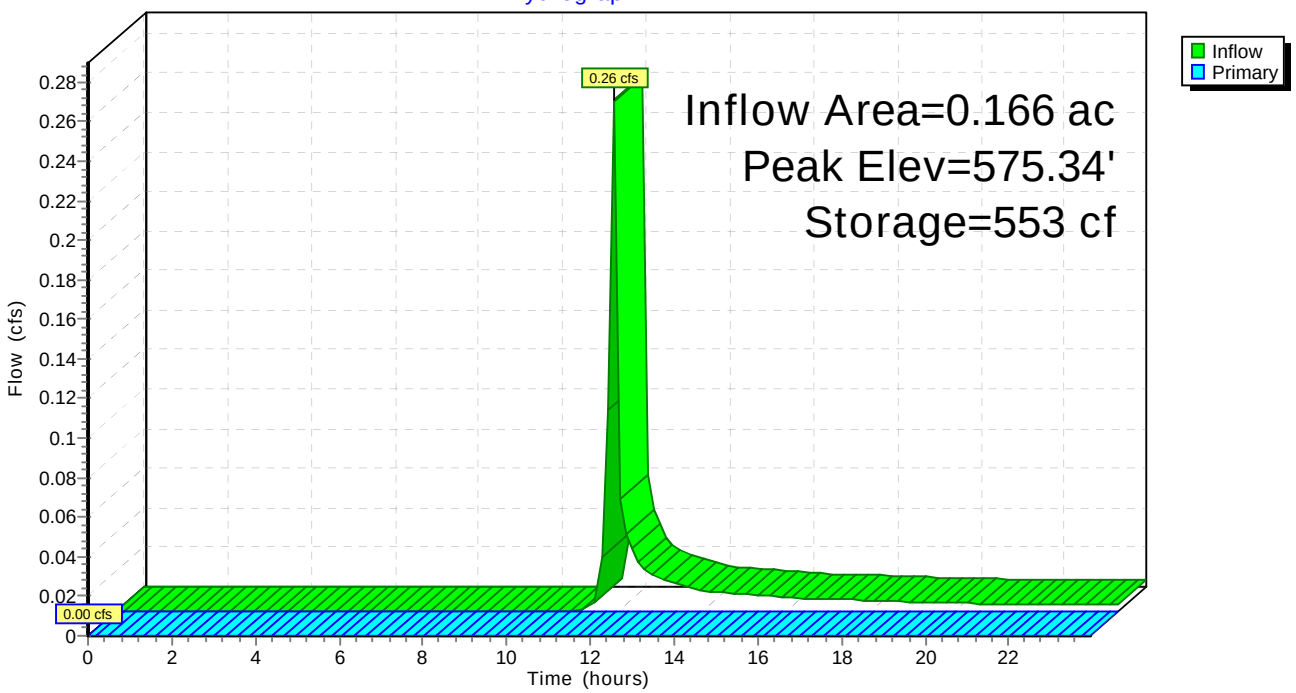
Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.94' TW=574.82' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-yr event
Inflow = 2.02 cfs @ 11.89 hrs, Volume= 0.101 af
Outflow = 1.65 cfs @ 11.93 hrs, Volume= 0.097 af, Atten= 18%, Lag= 2.0 min
Primary = 1.65 cfs @ 11.93 hrs, Volume= 0.097 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.13' @ 11.93 hrs Surf.Area= 4,023 sf Storage= 408 cf

Plug-Flow detention time= 28.9 min calculated for 0.096 af (96% of inflow)
Center-of-Mass det. time= 8.9 min (858.2 - 849.3)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

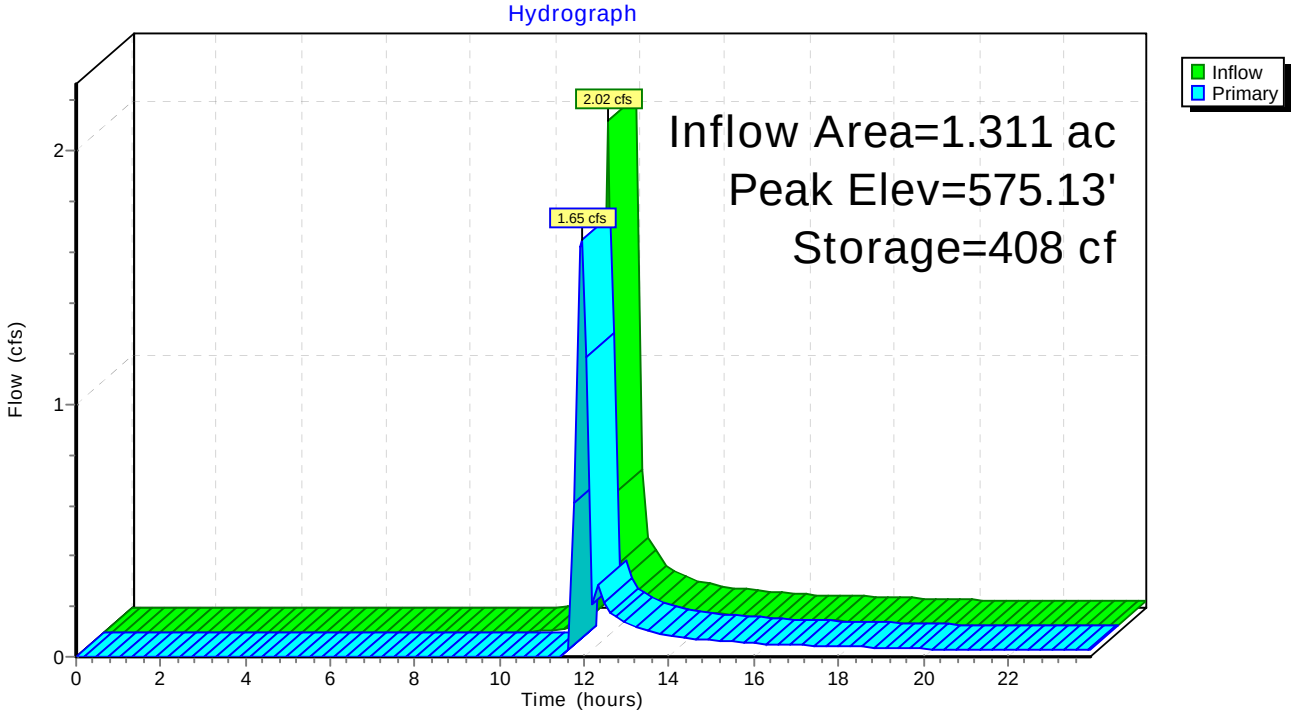
Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=1.53 cfs @ 11.93 hrs HW=575.12' TW=574.83' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Weir Controls 1.53 cfs @ 0.94 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.95" for 10-yr event
Inflow = 2.20 cfs @ 11.91 hrs, Volume= 0.125 af
Outflow = 2.30 cfs @ 12.04 hrs, Volume= 0.125 af, Atten= 0%, Lag= 7.3 min
Primary = 2.30 cfs @ 12.04 hrs, Volume= 0.125 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.90' @ 12.00 hrs Surf.Area= 1,475 sf Storage= 666 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.9 min (856.4 - 853.5)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

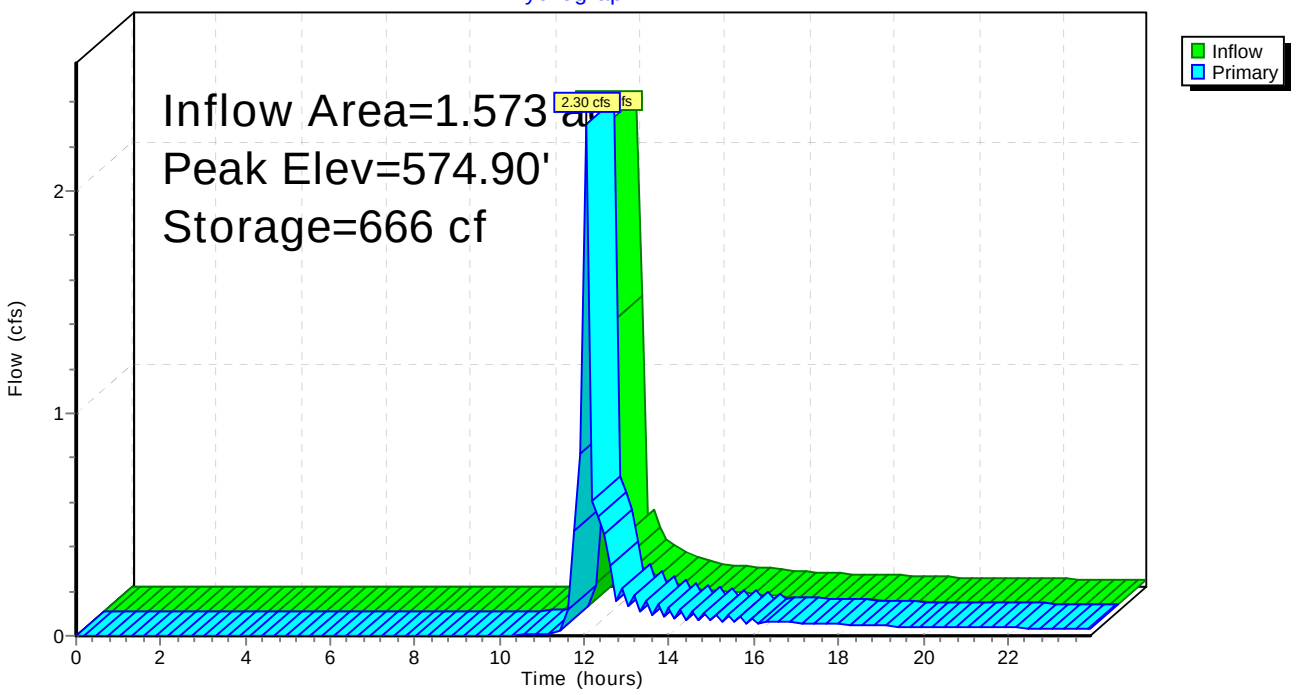
Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	6.0" Round 6" CULVERT L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.23 cfs @ 12.04 hrs HW=574.88' TW=0.00' (Dynamic Tailwater)
1=6" CULVERT (Inlet Controls 0.72 cfs @ 3.67 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 1.51 cfs @ 0.93 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-yr event
Inflow = 0.67 cfs @ 11.89 hrs, Volume= 0.033 af
Outflow = 0.67 cfs @ 11.89 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 11.89 hrs, Volume= 0.033 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

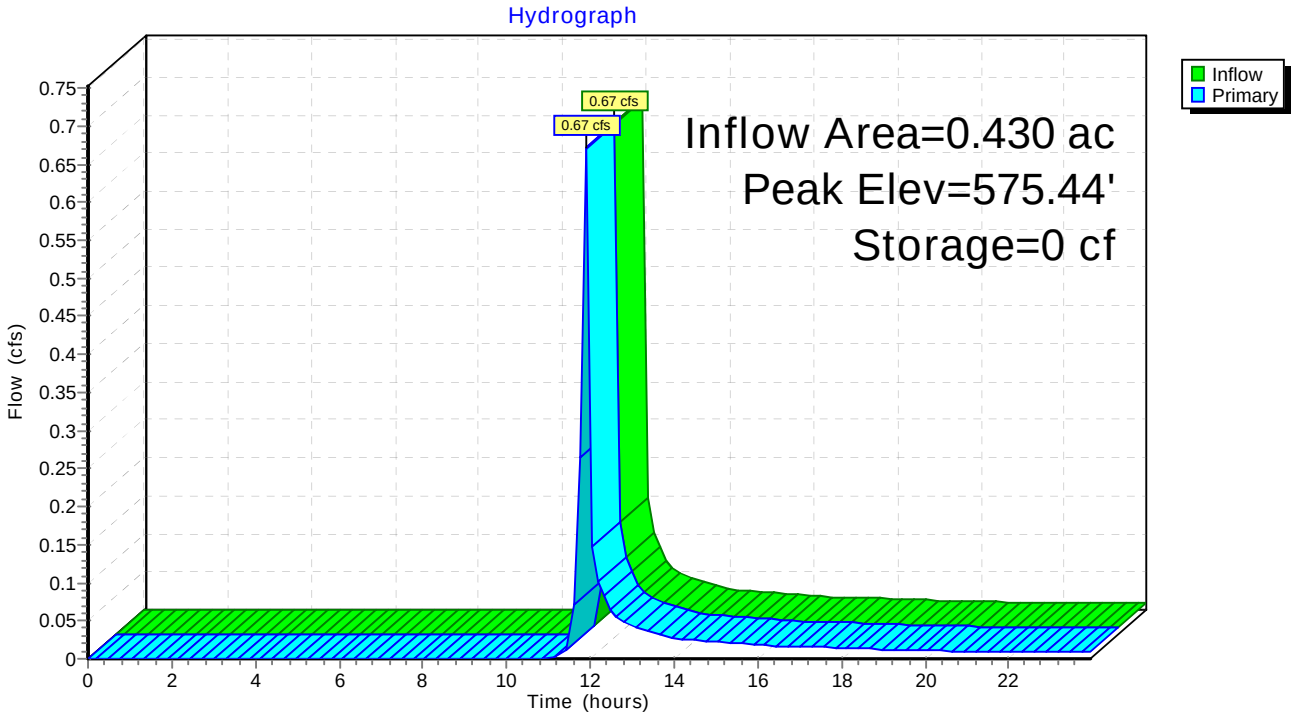
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.89 hrs HW=575.44' TW=575.12' (Dynamic Tailwater)
↑1=Sharp-Crested Rectangular Weir (Passes 0.00 cfs of 14.36 cfs potential flow)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-yr event
Inflow = 0.33 cfs @ 11.89 hrs, Volume= 0.016 af
Outflow = 0.27 cfs @ 11.94 hrs, Volume= 0.014 af, Atten= 18%, Lag= 2.7 min
Primary = 0.27 cfs @ 11.94 hrs, Volume= 0.014 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.59' @ 11.95 hrs Surf.Area= 1,487 sf Storage= 111 cf

Plug-Flow detention time= 74.0 min calculated for 0.014 af (89% of inflow)
Center-of-Mass det. time= 21.0 min (877.9 - 856.9)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

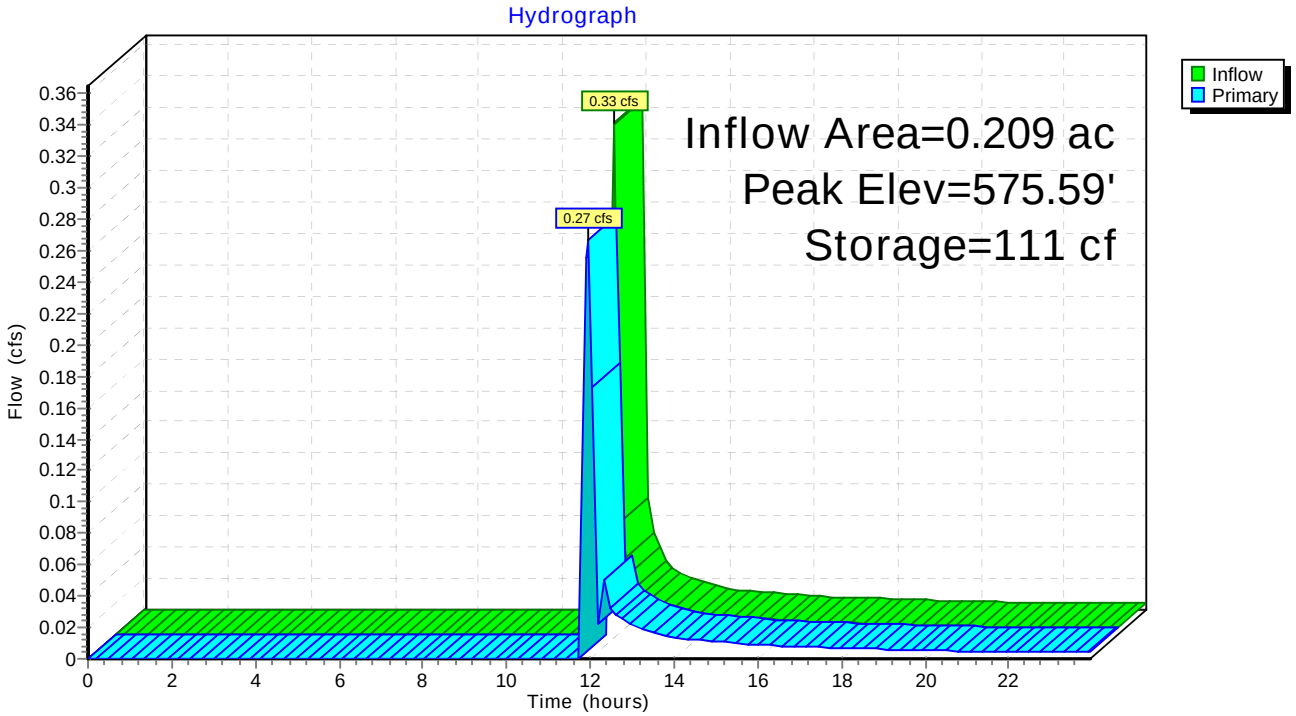
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.23 cfs @ 11.94 hrs HW=575.58' TW=575.12' (Dynamic Tailwater)
↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.23 cfs @ 0.50 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING



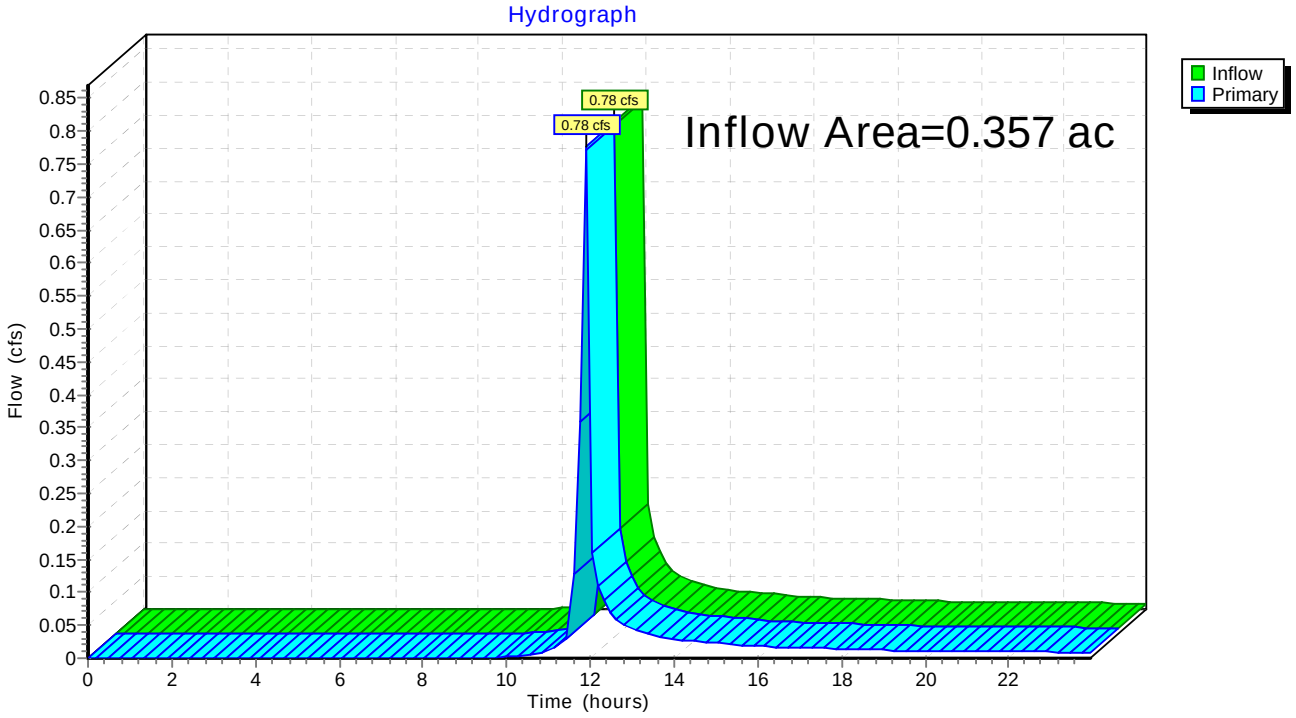
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 1.27" for 10-yr event
Inflow = 0.78 cfs @ 11.89 hrs, Volume= 0.038 af
Primary = 0.78 cfs @ 11.89 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



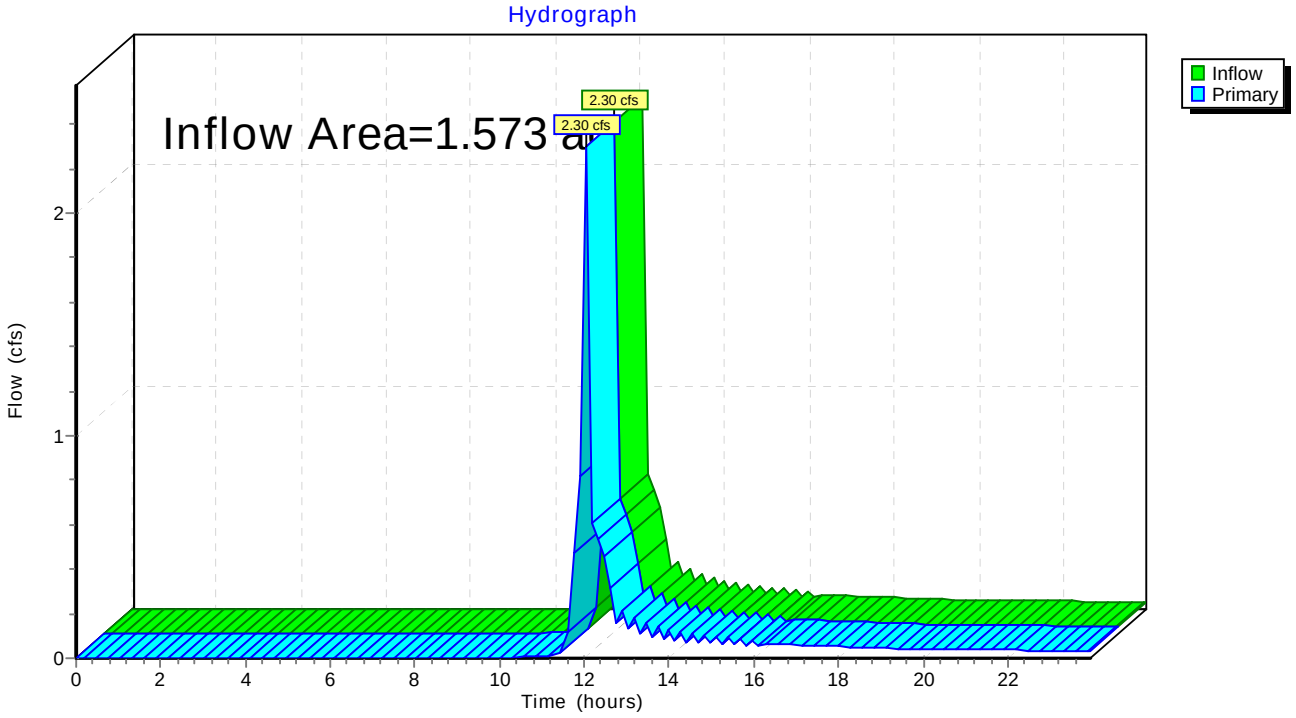
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.95" for 10-yr event
Inflow = 2.30 cfs @ 12.04 hrs, Volume= 0.125 af
Primary = 2.30 cfs @ 12.04 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



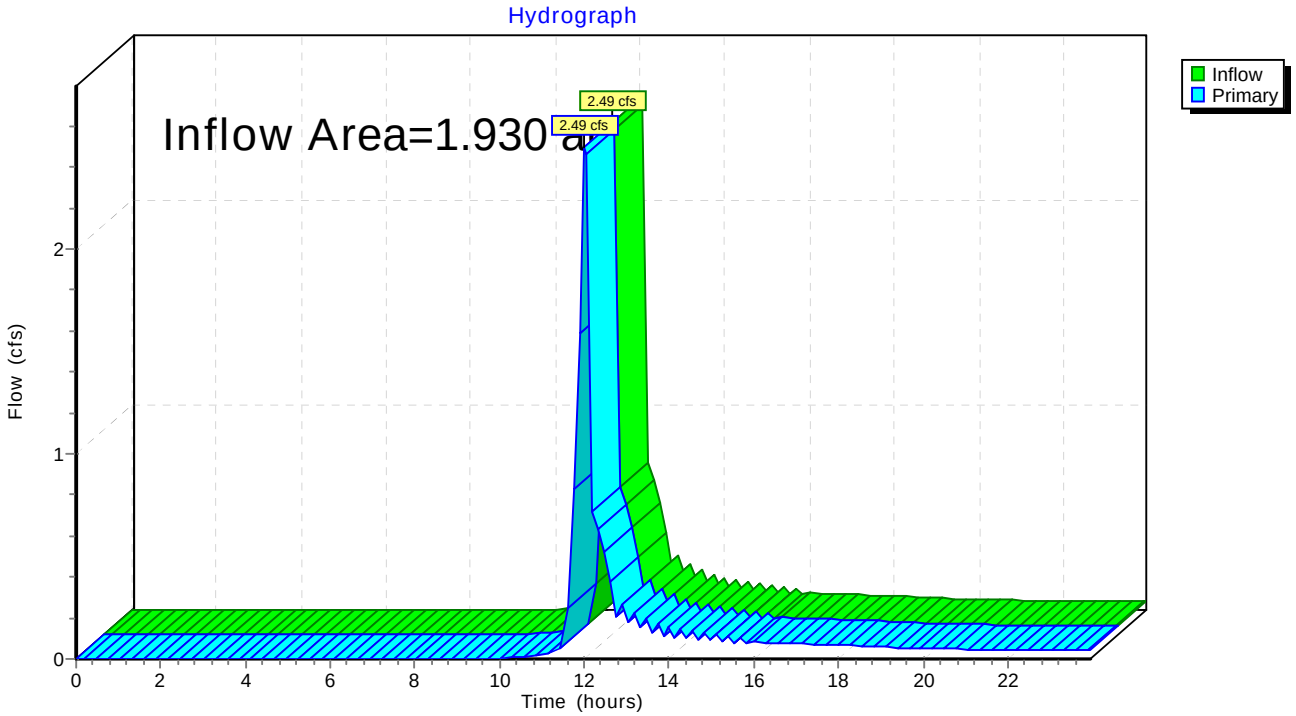
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 1.01" for 10-yr event
Inflow = 2.49 cfs @ 12.02 hrs, Volume= 0.162 af
Primary = 2.49 cfs @ 12.02 hrs, Volume= 0.162 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area	Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>1.76" Tc=0.0 min CN=80 Runoff=1.08 cfs 0.052 af
Subcatchment2S: West Ponding Area	Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>1.35" Tc=0.0 min CN=74 Runoff=1.00 cfs 0.048 af
Subcatchment3S: Center Ponding Area	Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>1.35" Tc=0.0 min CN=74 Runoff=0.38 cfs 0.019 af
Subcatchment4S: East Ponding Area	Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>1.35" Tc=0.0 min CN=74 Runoff=0.48 cfs 0.024 af
Subcatchment5S: South Ponding Area	Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>1.76" Tc=0.0 min CN=80 Runoff=1.53 cfs 0.074 af
Subcatchment6S: Area to 6" Culvert	Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>1.76" Tc=0.0 min CN=80 Runoff=0.79 cfs 0.039 af
Pond 2P: 3S PONDING	Peak Elev=575.36' Storage=642 cf Inflow=0.38 cfs 0.019 af Outflow=0.01 cfs 0.004 af
Pond 3P: 5S PONDING	Peak Elev=575.15' Storage=524 cf Inflow=2.98 cfs 0.149 af Outflow=2.48 cfs 0.145 af
Pond 4P: 6S PONDING	Peak Elev=574.92' Storage=693 cf Inflow=3.25 cfs 0.183 af Outflow=2.79 cfs 0.183 af
Pond 5P: 2S PONDING	Peak Elev=575.44' Storage=0 cf Inflow=1.00 cfs 0.048 af Outflow=1.00 cfs 0.048 af
Pond 6P: 4S PONDING	Peak Elev=575.60' Storage=124 cf Inflow=0.48 cfs 0.024 af Outflow=0.46 cfs 0.022 af
Link 1L: Discharge to the North	Inflow=1.08 cfs 0.052 af Primary=1.08 cfs 0.052 af
Link 2L: Discharge to Ellicott Creek	Inflow=2.79 cfs 0.183 af Primary=2.79 cfs 0.183 af
Link 3L: Total Site Flow	Inflow=3.66 cfs 0.236 af Primary=3.66 cfs 0.236 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.256 af Average Runoff Depth = 1.5
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 a

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

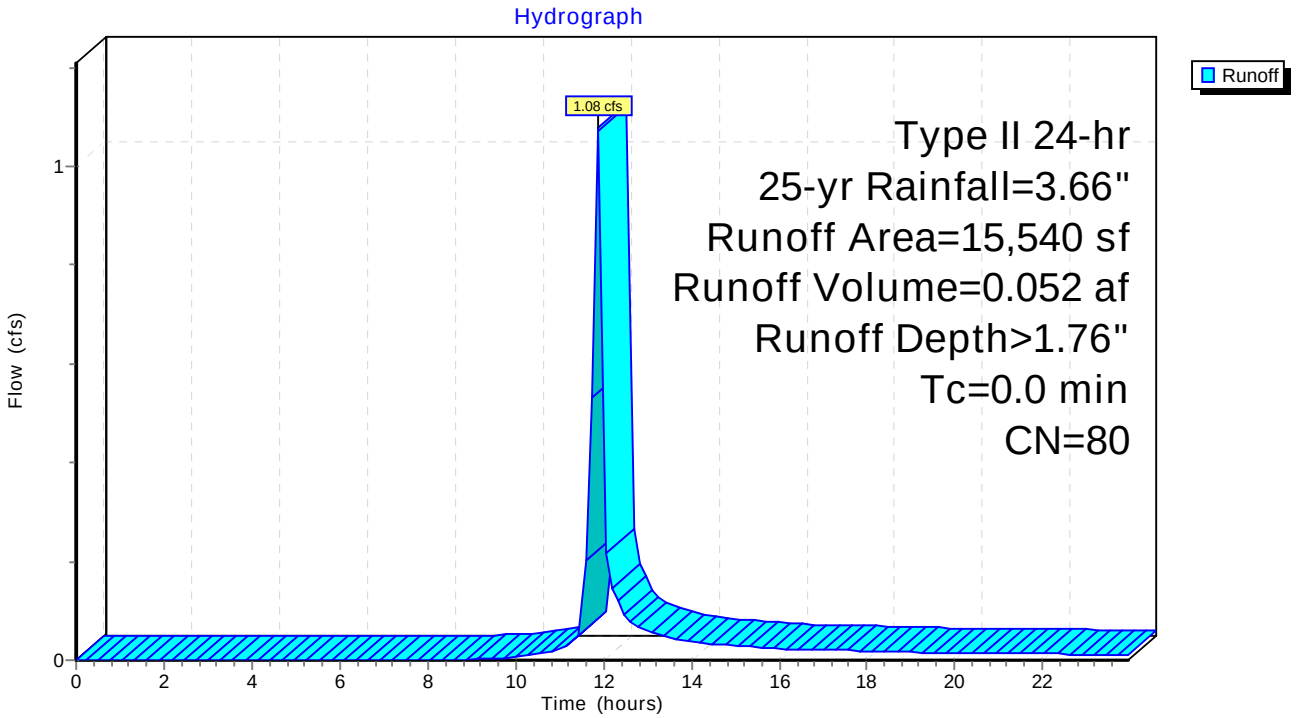
Summary for Subcatchment 1S: North Ponding Area

Runoff = 1.08 cfs @ 11.88 hrs, Volume= 0.052 af, Depth> 1.76"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

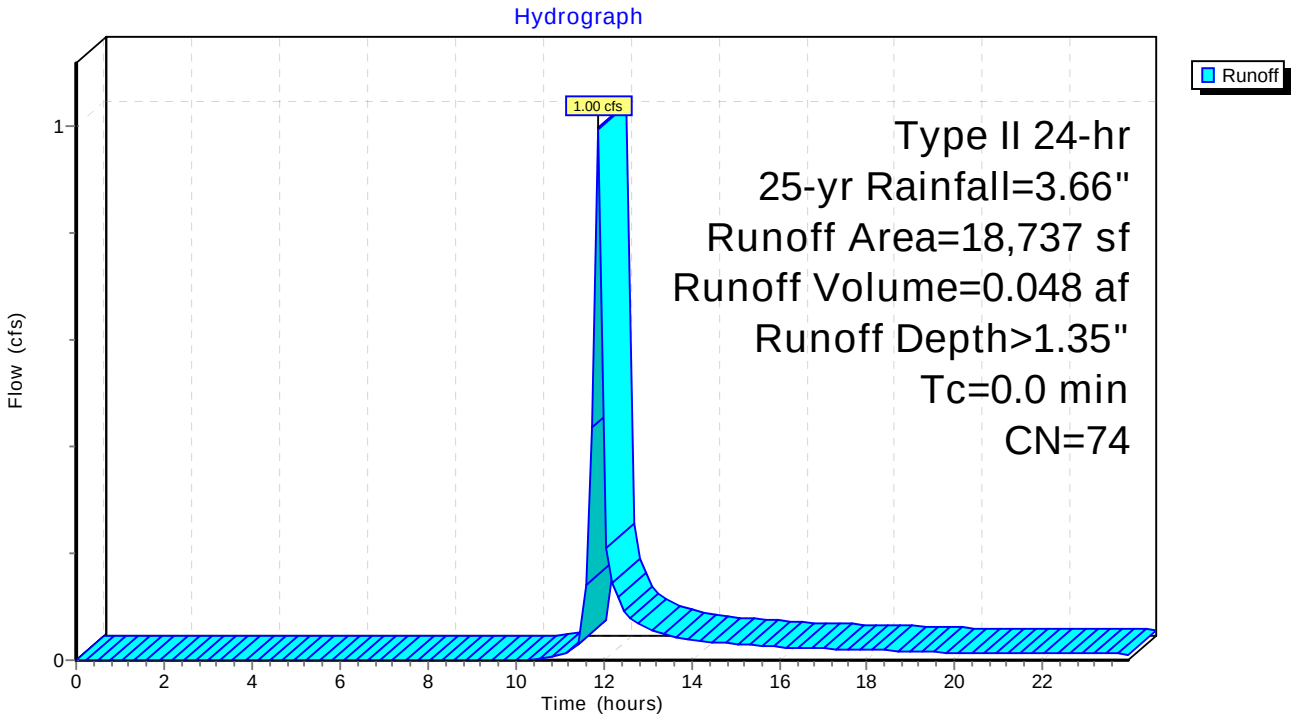
Summary for Subcatchment 2S: West Ponding Area

Runoff = 1.00 cfs @ 11.89 hrs, Volume= 0.048 af, Depth> 1.35"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

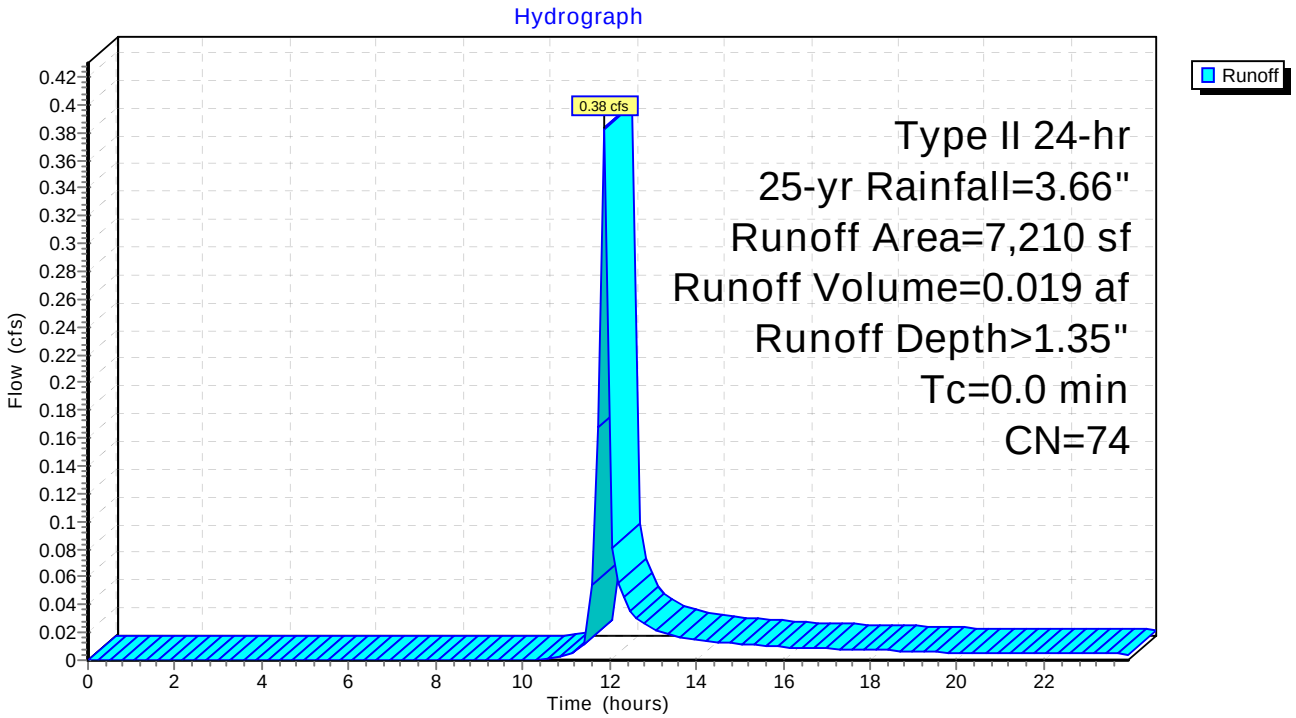
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.38 cfs @ 11.89 hrs, Volume= 0.019 af, Depth> 1.35"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

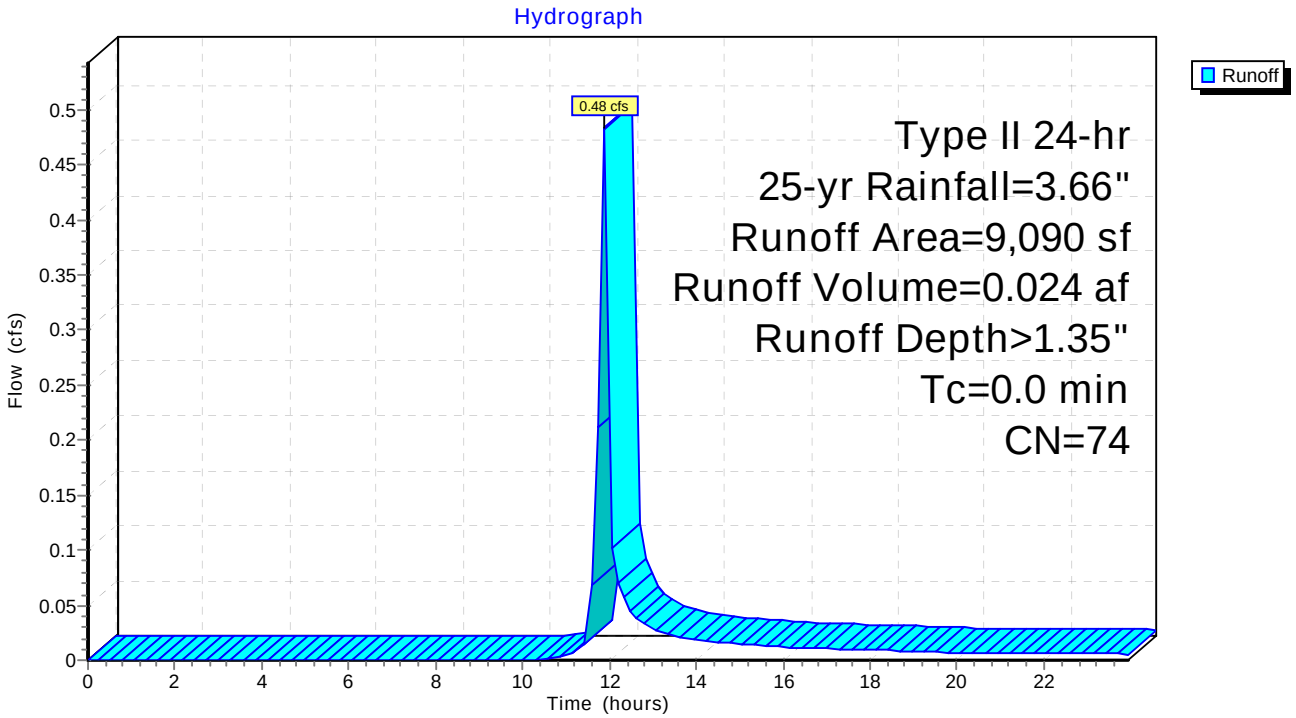
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.48 cfs @ 11.89 hrs, Volume= 0.024 af, Depth> 1.35"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

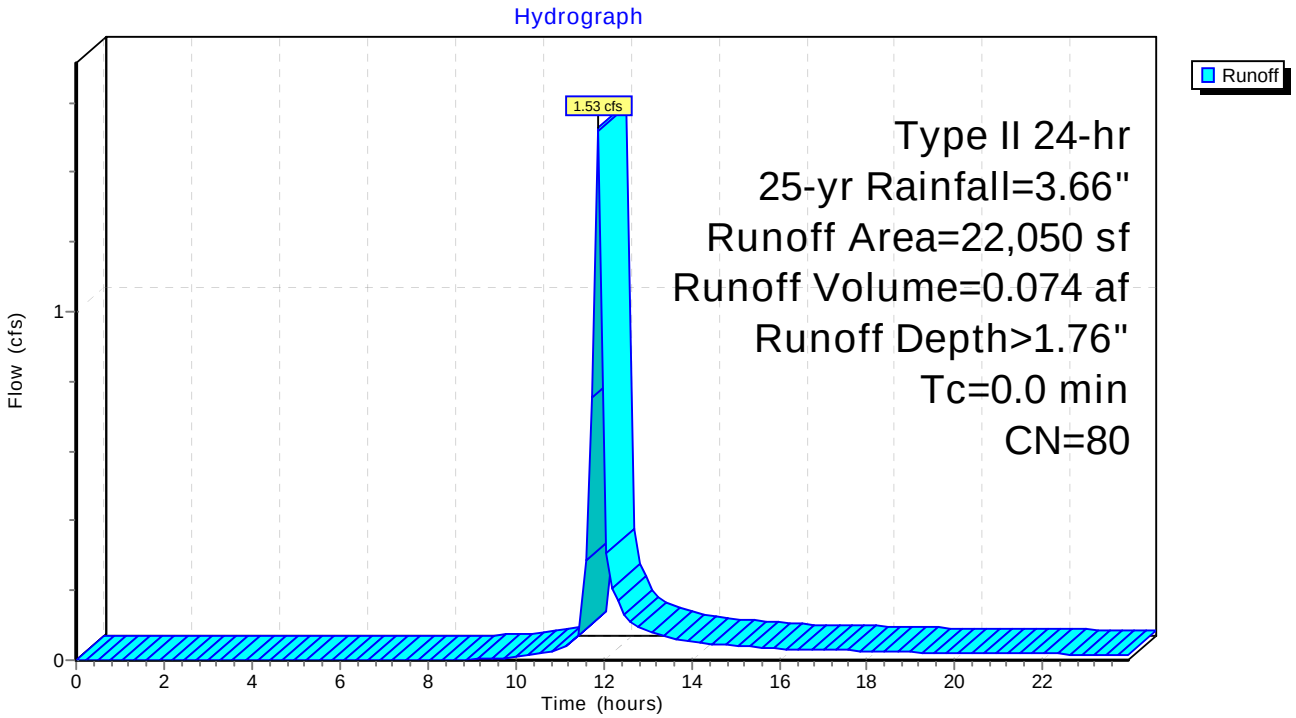
Summary for Subcatchment 5S: South Ponding Area

Runoff = 1.53 cfs @ 11.88 hrs, Volume= 0.074 af, Depth> 1.76"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

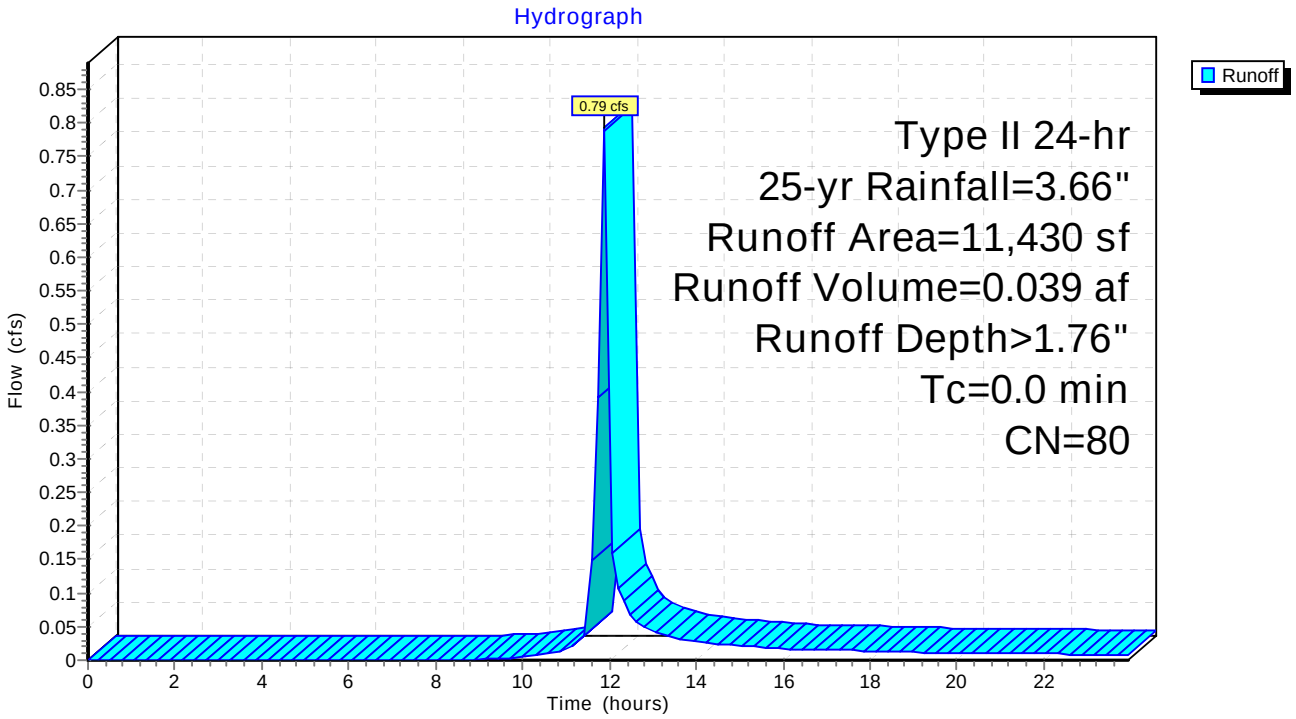
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 0.79 cfs @ 11.88 hrs, Volume= 0.039 af, Depth> 1.76"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 1.35" for 25-yr event
Inflow = 0.38 cfs @ 11.89 hrs, Volume= 0.019 af
Outflow = 0.01 cfs @ 16.93 hrs, Volume= 0.004 af, Atten= 98%, Lag= 302.7 min
Primary = 0.01 cfs @ 16.93 hrs, Volume= 0.004 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.36' @ 16.93 hrs Surf.Area= 3,437 sf Storage= 642 cf

Plug-Flow detention time= 478.4 min calculated for 0.004 af (21% of inflow)
Center-of-Mass det. time= 337.5 min (1,182.5 - 845.0)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

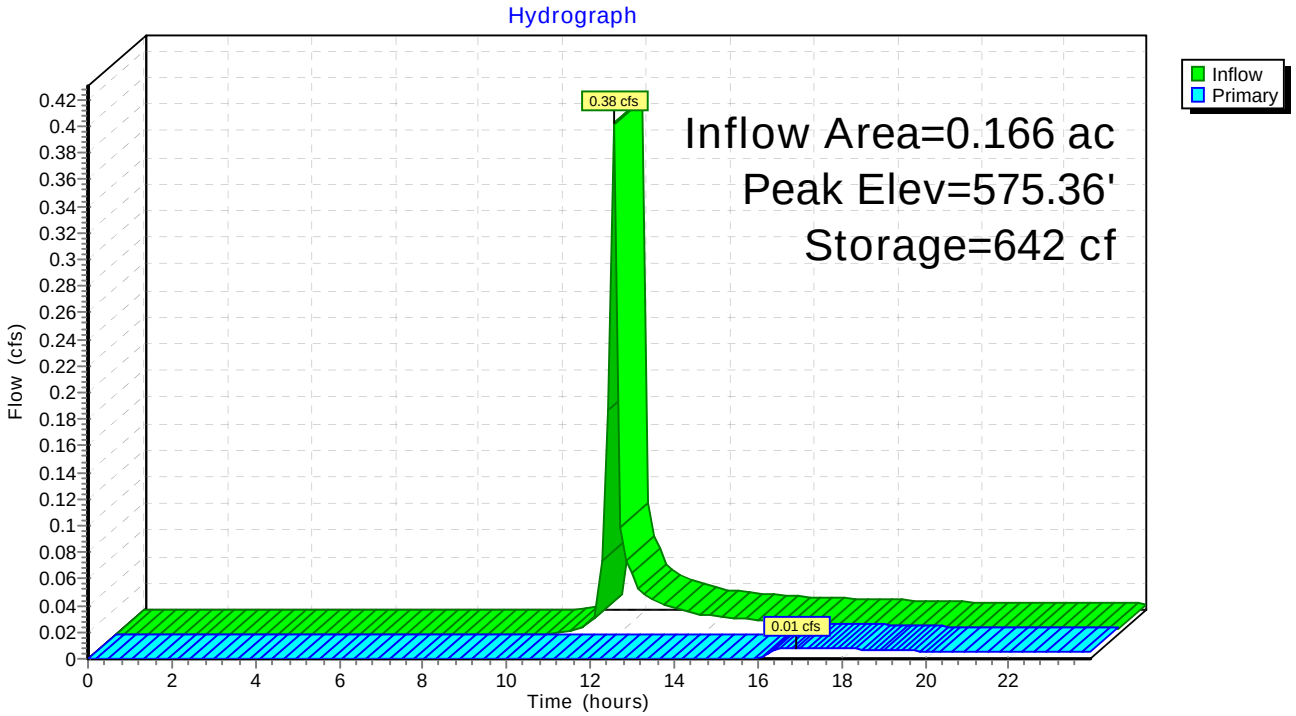
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.01 cfs @ 16.93 hrs HW=575.36' TW=575.05' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.17 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 1.36" for 25-yr event
Inflow = 2.98 cfs @ 11.89 hrs, Volume= 0.149 af
Outflow = 2.48 cfs @ 11.92 hrs, Volume= 0.145 af, Atten= 17%, Lag= 1.9 min
Primary = 2.48 cfs @ 11.92 hrs, Volume= 0.145 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.15' @ 11.92 hrs Surf.Area= 4,663 sf Storage= 524 cf

Plug-Flow detention time= 21.4 min calculated for 0.144 af (97% of inflow)
Center-of-Mass det. time= 7.4 min (854.7 - 847.2)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

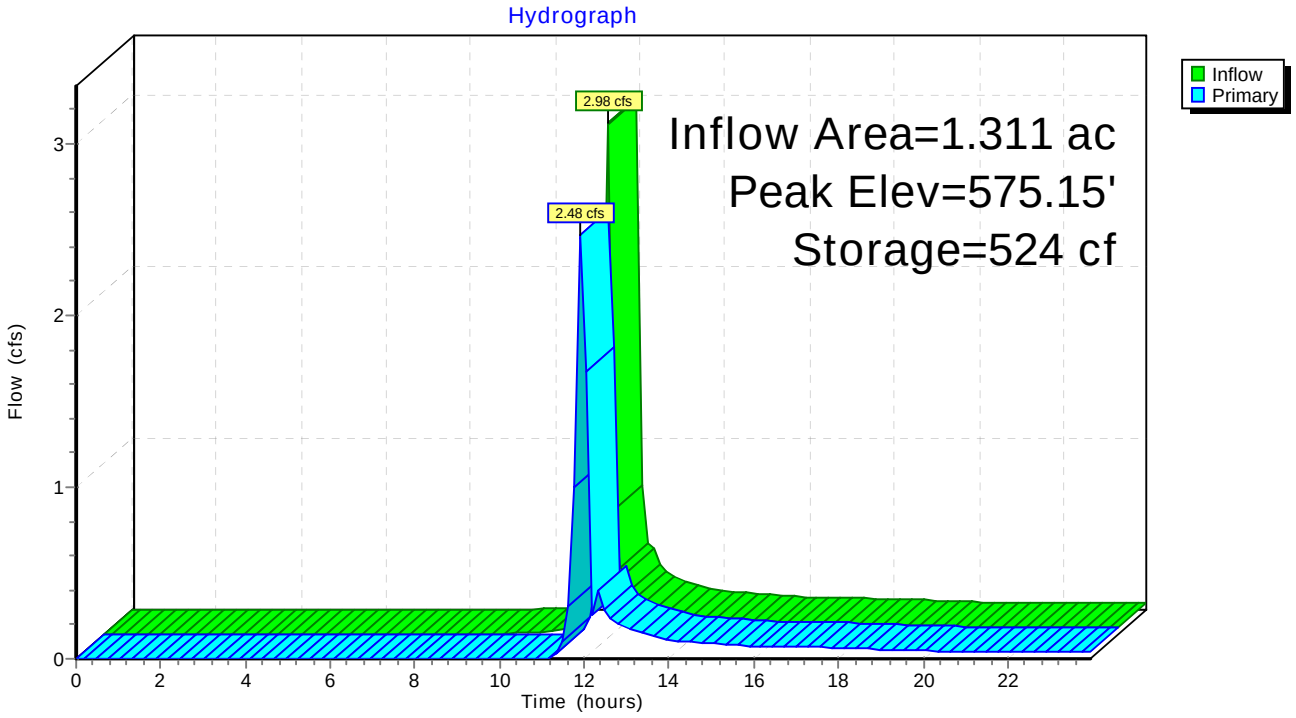
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.33 cfs @ 11.92 hrs HW=575.15' TW=574.89' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Weir Controls 2.33 cfs @ 1.08 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 1.40" for 25-yr event
Inflow = 3.25 cfs @ 11.91 hrs, Volume= 0.183 af
Outflow = 2.79 cfs @ 11.98 hrs, Volume= 0.183 af, Atten= 14%, Lag= 4.1 min
Primary = 2.79 cfs @ 11.98 hrs, Volume= 0.183 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.92' @ 11.97 hrs Surf.Area= 1,505 sf Storage= 693 cf

Plug-Flow detention time= 2.9 min calculated for 0.183 af (100% of inflow)
Center-of-Mass det. time= 2.8 min (851.7 - 848.9)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

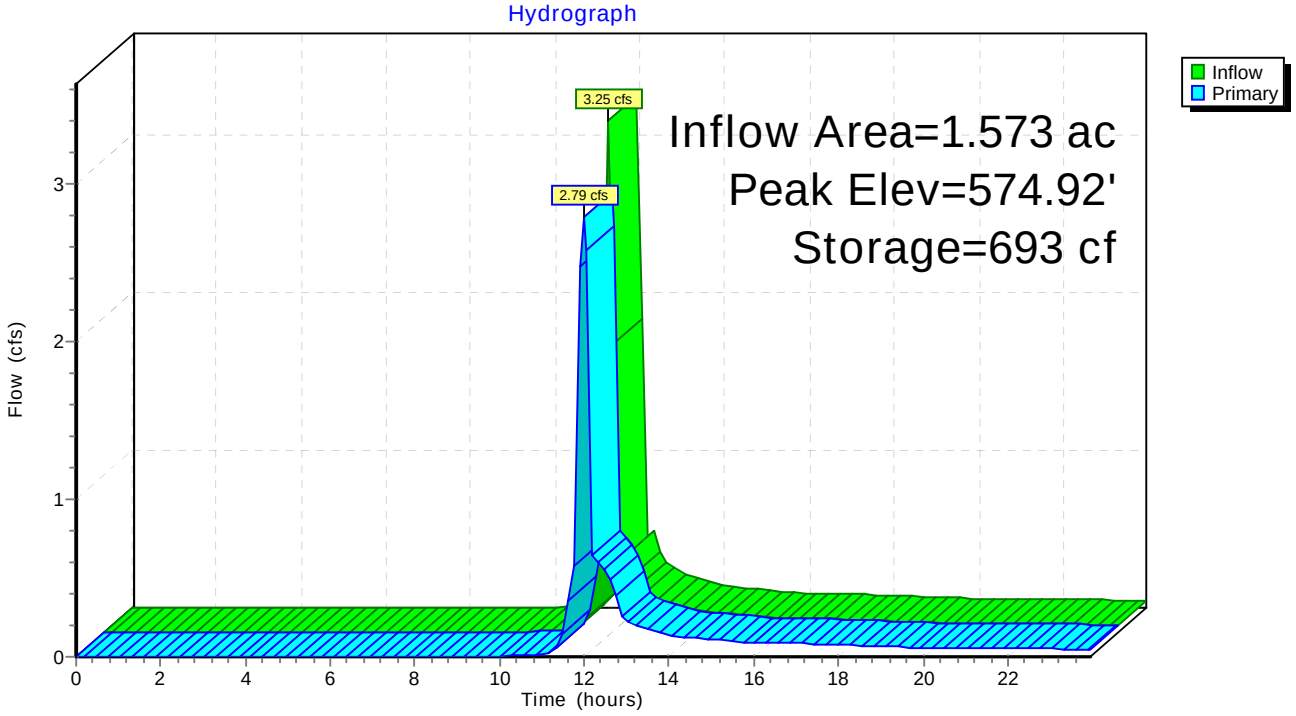
Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	6.0" Round 6" CULVERT L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.53 cfs @ 11.98 hrs HW=574.89' TW=0.00' (Dynamic Tailwater)
1=6" CULVERT (Inlet Controls 0.72 cfs @ 3.69 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 1.81 cfs @ 0.99 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 1.35" for 25-yr event
Inflow = 1.00 cfs @ 11.89 hrs, Volume= 0.048 af
Outflow = 1.00 cfs @ 11.89 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min
Primary = 1.00 cfs @ 11.89 hrs, Volume= 0.048 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (845.0 - 845.0)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

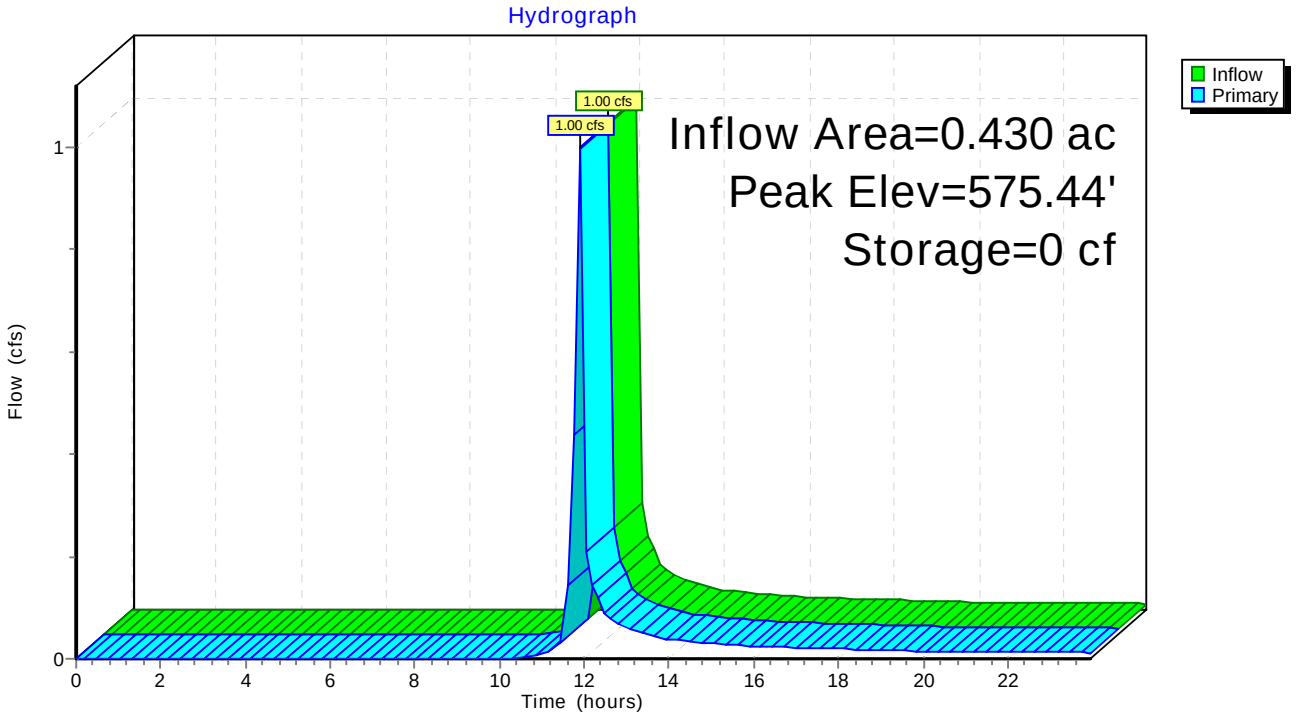
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.89 hrs HW=575.44' TW=575.15' (Dynamic Tailwater)
↑1=Sharp-Crested Rectangular Weir (Passes 0.00 cfs of 14.10 cfs potential flow)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 1.35" for 25-yr event
Inflow = 0.48 cfs @ 11.89 hrs, Volume= 0.024 af
Outflow = 0.46 cfs @ 11.91 hrs, Volume= 0.022 af, Atten= 5%, Lag= 1.5 min
Primary = 0.46 cfs @ 11.91 hrs, Volume= 0.022 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.60' @ 11.92 hrs Surf.Area= 1,576 sf Storage= 124 cf

Plug-Flow detention time= 52.6 min calculated for 0.022 af (92% of inflow)
Center-of-Mass det. time= 14.4 min (859.4 - 845.0)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

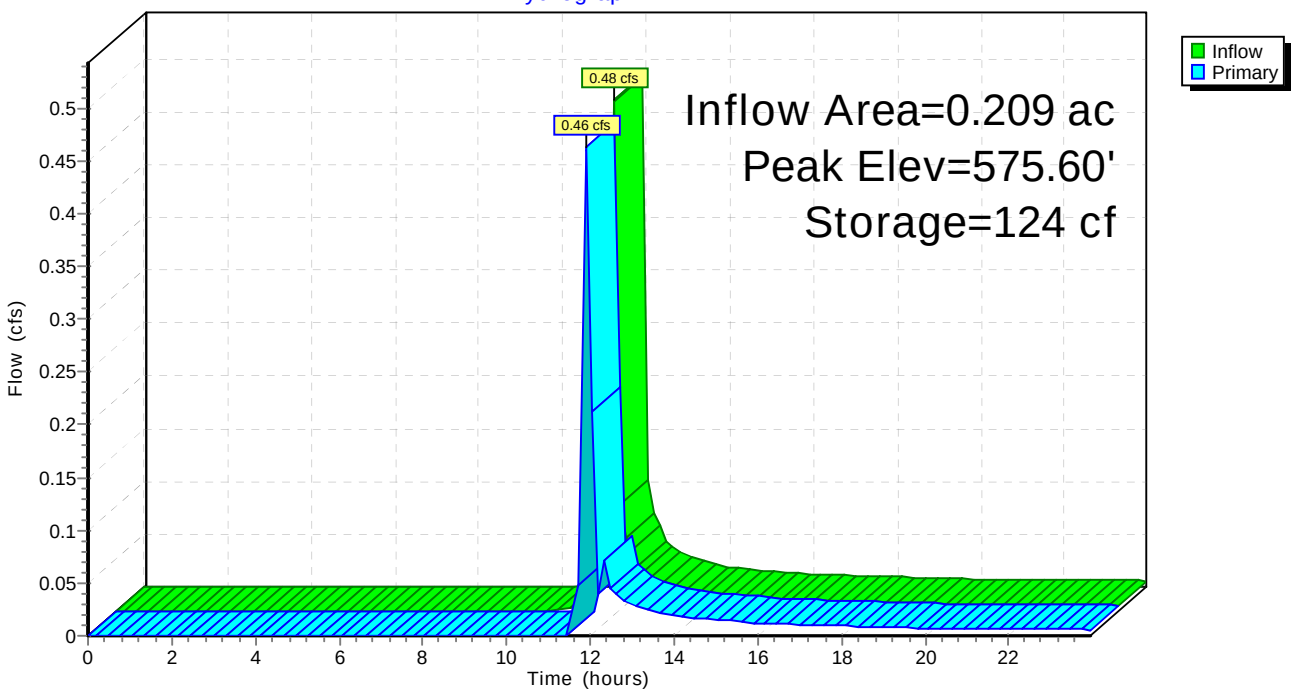
Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.43 cfs @ 11.91 hrs HW=575.60' TW=575.15' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Weir Controls 0.43 cfs @ 0.61 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING

Hydrograph



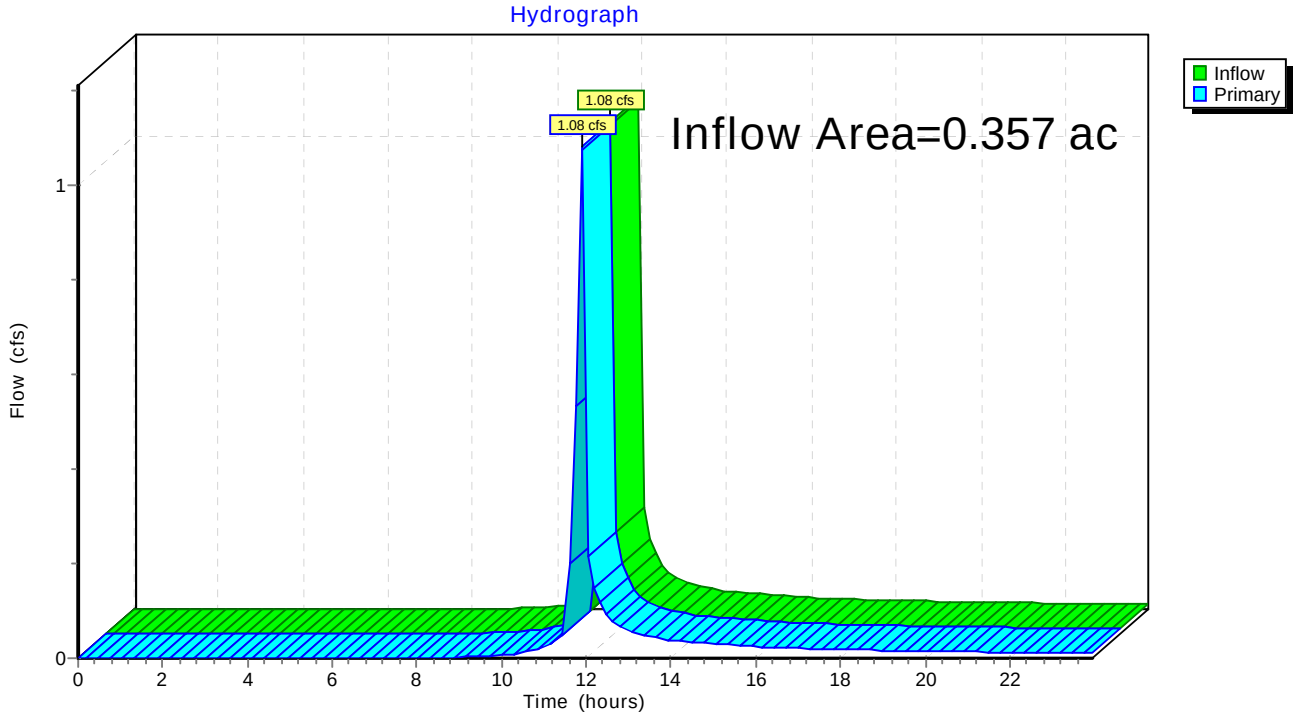
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 1.76" for 25-yr event
Inflow = 1.08 cfs @ 11.88 hrs, Volume= 0.052 af
Primary = 1.08 cfs @ 11.88 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



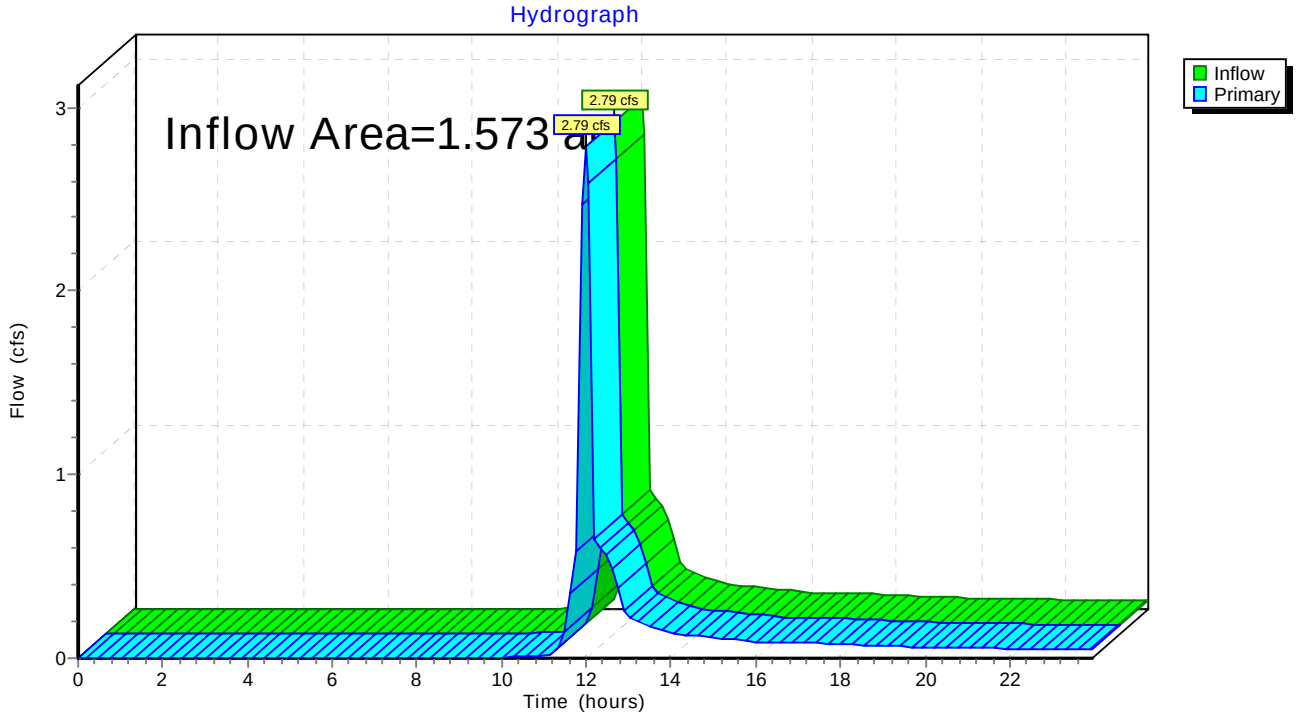
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 1.40" for 25-yr event
Inflow = 2.79 cfs @ 11.98 hrs, Volume= 0.183 af
Primary = 2.79 cfs @ 11.98 hrs, Volume= 0.183 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



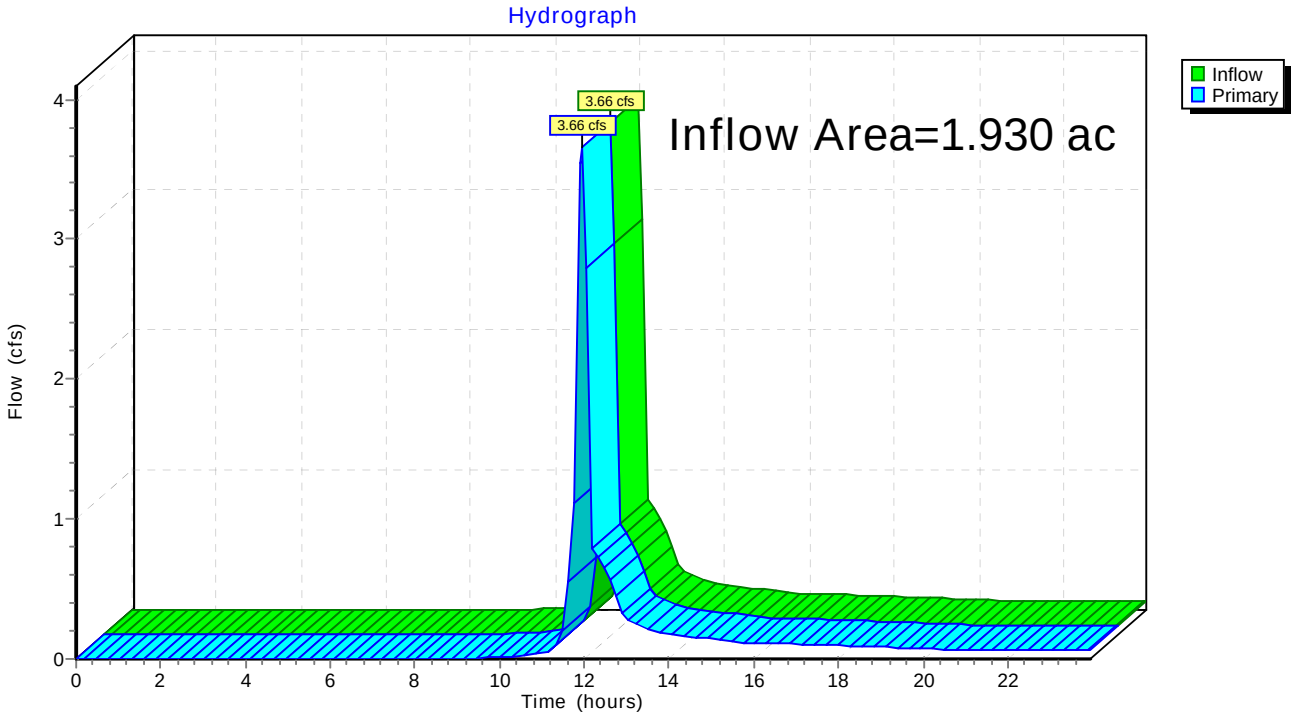
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 1.47" for 25-yr event
Inflow = 3.66 cfs @ 11.94 hrs, Volume= 0.236 af
Primary = 3.66 cfs @ 11.94 hrs, Volume= 0.236 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area	Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>2.81" Tc=0.0 min CN=80 Runoff=1.70 cfs 0.084 af
Subcatchment2S: West Ponding Area	Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>2.29" Tc=0.0 min CN=74 Runoff=1.69 cfs 0.082 af
Subcatchment3S: Center Ponding Area	Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>2.29" Tc=0.0 min CN=74 Runoff=0.65 cfs 0.032 af
Subcatchment4S: East Ponding Area	Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>2.29" Tc=0.0 min CN=74 Runoff=0.82 cfs 0.040 af
Subcatchment5S: South Ponding Area	Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>2.81" Tc=0.0 min CN=80 Runoff=2.41 cfs 0.119 af
Subcatchment6S: Area to 6" Culvert	Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>2.81" Tc=0.0 min CN=80 Runoff=1.25 cfs 0.062 af
Pond 2P: 3S PONDING	Peak Elev=575.37' Storage=676 cf Inflow=0.65 cfs 0.032 af Outflow=0.10 cfs 0.017 af
Pond 3P: 5S PONDING	Peak Elev=575.20' Storage=757 cf Inflow=4.84 cfs 0.256 af Outflow=4.09 cfs 0.252 af
Pond 4P: 6S PONDING	Peak Elev=574.98' Storage=798 cf Inflow=5.31 cfs 0.314 af Outflow=5.86 cfs 0.314 af
Pond 5P: 2S PONDING	Peak Elev=575.44' Storage=0 cf Inflow=1.69 cfs 0.082 af Outflow=1.69 cfs 0.082 af
Pond 6P: 4S PONDING	Peak Elev=575.61' Storage=147 cf Inflow=0.82 cfs 0.040 af Outflow=0.74 cfs 0.038 af
Link 1L: Discharge to the North	Inflow=1.70 cfs 0.084 af Primary=1.70 cfs 0.084 af
Link 2L: Discharge to Ellicott Creek	Inflow=5.86 cfs 0.314 af Primary=5.86 cfs 0.314 af
Link 3L: Total Site Flow	Inflow=7.51 cfs 0.397 af Primary=7.51 cfs 0.397 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.418 af Average Runoff Depth = 2.6
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 a

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

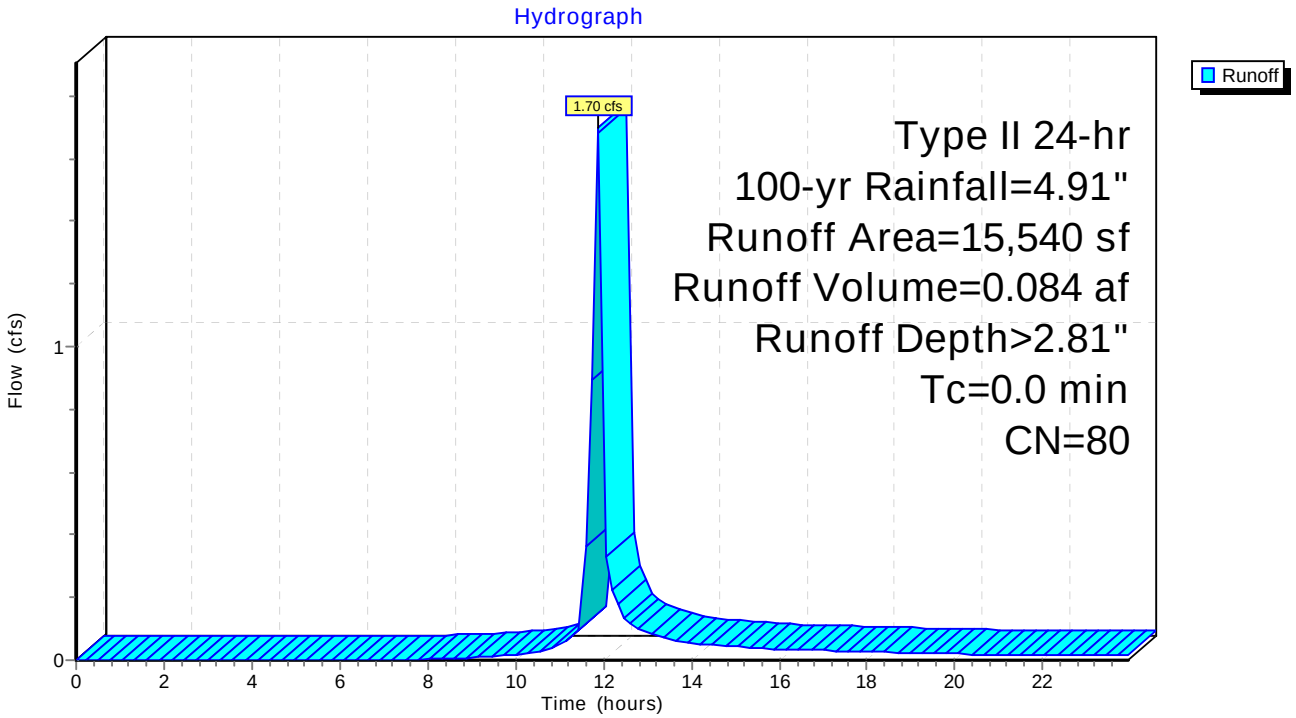
Summary for Subcatchment 1S: North Ponding Area

Runoff = 1.70 cfs @ 11.88 hrs, Volume= 0.084 af, Depth> 2.81"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

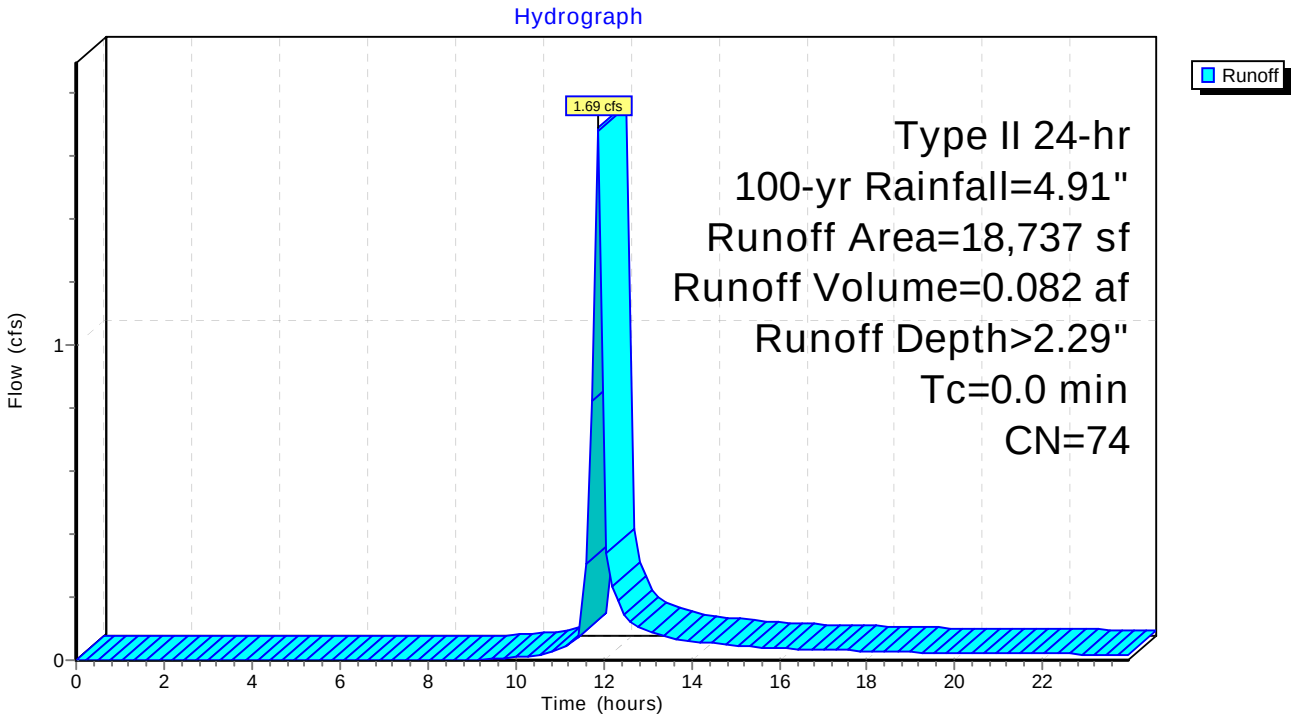
Summary for Subcatchment 2S: West Ponding Area

Runoff = 1.69 cfs @ 11.88 hrs, Volume= 0.082 af, Depth> 2.29"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

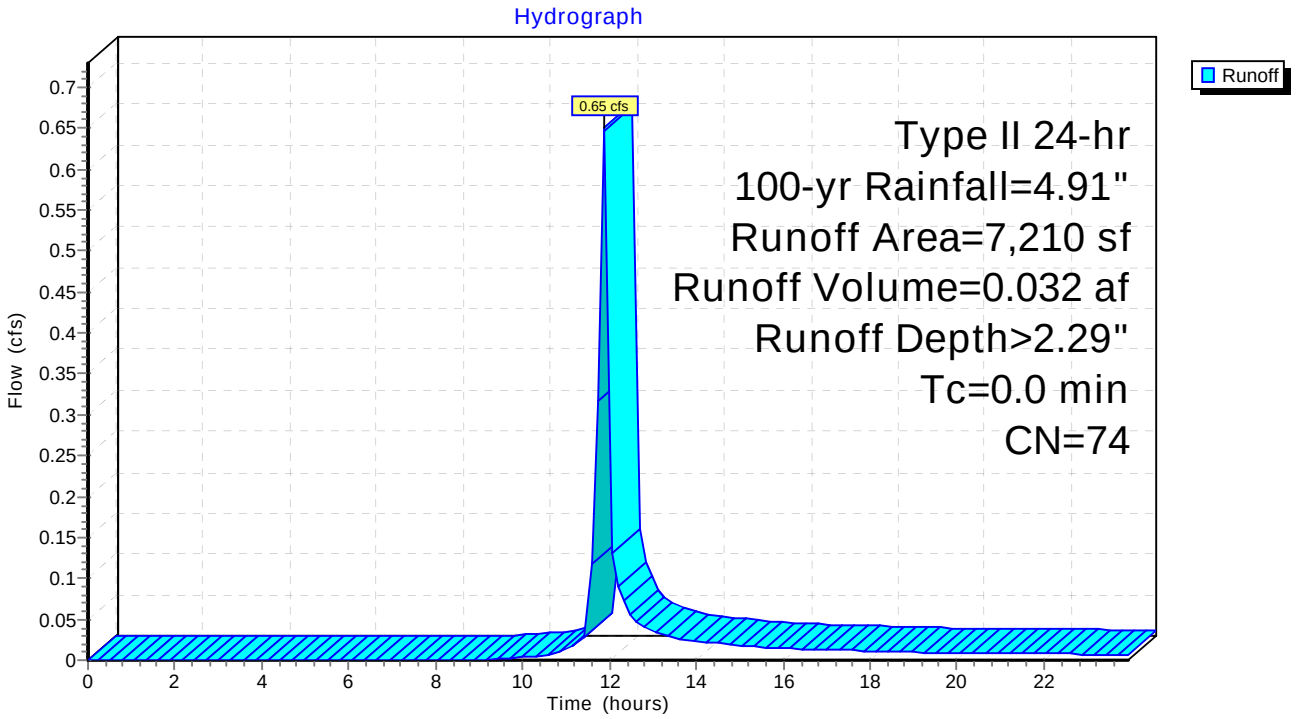
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.65 cfs @ 11.88 hrs, Volume= 0.032 af, Depth> 2.29"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

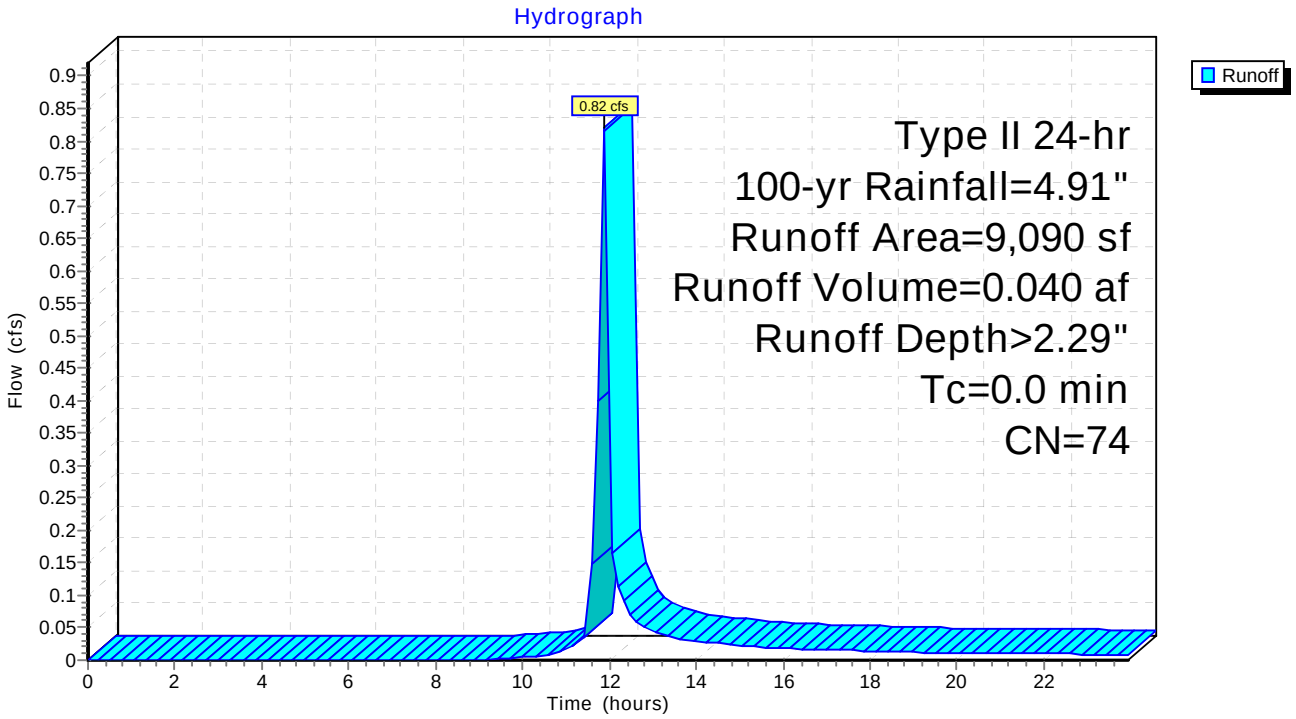
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.82 cfs @ 11.88 hrs, Volume= 0.040 af, Depth> 2.29"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

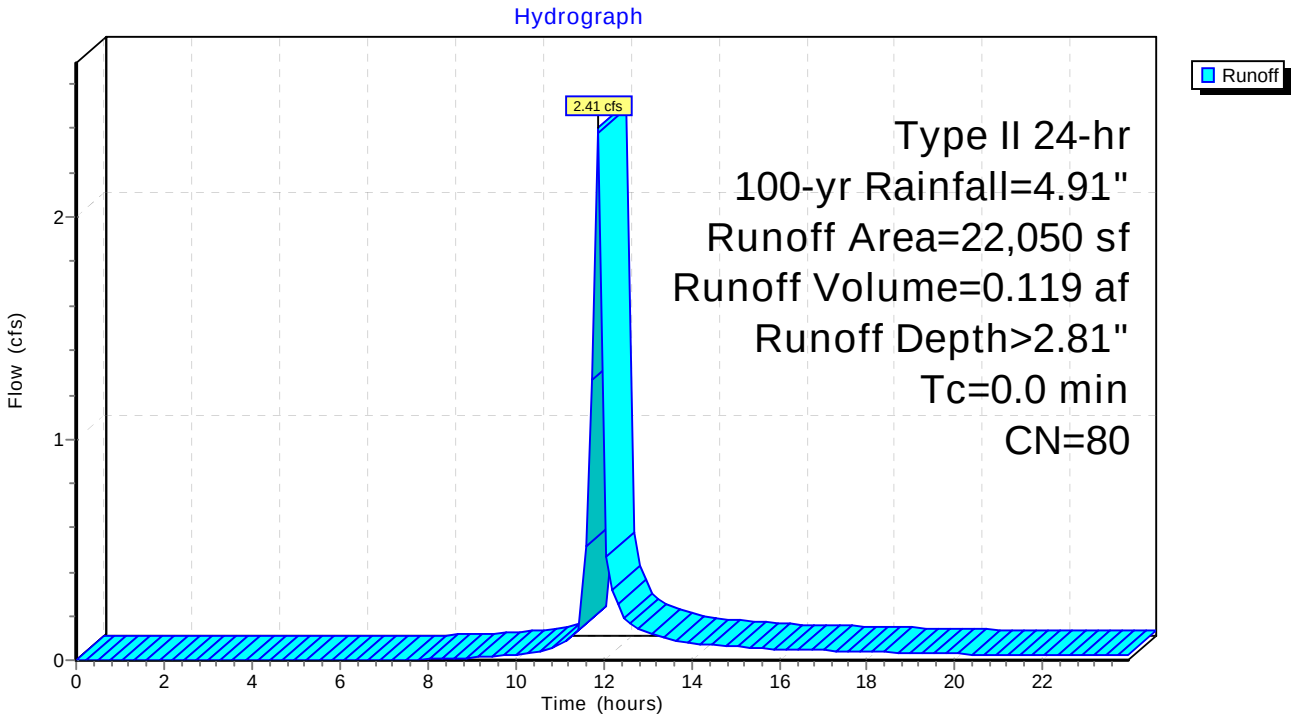
Summary for Subcatchment 5S: South Ponding Area

Runoff = 2.41 cfs @ 11.88 hrs, Volume= 0.119 af, Depth> 2.81"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

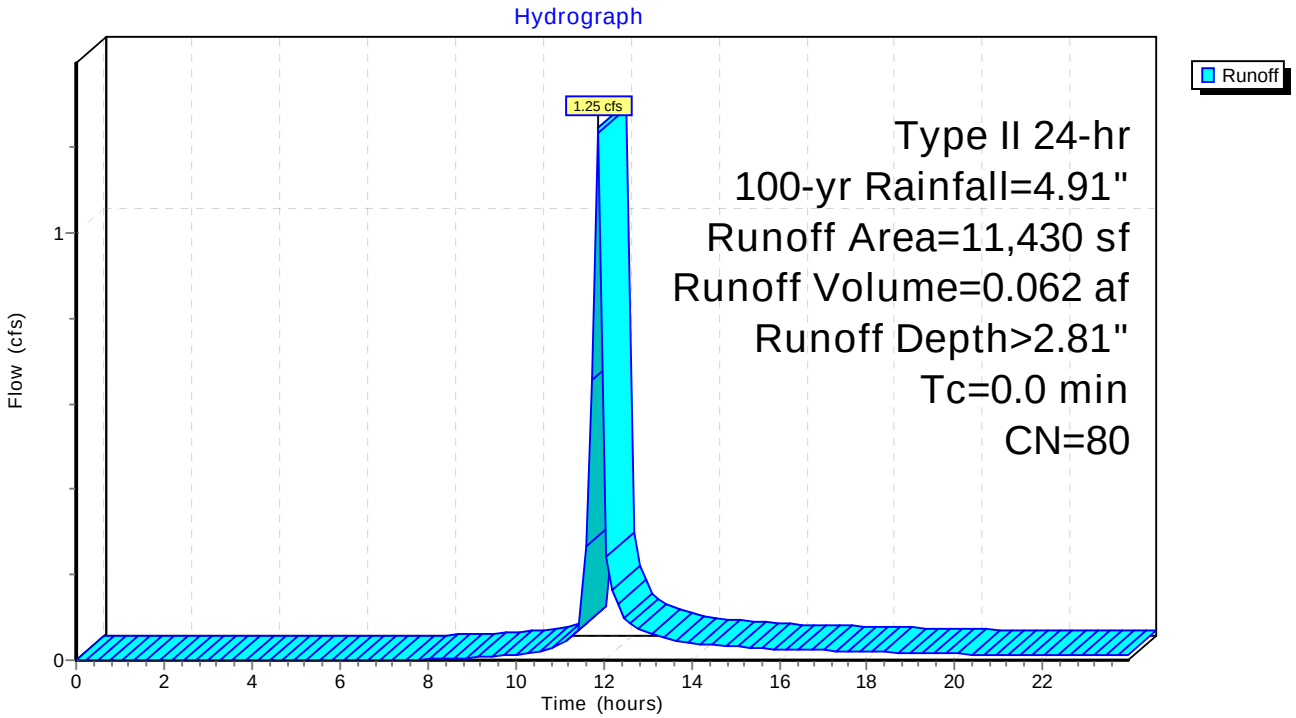
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 1.25 cfs @ 11.88 hrs, Volume= 0.062 af, Depth> 2.81"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 2.29" for 100-yr event
Inflow = 0.65 cfs @ 11.88 hrs, Volume= 0.032 af
Outflow = 0.10 cfs @ 12.24 hrs, Volume= 0.017 af, Atten= 85%, Lag= 21.0 min
Primary = 0.10 cfs @ 12.24 hrs, Volume= 0.017 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.37' @ 12.18 hrs Surf.Area= 3,528 sf Storage= 676 cf

Plug-Flow detention time= 236.8 min calculated for 0.017 af (53% of inflow)
Center-of-Mass det. time= 114.7 min (944.2 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

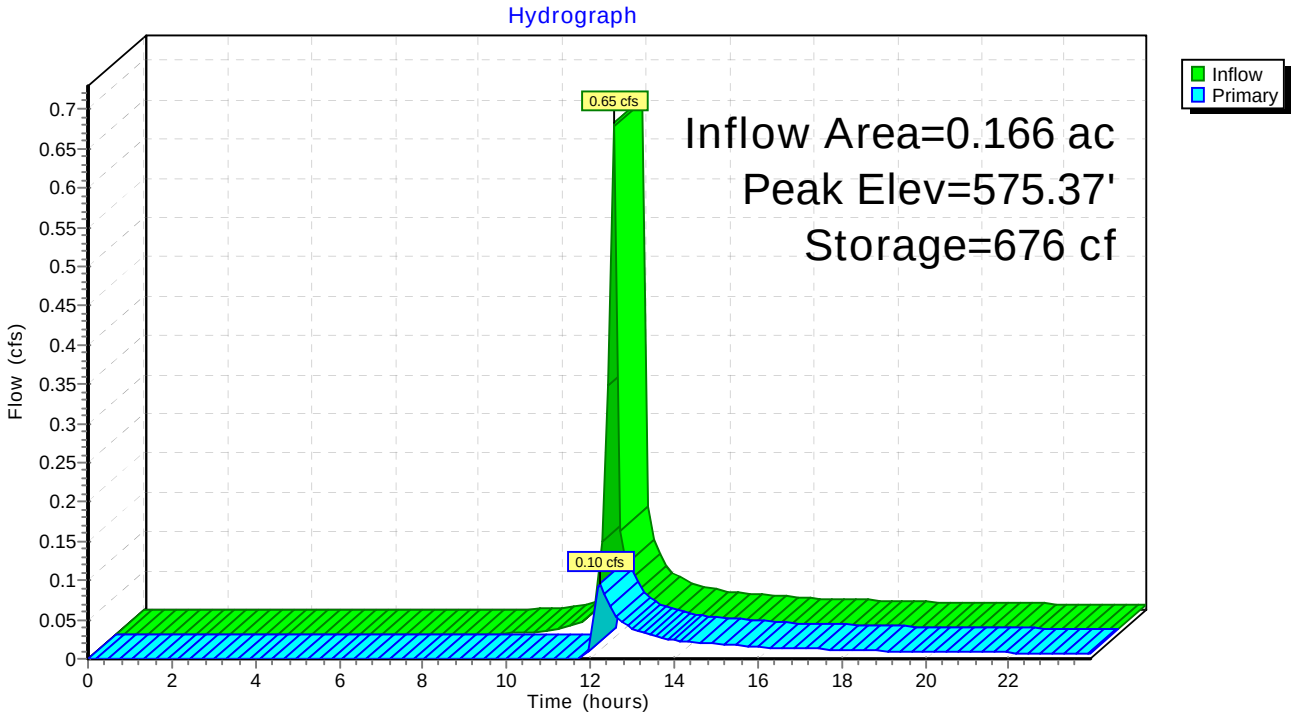
Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.09 cfs @ 12.24 hrs HW=575.37' TW=575.08' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Weir Controls 0.09 cfs @ 0.36 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 2.34" for 100-yr event
Inflow = 4.84 cfs @ 11.89 hrs, Volume= 0.256 af
Outflow = 4.09 cfs @ 11.91 hrs, Volume= 0.252 af, Atten= 15%, Lag= 1.8 min
Primary = 4.09 cfs @ 11.91 hrs, Volume= 0.252 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.20' @ 11.92 hrs Surf.Area= 5,734 sf Storage= 757 cf

Plug-Flow detention time= 14.5 min calculated for 0.251 af (98% of inflow)
Center-of-Mass det. time= 6.0 min (837.4 - 831.3)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

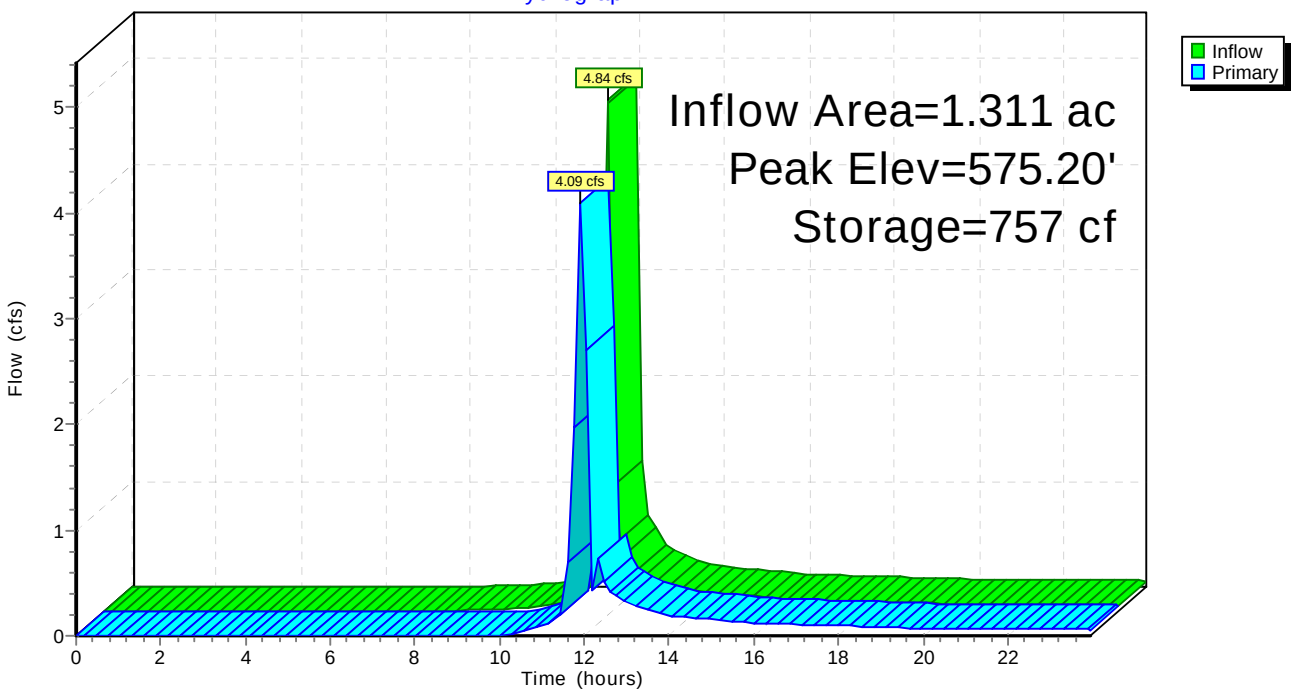
Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=3.92 cfs @ 11.91 hrs HW=575.19' TW=574.97' (Dynamic Tailwater)
↳1=Sharp-Crested Rectangular Weir (Weir Controls 3.92 cfs @ 1.28 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 2.39" for 100-yr event
Inflow = 5.31 cfs @ 11.90 hrs, Volume= 0.314 af
Outflow = 5.86 cfs @ 11.92 hrs, Volume= 0.314 af, Atten= 0%, Lag= 0.6 min
Primary = 5.86 cfs @ 11.92 hrs, Volume= 0.314 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.98' @ 11.92 hrs Surf.Area= 1,615 sf Storage= 798 cf

Plug-Flow detention time= 3.3 min calculated for 0.314 af (100% of inflow)
Center-of-Mass det. time= 3.3 min (836.1 - 832.8)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

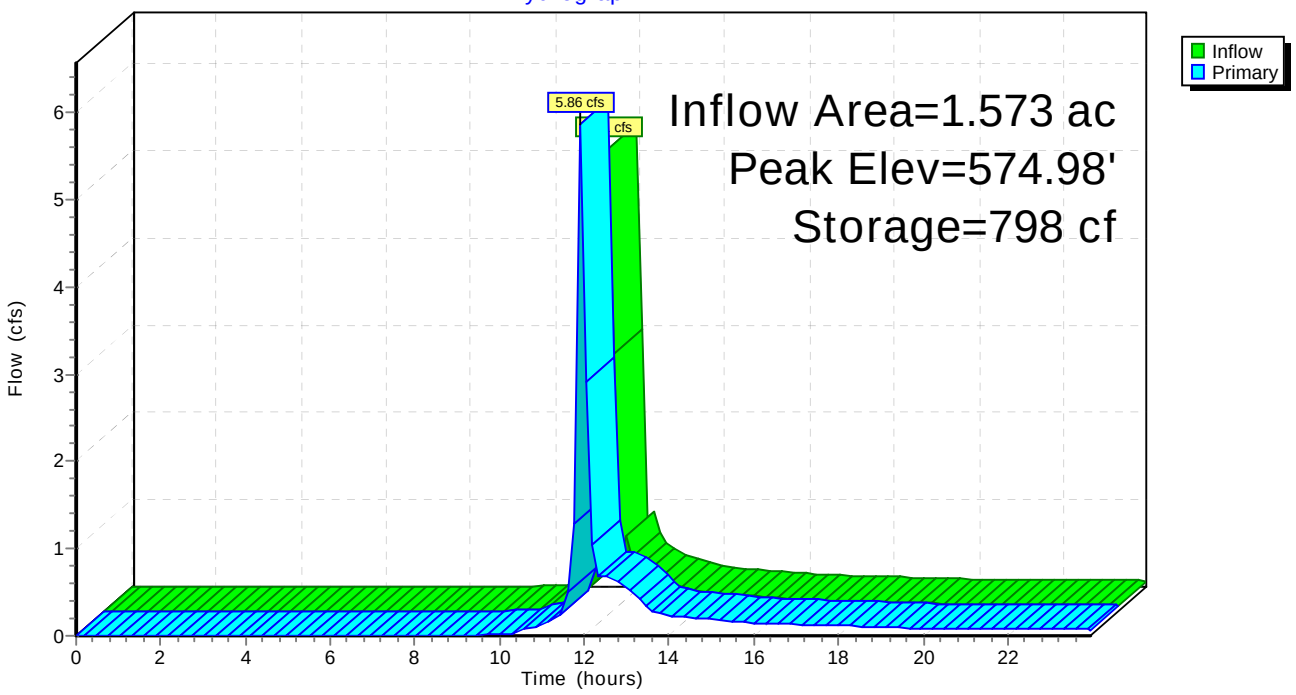
Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	6.0" Round 6" CULVERT L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=5.46 cfs @ 11.92 hrs HW=574.97' TW=0.00' (Dynamic Tailwater)
1=6" CULVERT (Inlet Controls 0.76 cfs @ 3.85 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 4.71 cfs @ 1.36 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 2.29" for 100-yr event
Inflow = 1.69 cfs @ 11.88 hrs, Volume= 0.082 af
Outflow = 1.69 cfs @ 11.88 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min
Primary = 1.69 cfs @ 11.88 hrs, Volume= 0.082 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (829.5 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

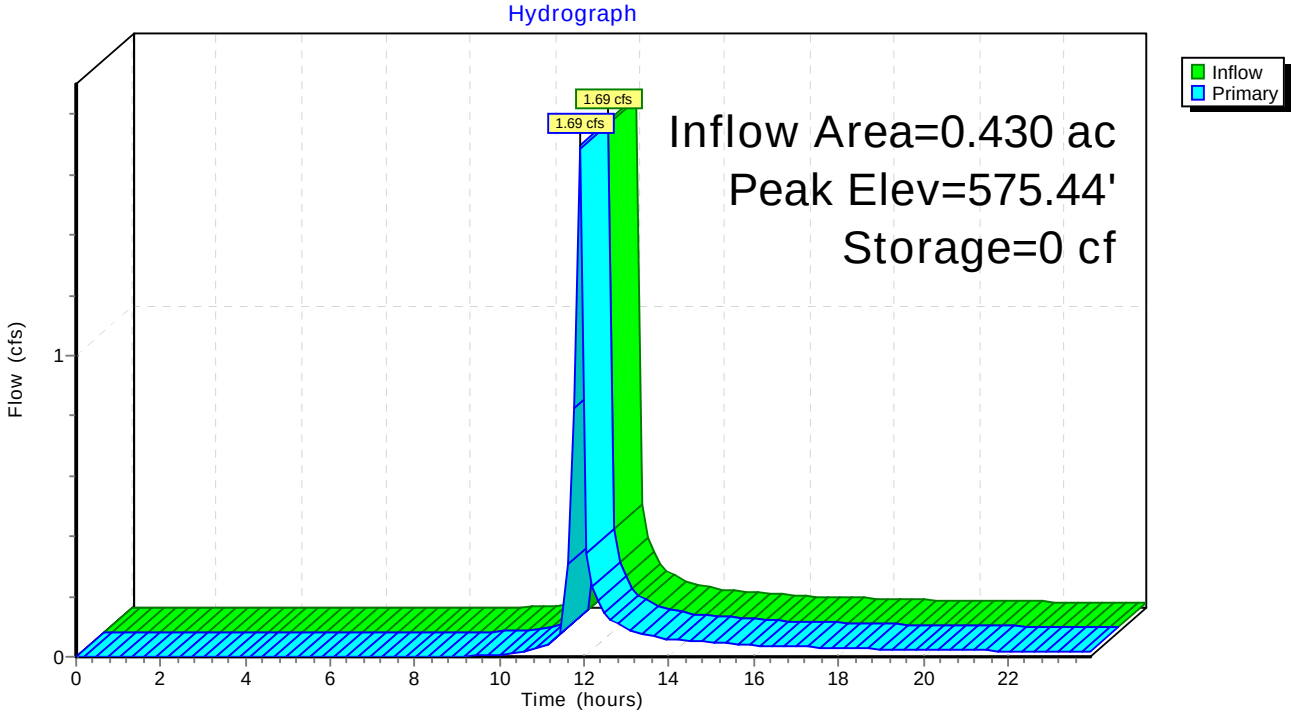
Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.88 hrs HW=575.44' TW=575.19' (Dynamic Tailwater)
↑1=Sharp-Crested Rectangular Weir (Passes 0.00 cfs of 13.55 cfs potential flow)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 2.29" for 100-yr event
Inflow = 0.82 cfs @ 11.88 hrs, Volume= 0.040 af
Outflow = 0.74 cfs @ 11.90 hrs, Volume= 0.038 af, Atten= 10%, Lag= 1.0 min
Primary = 0.74 cfs @ 11.90 hrs, Volume= 0.038 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.61' @ 11.90 hrs Surf.Area= 1,711 sf Storage= 147 cf

Plug-Flow detention time= 34.6 min calculated for 0.038 af (96% of inflow)
Center-of-Mass det. time= 10.1 min (839.5 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

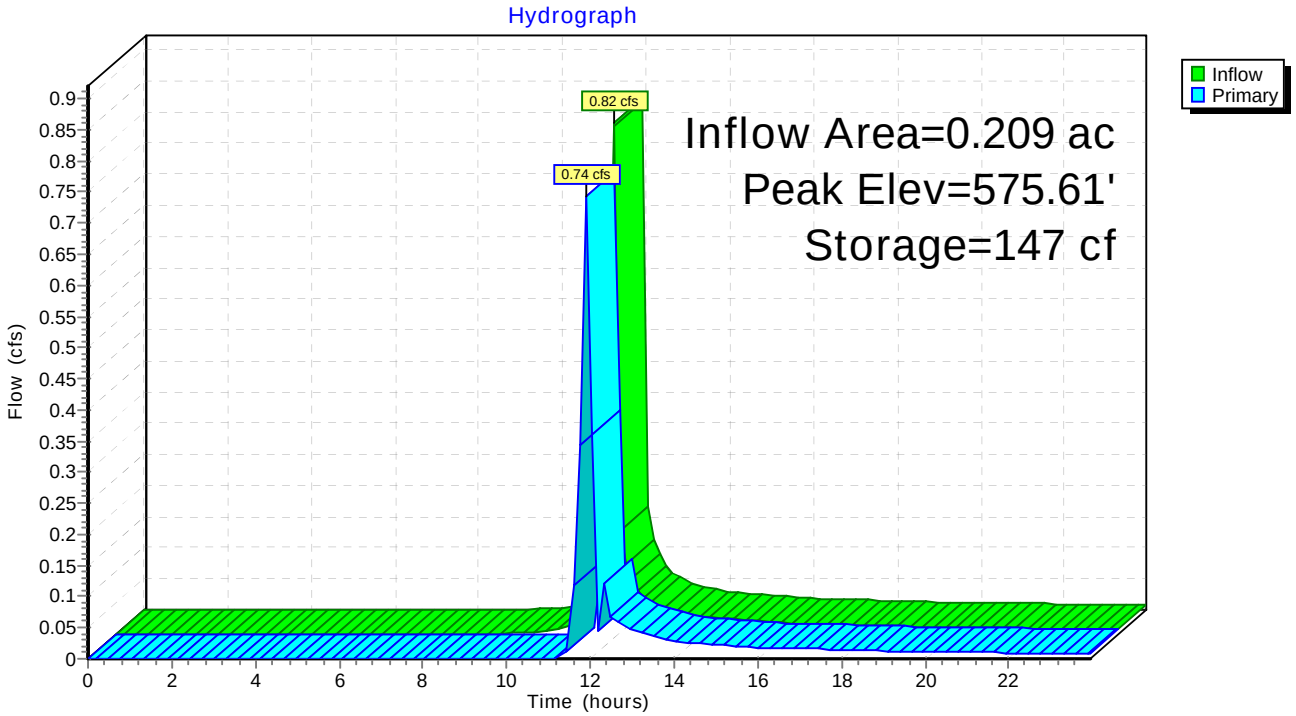
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.74 cfs @ 11.90 hrs HW=575.61' TW=575.20' (Dynamic Tailwater)
↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.74 cfs @ 0.73 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING



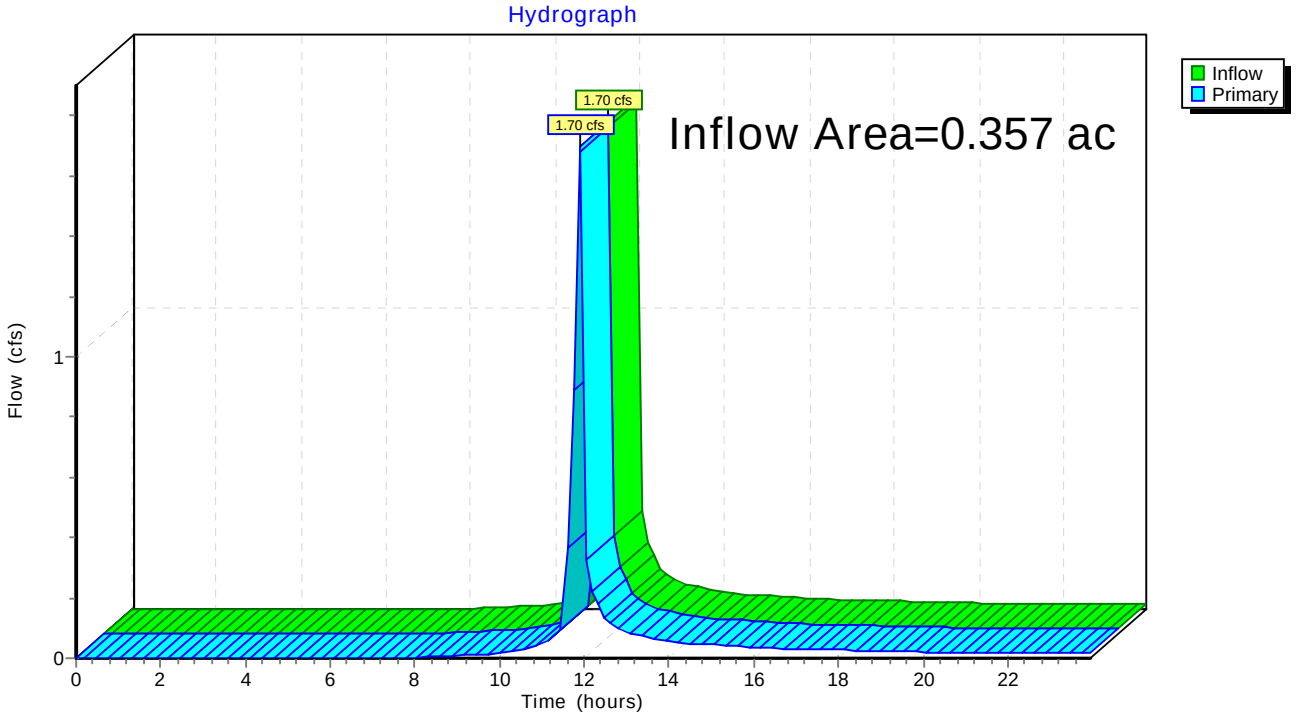
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 2.81" for 100-yr event
Inflow = 1.70 cfs @ 11.88 hrs, Volume= 0.084 af
Primary = 1.70 cfs @ 11.88 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



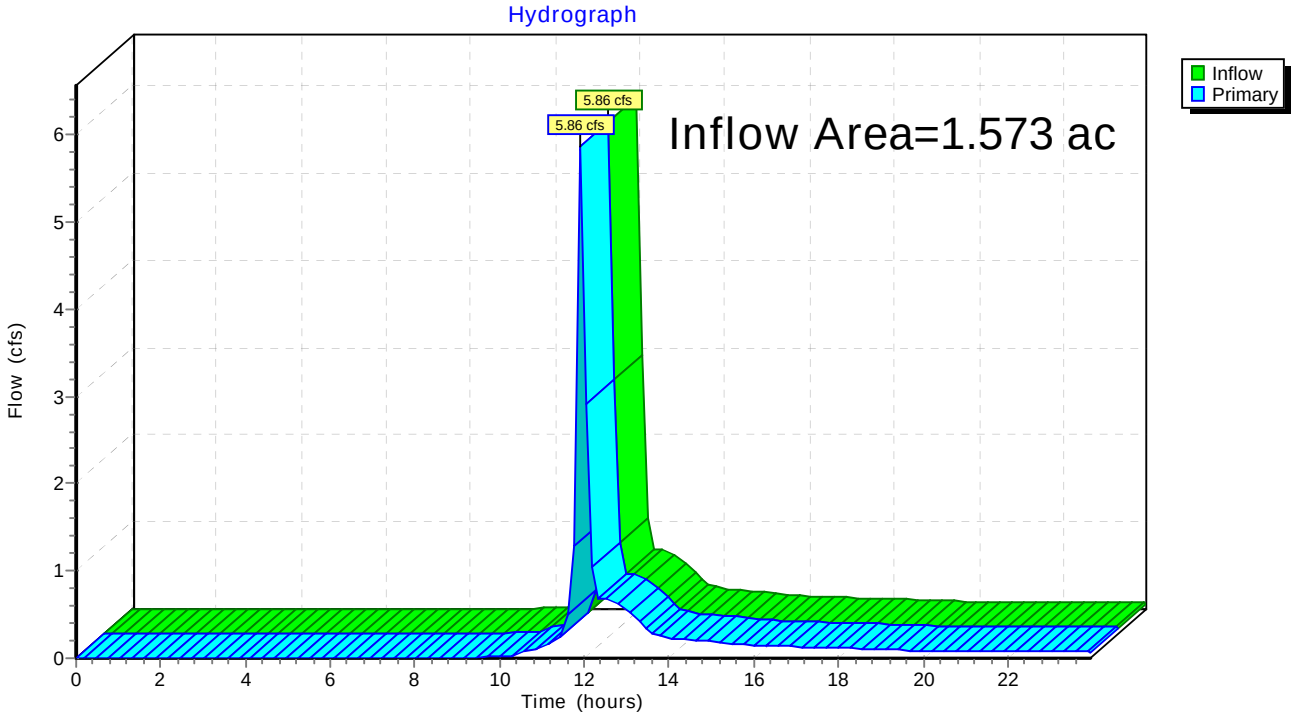
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 2.39" for 100-yr event
Inflow = 5.86 cfs @ 11.92 hrs, Volume= 0.314 af
Primary = 5.86 cfs @ 11.92 hrs, Volume= 0.314 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



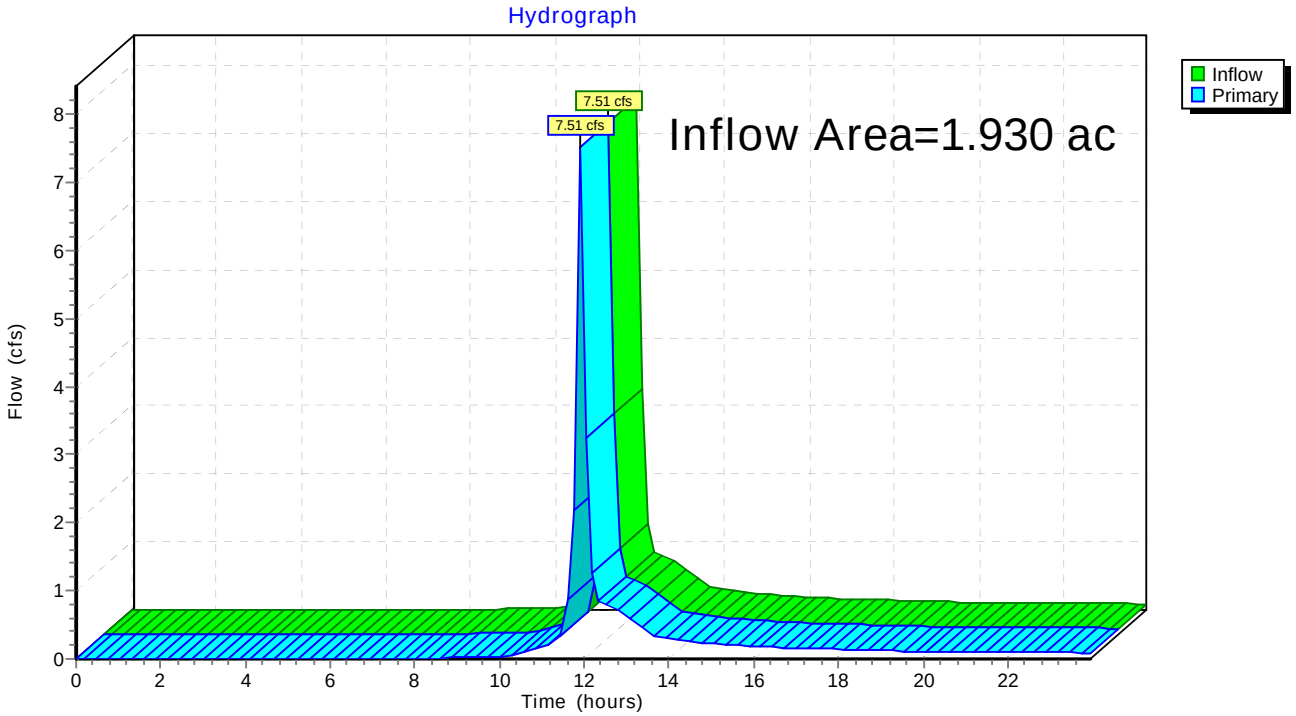
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 2.47" for 100-yr event
Inflow = 7.51 cfs @ 11.91 hrs, Volume= 0.397 af
Primary = 7.51 cfs @ 11.91 hrs, Volume= 0.397 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

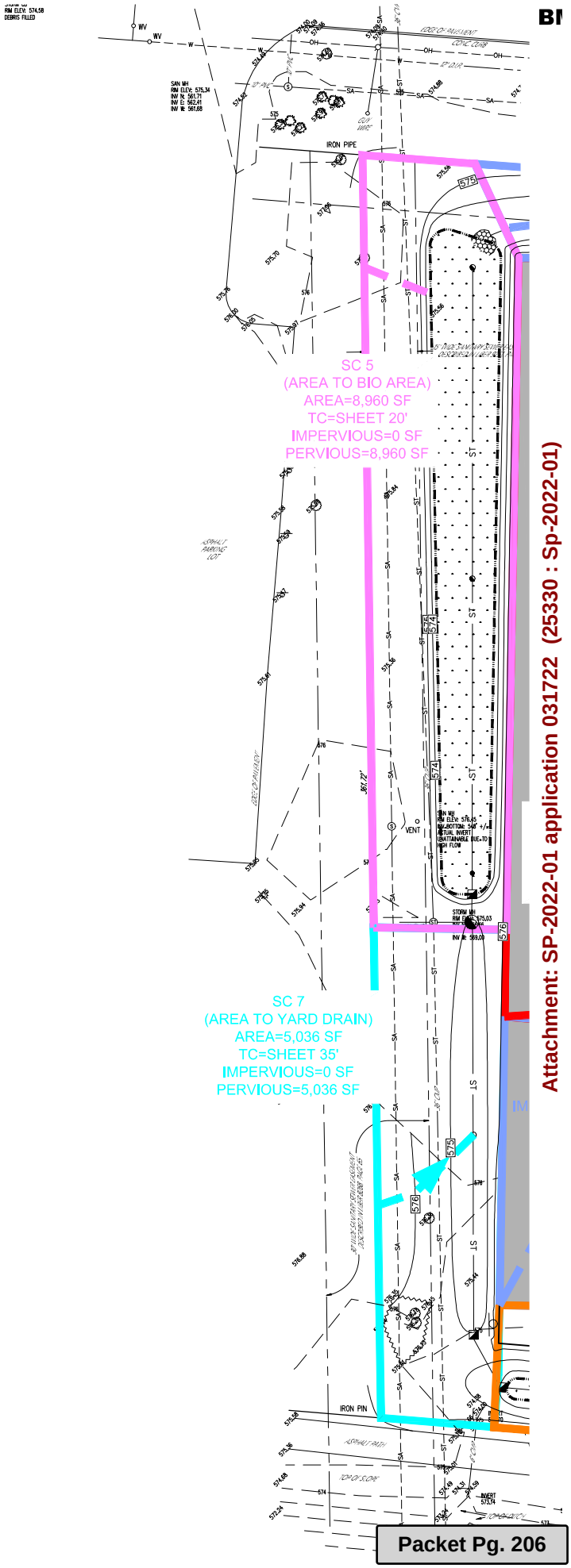
Appendix A-
Drainage Calculatior
Proposed Conditior

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C		UNDERGROUND ELEC/TELE/CABLE
OH / W	OW	OVERHEAD ELEC/TELE WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL



GRAPHIC SCALE

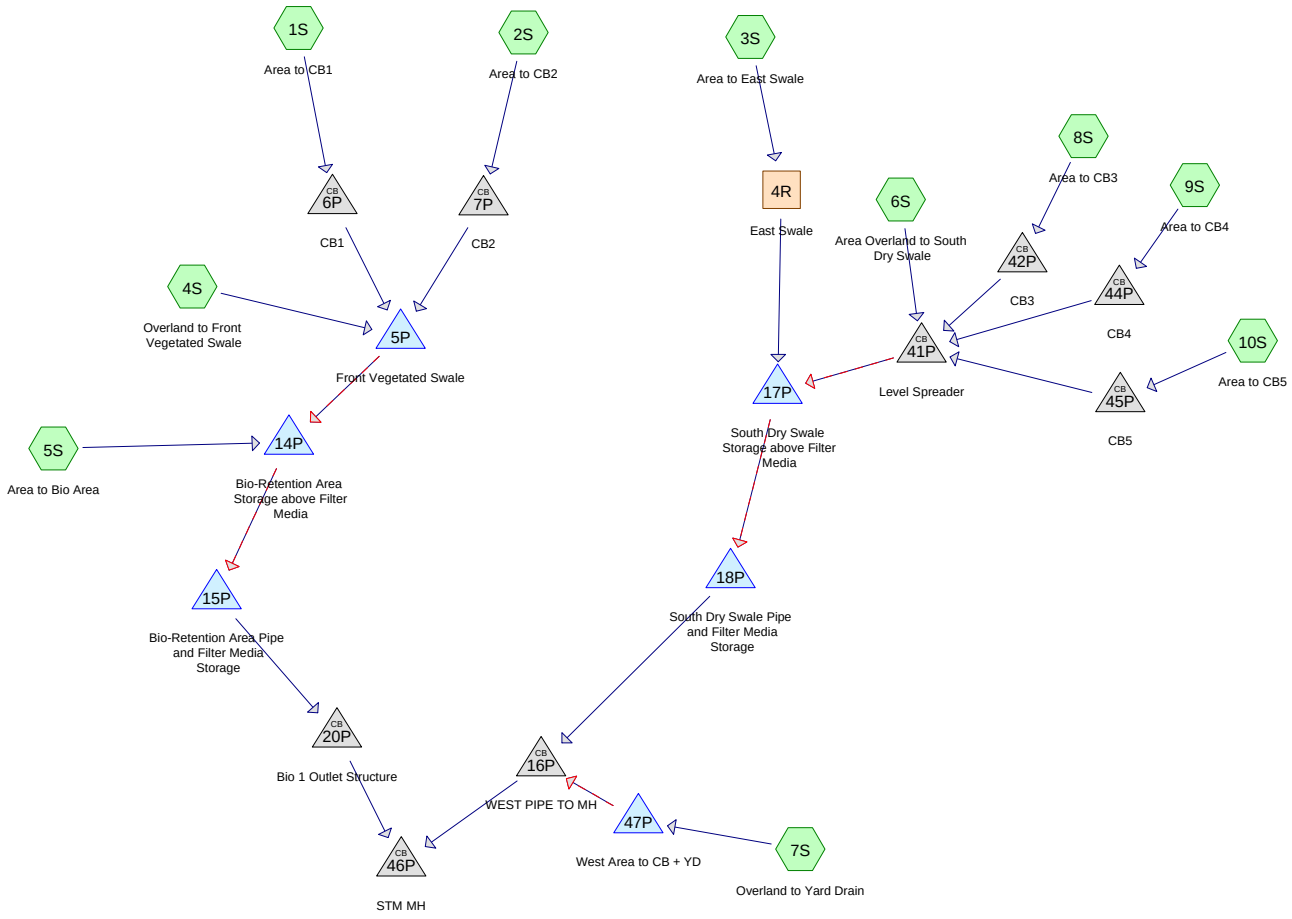
20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG-Layout Plan 1-21-22.dwg

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)



Subcat Reach Pond Link

Routing Diagram for Proposed Conditions 1-12-21
Prepared by {enter your company name here}, Printed 1/12/2022
HydroCAD® 10.10-6a s/n 03292 © 2020 HydroCAD Software Solutions LLC

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	1.91	2
2	2-yr	Type II 24-hr		Default	24.00	1	2.26	2
3	10-yr	Type II 24-hr		Default	24.00	1	3.32	2
4	25-yr	Type II 24-hr		Default	24.00	1	3.97	2
5	100-yr	Type II 24-hr		Default	24.00	1	4.99	2

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.603	80	>75% Grass cover, Good, HSG D (3S, 4S, 5S, 6S, 7S)
1.176	98	Paved parking, HSG D (1S, 2S, 4S, 6S, 8S, 9S, 10S)
1.778	92	TOTAL AREA

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.778	HSG D	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S
0.000	Other	
1.778		TOTAL AREA

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchn Numbers
0.000	0.000	0.000	0.603	0.000	0.603	>75% Grass cover, Good	3S, 4S, 5S, 6S, 7S
0.000	0.000	0.000	1.176	0.000	1.176	Paved parking	1S, 2S, 4S, 6S, 8S, 9S, 10S
0.000	0.000	0.000	1.778	0.000	1.778	TOTAL AREA	

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=0.62 cfs 0.039 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.22 cfs 0.077 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>0.51"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.09 cfs 0.006 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>0.63"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.06 cfs 0.003 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>0.51"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.14 cfs 0.009 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>0.95"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=0.33 cfs 0.016 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>0.51"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.07 cfs 0.005 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.21 cfs 0.012 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.18 cfs 0.010 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.21 cfs 0.011 af

Reach 4R: East Swale Avg. Flow Depth=0.06' Max Vel=0.44 fps Inflow=0.09 cfs 0.006 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.06 cfs 0.006 af

Pond 5P: Front Vegetated Swale Peak Elev=573.99' Storage=148 cf Inflow=1.90 cfs 0.119 af
Primary=1.77 cfs 0.108 af Secondary=0.01 cfs 0.010 af Outflow=1.78 cfs 0.118 af

Pond 6P: CB1 Peak Elev=574.03' Inflow=0.62 cfs 0.039 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=0.62 cfs 0.039 af

Pond 7P: CB2 Peak Elev=574.35' Inflow=1.22 cfs 0.077 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=1.22 cfs 0.077 af

Pond 14P: Bio-Retention Area Storage Peak Elev=573.99' Storage=2,027 cf Inflow=1.91 cfs 0.127 af
Primary=0.04 cfs 0.057 af Secondary=0.72 cfs 0.038 af Outflow=0.76 cfs 0.095 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=570.23' Storage=1,481 cf Inflow=0.76 cfs 0.095 af
Outflow=0.10 cfs 0.065 af

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=570.83' Inflow=0.54 cfs 0.049 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=0.54 cfs 0.049 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.31' Storage=313 cf Inflow=0.94 cfs 0.054 af
Primary=0.01 cfs 0.015 af Secondary=0.89 cfs 0.034 af Outflow=0.90 cfs 0.049 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=570.80' Storage=593 cf Inflow=0.90 cfs 0.049 af
Outflow=0.46 cfs 0.044 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=570.35' Inflow=0.10 cfs 0.065 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=0.10 cfs 0.065 af

Pond 41P: Level Spreader Peak Elev=573.68' Inflow=0.93 cfs 0.049 af
Primary=0.93 cfs 0.049 af Secondary=0.00 cfs 0.000 af Outflow=0.93 cfs 0.049 af

Pond 42P: CB3 Peak Elev=573.83' Inflow=0.21 cfs 0.012 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.21 cfs 0.012 af

Pond 44P: CB4 Peak Elev=573.79' Inflow=0.18 cfs 0.010 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.18 cfs 0.010 af

Pond 45P: CB5 Peak Elev=573.82' Inflow=0.21 cfs 0.011 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.21 cfs 0.011 af

Pond 46P: STM MH Peak Elev=570.35' Inflow=0.57 cfs 0.113 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=0.57 cfs 0.113 af

Pond 47P: West Area to CB + YD Peak Elev=574.78' Storage=8 cf Inflow=0.07 cfs 0.005 af
Primary=0.07 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.005 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.187 af Average Runoff Depth = 1.27"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

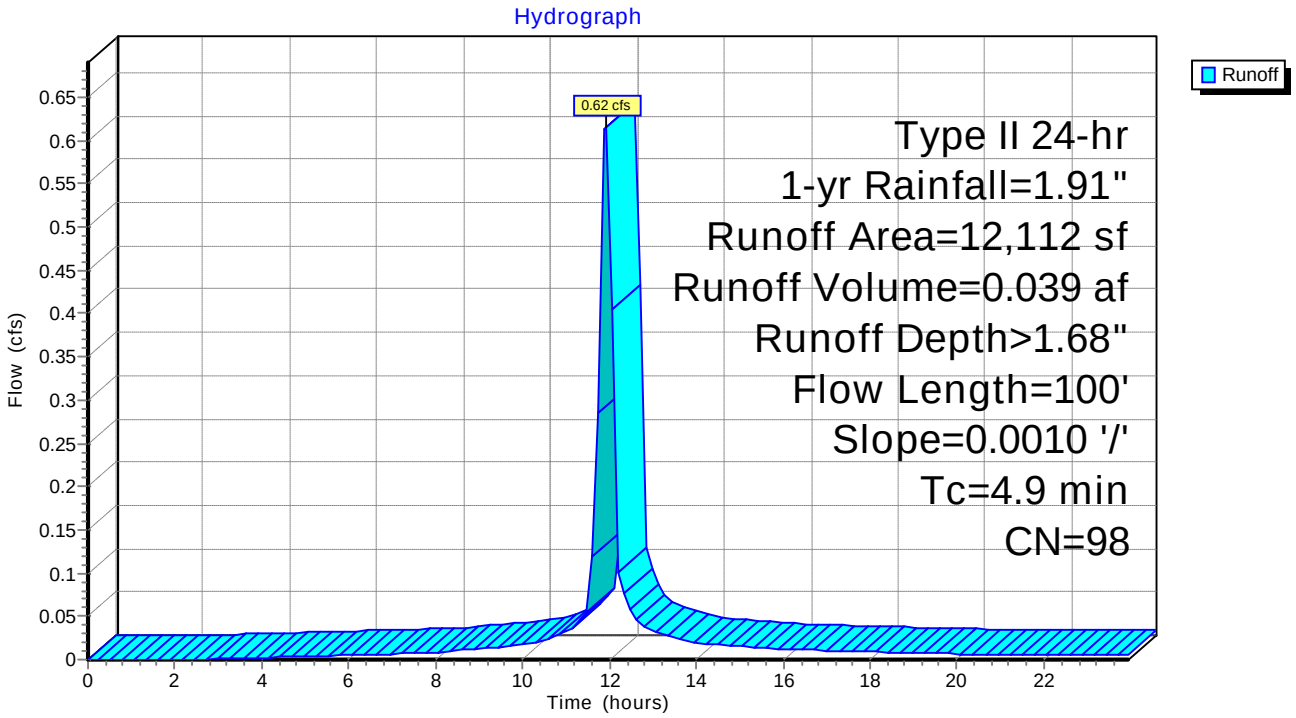
Runoff = 0.62 cfs @ 11.92 hrs, Volume= 0.039 af, Depth> 1.68"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

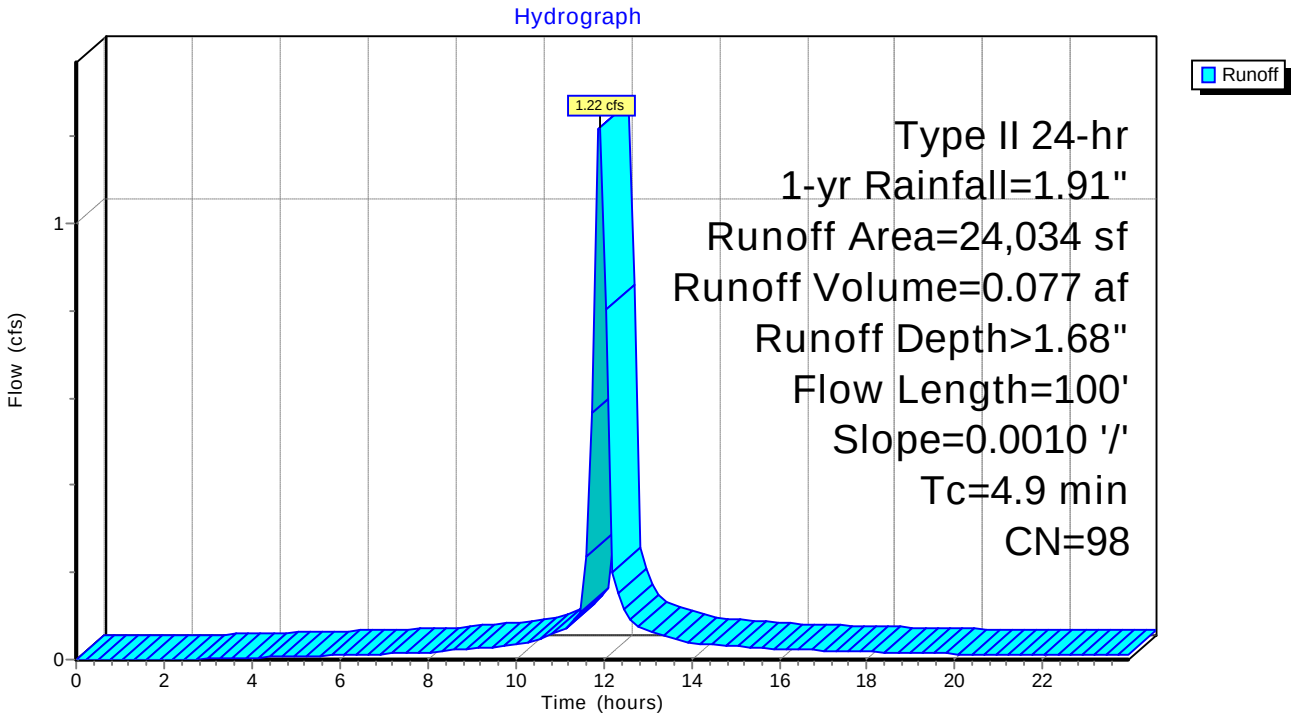
Runoff = 1.22 cfs @ 11.92 hrs, Volume= 0.077 af, Depth> 1.68"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

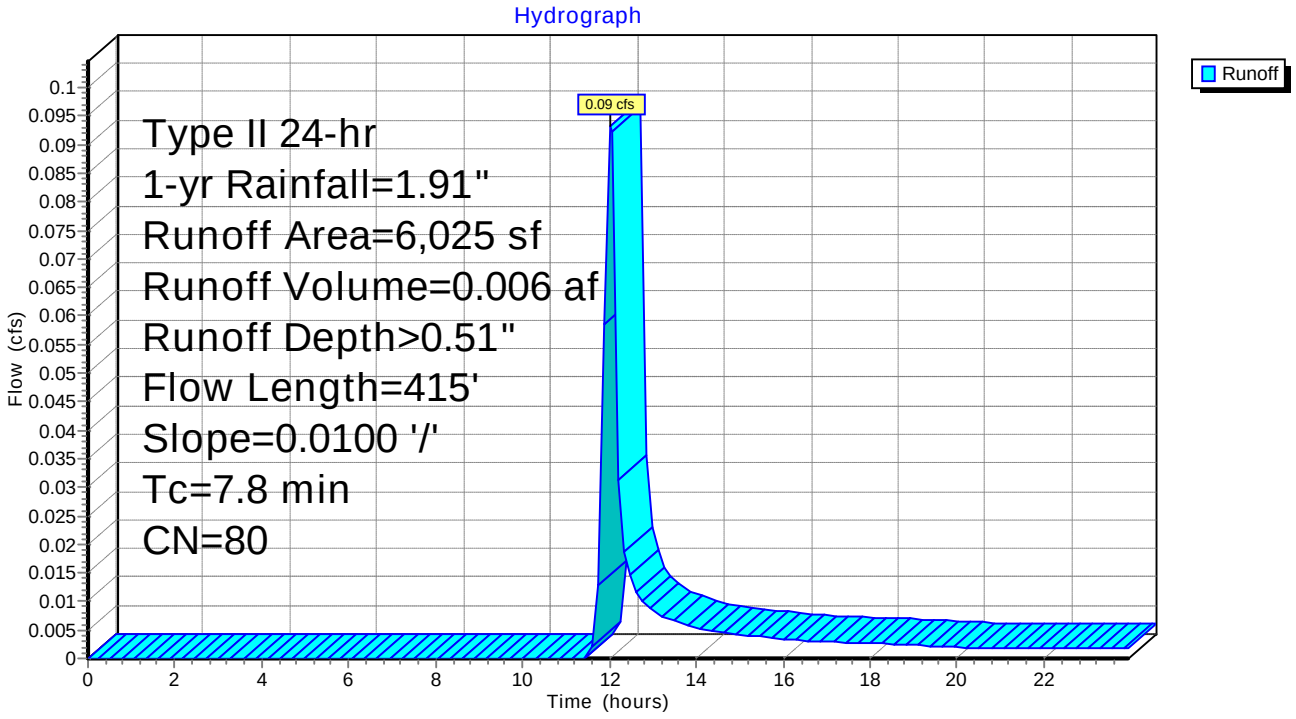
Runoff = 0.09 cfs @ 12.02 hrs, Volume= 0.006 af, Depth> 0.51"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

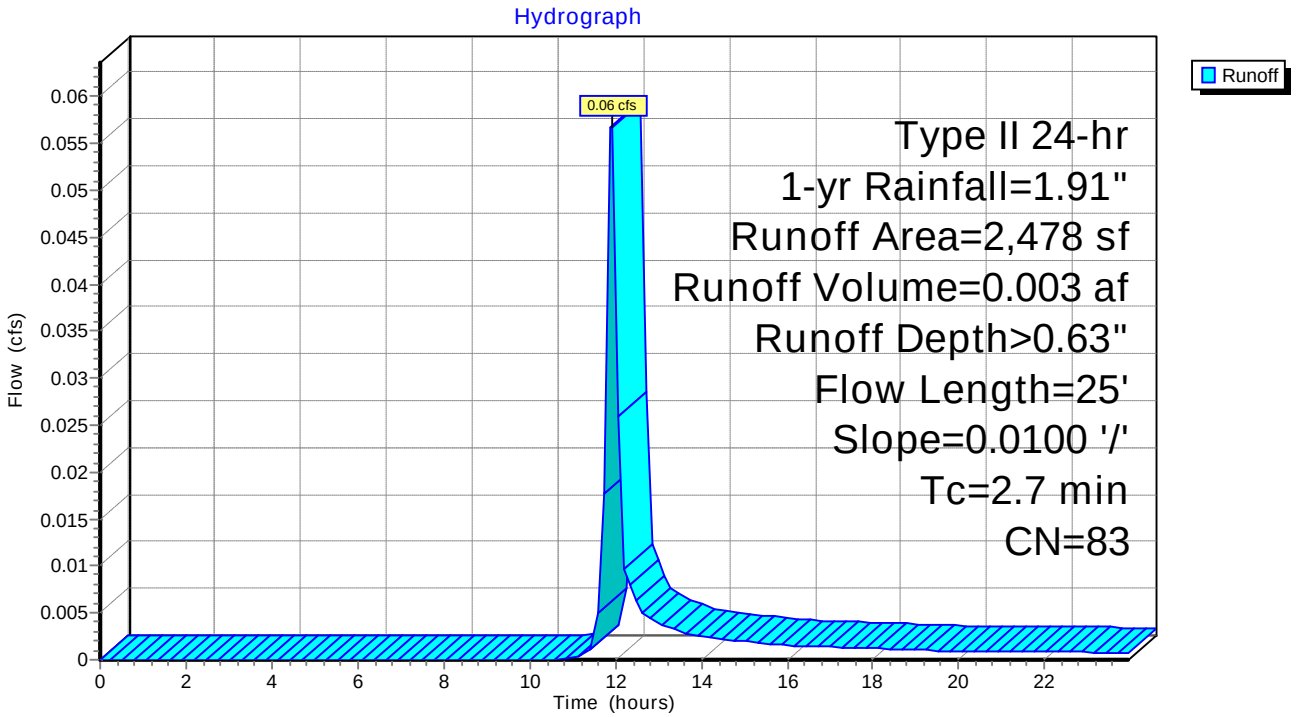
Runoff = 0.06 cfs @ 11.91 hrs, Volume= 0.003 af, Depth> 0.63"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

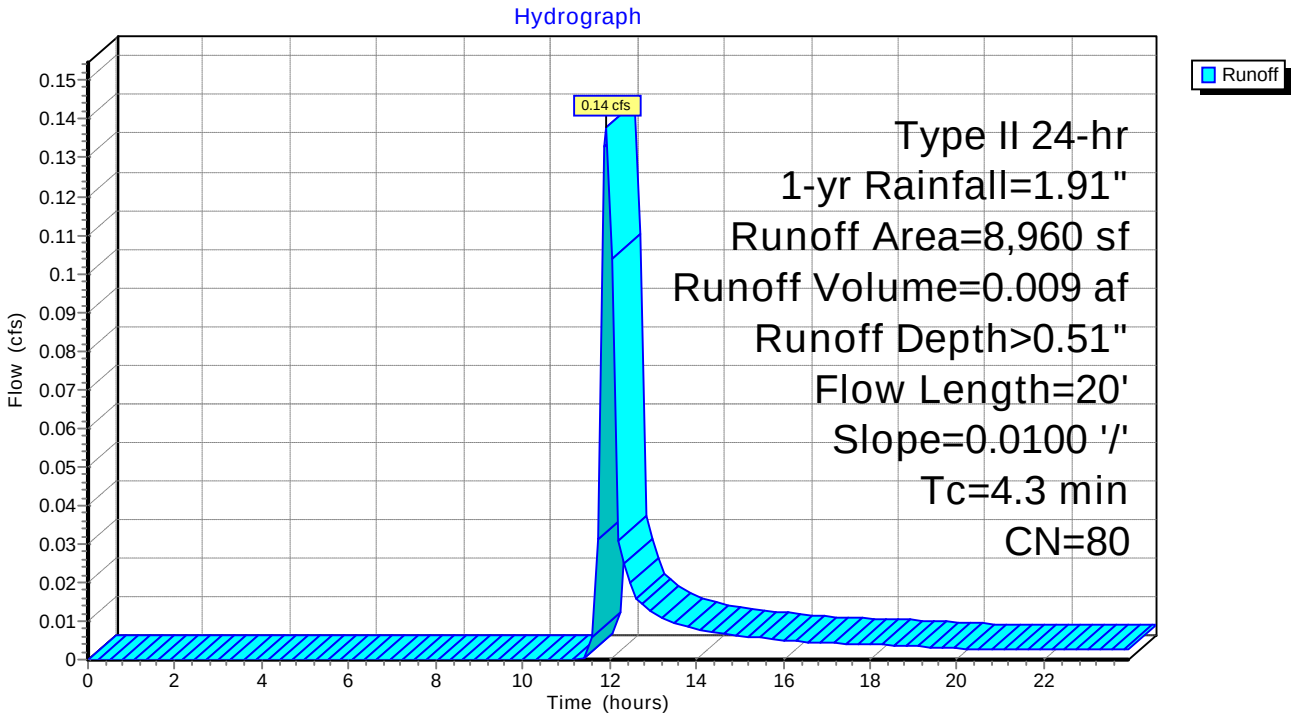
Runoff = 0.14 cfs @ 11.94 hrs, Volume= 0.009 af, Depth> 0.51"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

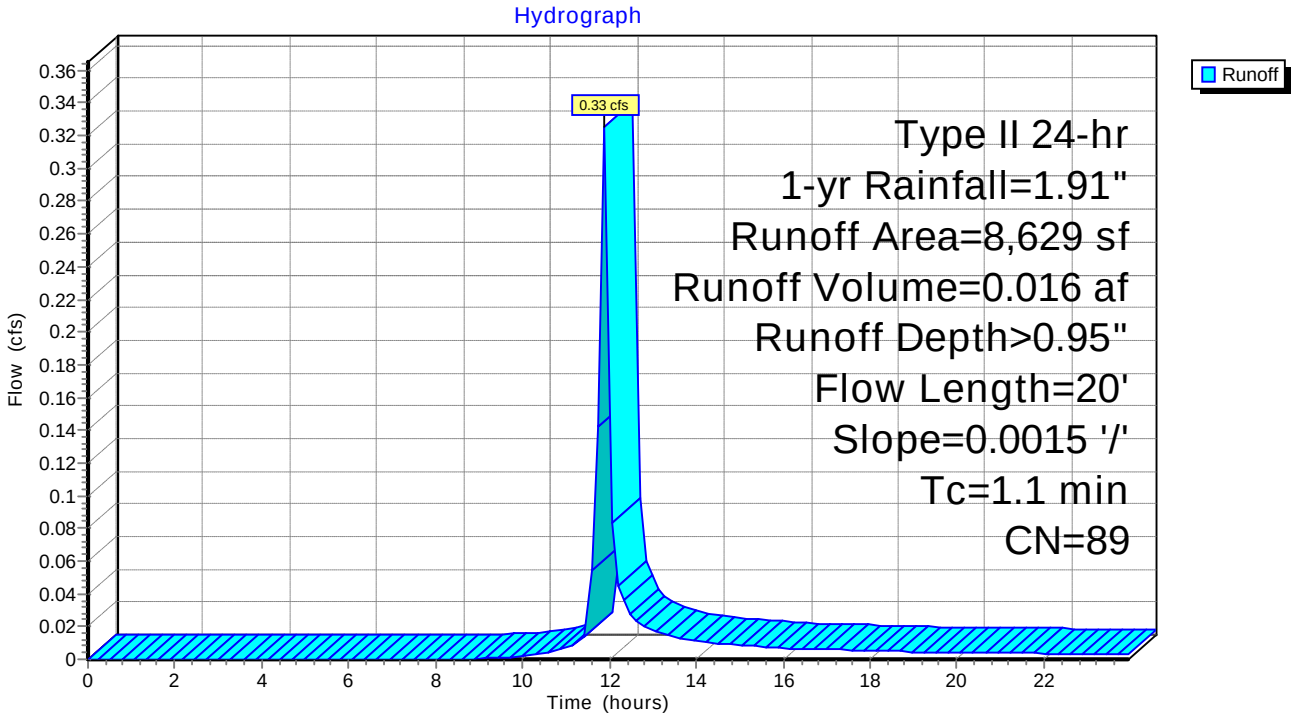
Runoff = 0.33 cfs @ 11.89 hrs, Volume= 0.016 af, Depth> 0.95"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

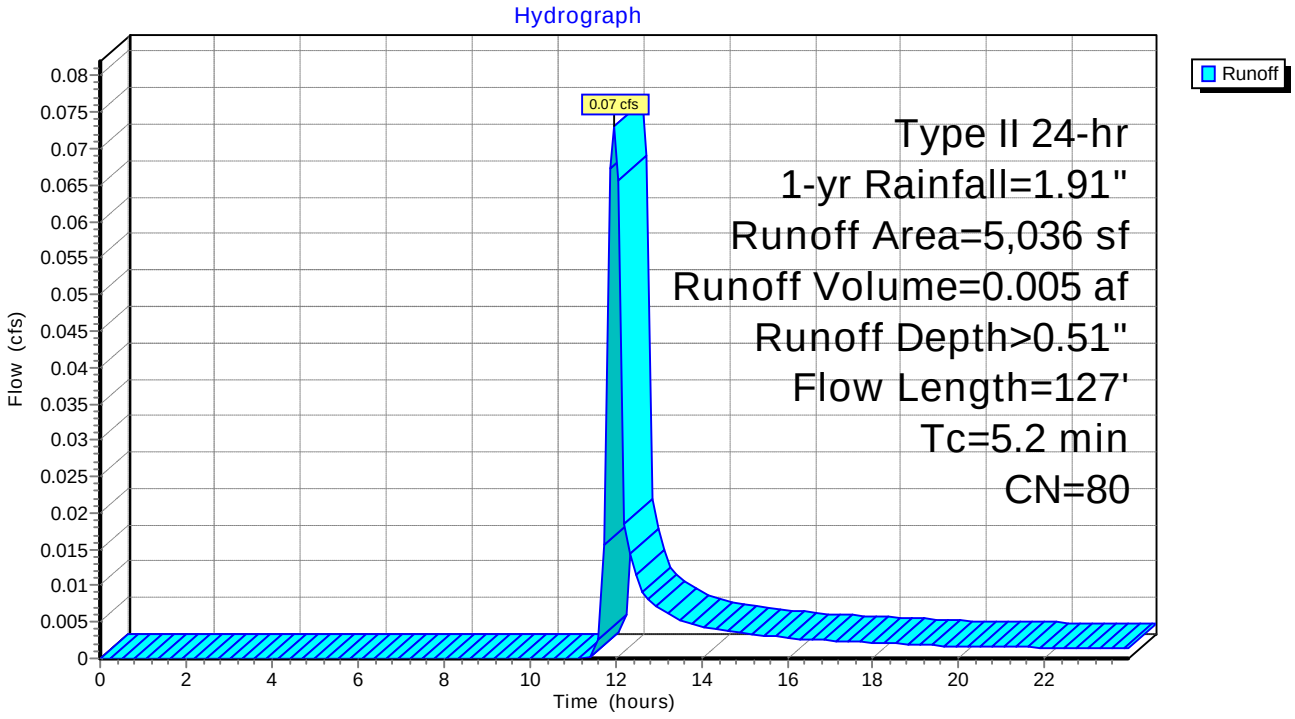
Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.005 af, Depth> 0.51"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

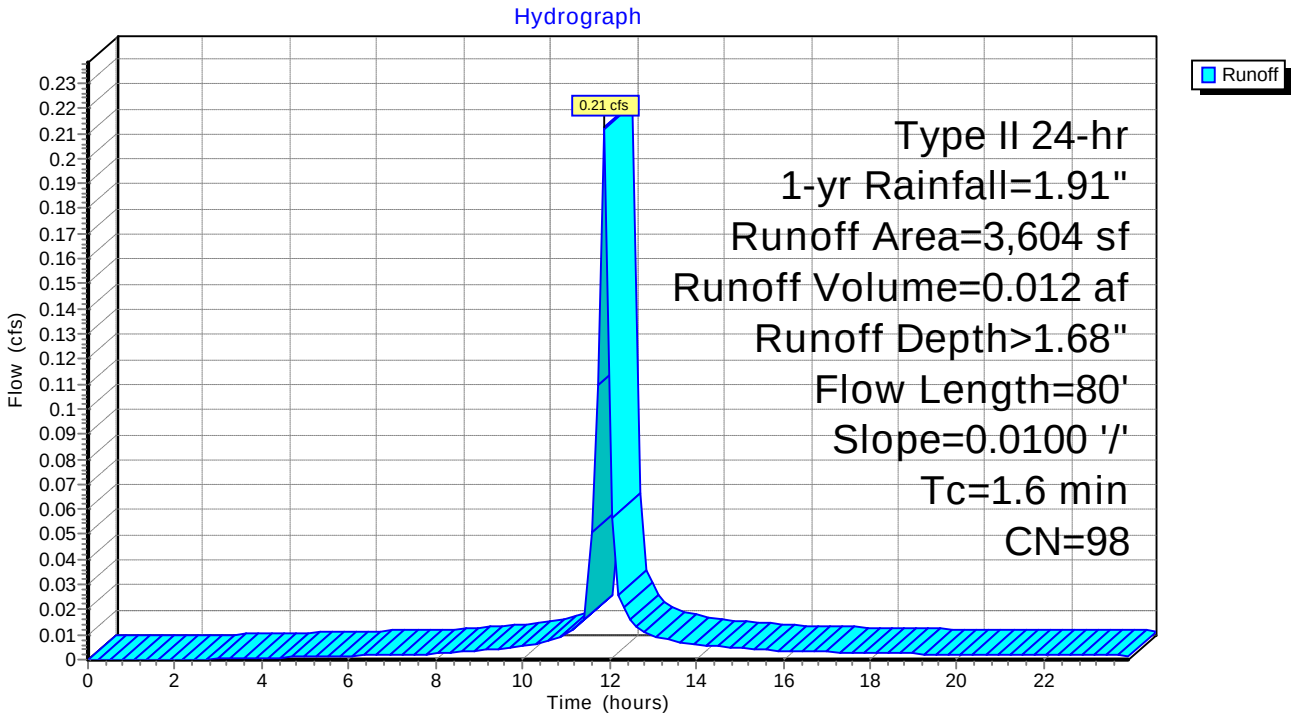
Runoff = 0.21 cfs @ 11.89 hrs, Volume= 0.012 af, Depth> 1.68"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

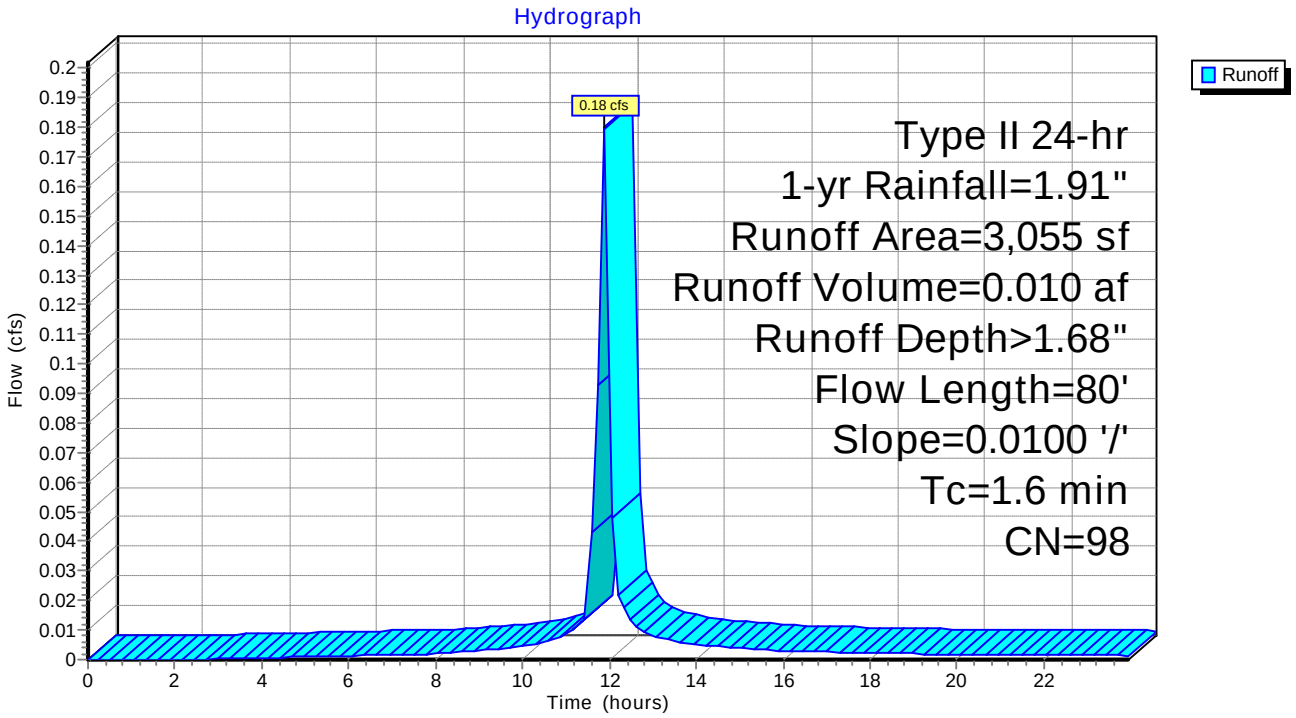
Runoff = 0.18 cfs @ 11.89 hrs, Volume= 0.010 af, Depth> 1.68"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

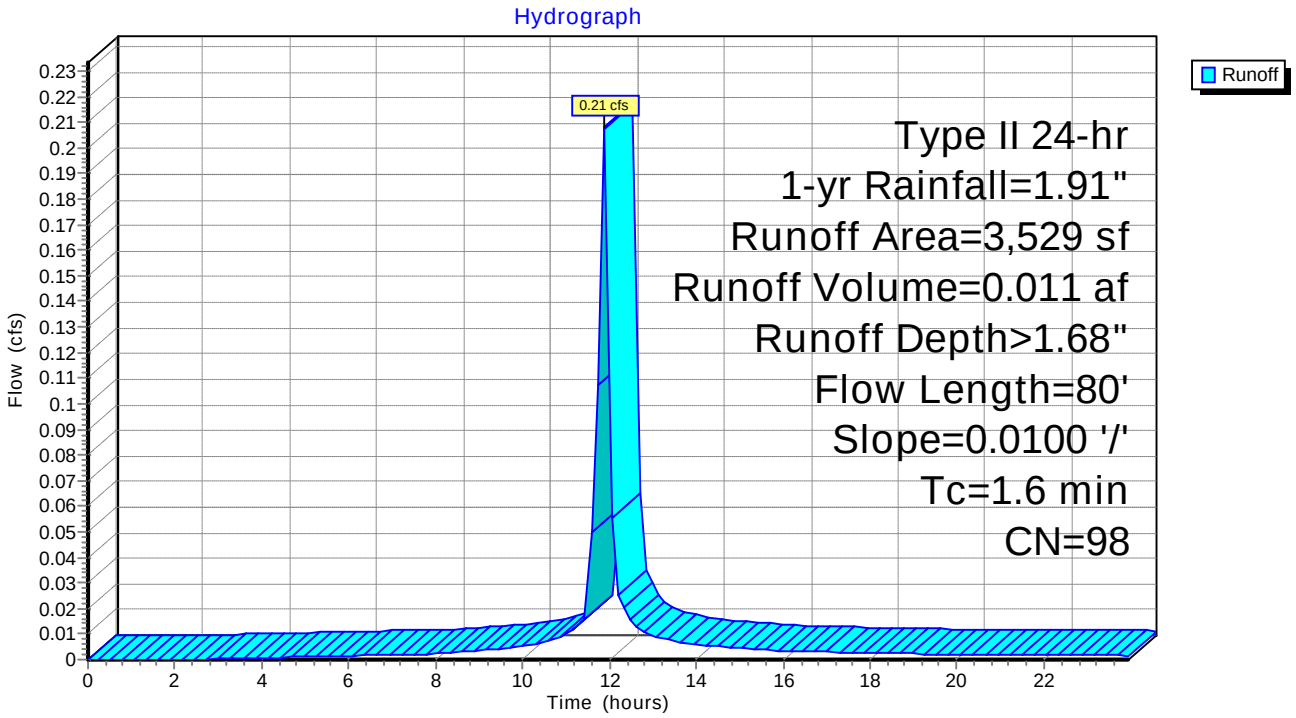
Runoff = 0.21 cfs @ 11.89 hrs, Volume= 0.011 af, Depth> 1.68"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 0.51" for 1-yr event
Inflow = 0.09 cfs @ 12.02 hrs, Volume= 0.006 af
Outflow = 0.06 cfs @ 12.15 hrs, Volume= 0.006 af, Atten= 39%, Lag= 8.1 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

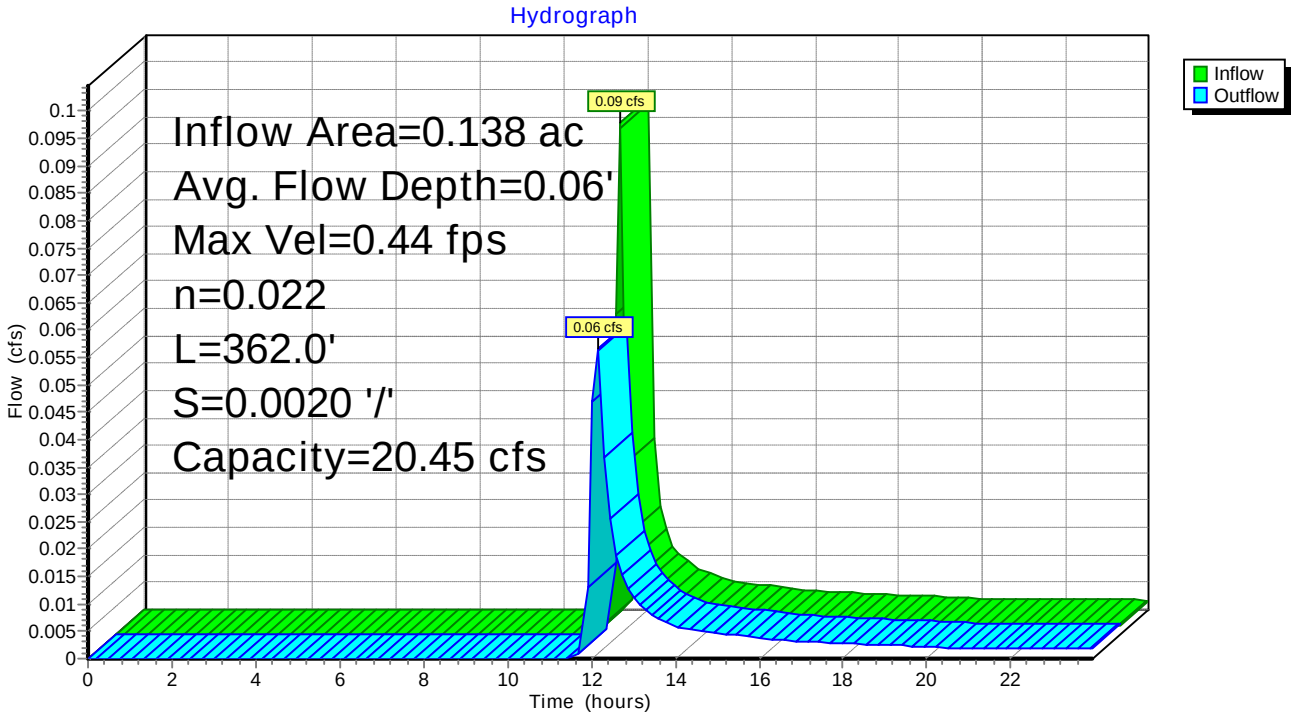
Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.44 fps, Min. Travel Time= 13.7 min
Avg. Velocity = 0.20 fps, Avg. Travel Time= 30.5 min

Peak Storage= 46 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 2.24'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



Reach 4R: East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 1.62" for 1-yr event
Inflow = 1.90 cfs @ 11.92 hrs, Volume= 0.119 af
Outflow = 1.78 cfs @ 11.92 hrs, Volume= 0.118 af, Atten= 6%, Lag= 0.5 min
Primary = 1.77 cfs @ 11.92 hrs, Volume= 0.108 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.01 cfs @ 12.26 hrs, Volume= 0.010 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.99' @ 12.26 hrs Surf.Area= 492 sf Storage= 148 cf

Plug-Flow detention time= 13.3 min calculated for 0.118 af (99% of inflow)
Center-of-Mass det. time= 4.5 min (770.2 - 765.7)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

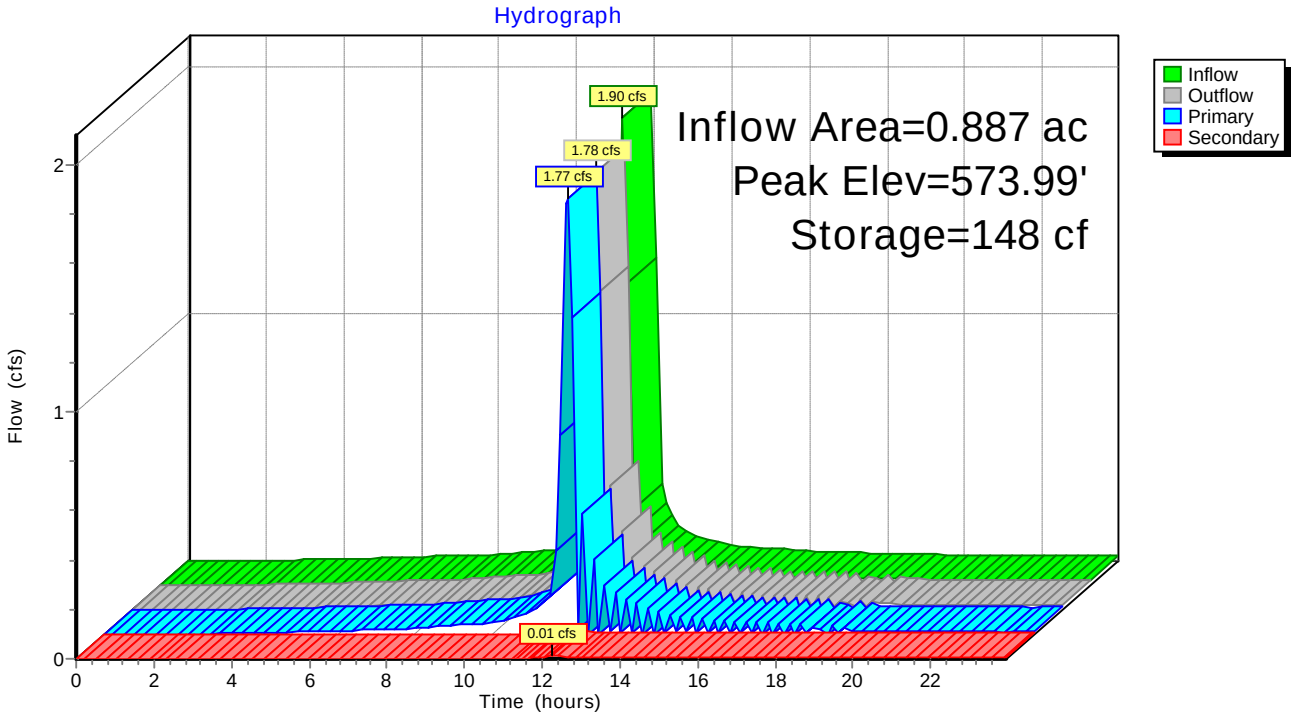
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	3.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	1.000 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.00 cfs @ 11.92 hrs HW=573.82' TW=573.83' (Dynamic Tailwater)
└1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Secondary OutFlow Max=0.01 cfs @ 12.26 hrs HW=573.98' TW=573.96' (Dynamic Tailwater)
└2=Exfiltration (Exfiltration Controls 0.01 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

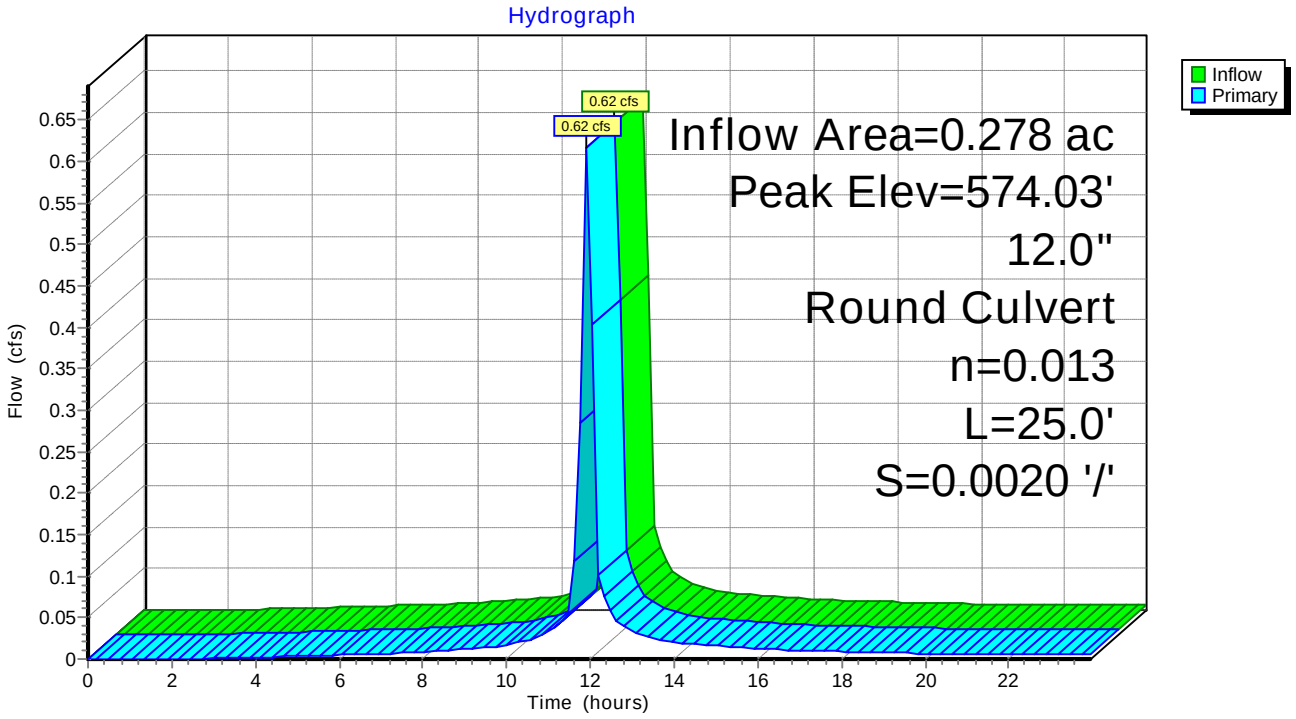
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 0.62 cfs @ 11.92 hrs, Volume= 0.039 af
Outflow = 0.62 cfs @ 11.92 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 11.92 hrs, Volume= 0.039 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.03' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	12.0" Round 12" CULVERT L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.59 cfs @ 11.92 hrs HW=574.02' TW=573.81' (Dynamic Tailwater)
└1=12" CULVERT (Barrel Controls 0.59 cfs @ 2.14 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

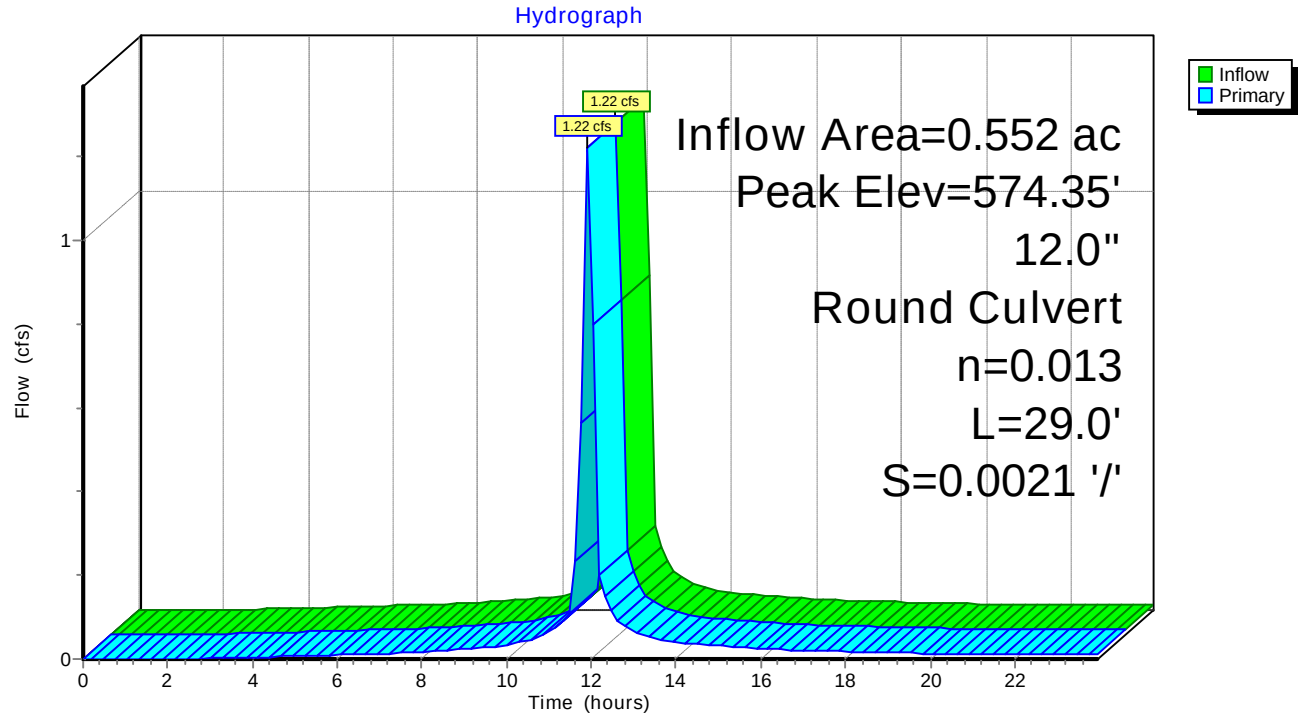
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 1.22 cfs @ 11.92 hrs, Volume= 0.077 af
Outflow = 1.22 cfs @ 11.92 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
Primary = 1.22 cfs @ 11.92 hrs, Volume= 0.077 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.35' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	12.0" Round 12" CULVERT L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.17 cfs @ 11.92 hrs HW=574.33' TW=573.81' (Dynamic Tailwater)
└1=12" CULVERT (Barrel Controls 1.17 cfs @ 2.60 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.39" for 1-yr event
Inflow = 1.91 cfs @ 11.92 hrs, Volume= 0.127 af
Outflow = 0.76 cfs @ 12.12 hrs, Volume= 0.095 af, Atten= 60%, Lag= 11.7 min
Primary = 0.04 cfs @ 12.12 hrs, Volume= 0.057 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 0.72 cfs @ 12.12 hrs, Volume= 0.038 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.99' @ 12.12 hrs Surf.Area= 3,494 sf Storage= 2,027 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 72.5 min (849.5 - 777.0)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

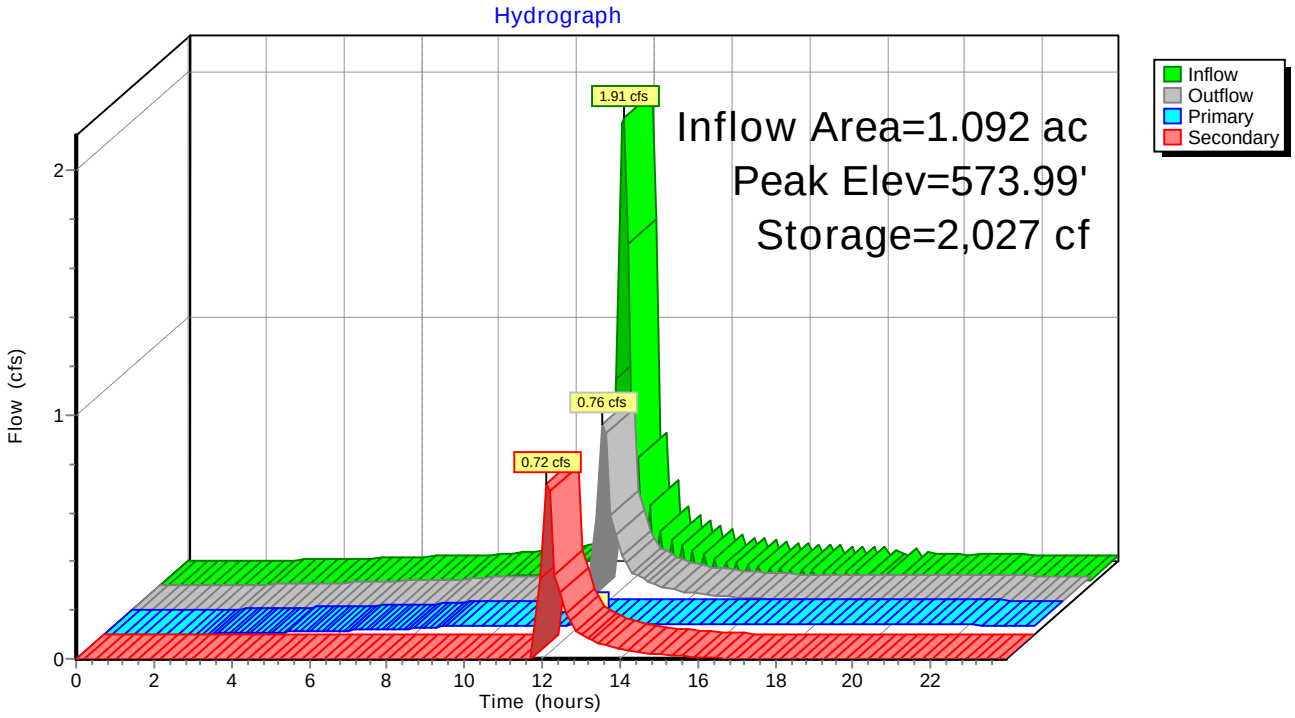
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	6.0" Horiz. Orifice/Grate X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	0.500 in/hr Exfiltration of Soil Media over Surface area

Primary OutFlow Max=0.04 cfs @ 12.12 hrs HW=573.98' TW=569.62' (Dynamic Tailwater)
└3=Exfiltration of Soil Media (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=0.68 cfs @ 12.12 hrs HW=573.98' TW=569.62' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Controls 0.00 cfs)
└2=Orifice/Grate (Weir Controls 0.68 cfs @ 1.05 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.05" for 1-yr event
Inflow = 0.76 cfs @ 12.12 hrs, Volume= 0.095 af
Outflow = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af, Atten= 87%, Lag= 105.1 min
Primary = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.23' @ 14.12 hrs Surf.Area= 2,931 sf Storage= 1,481 cf

Plug-Flow detention time= 211.2 min calculated for 0.064 af (67% of inflow)
Center-of-Mass det. time= 65.0 min (914.5 - 849.5)

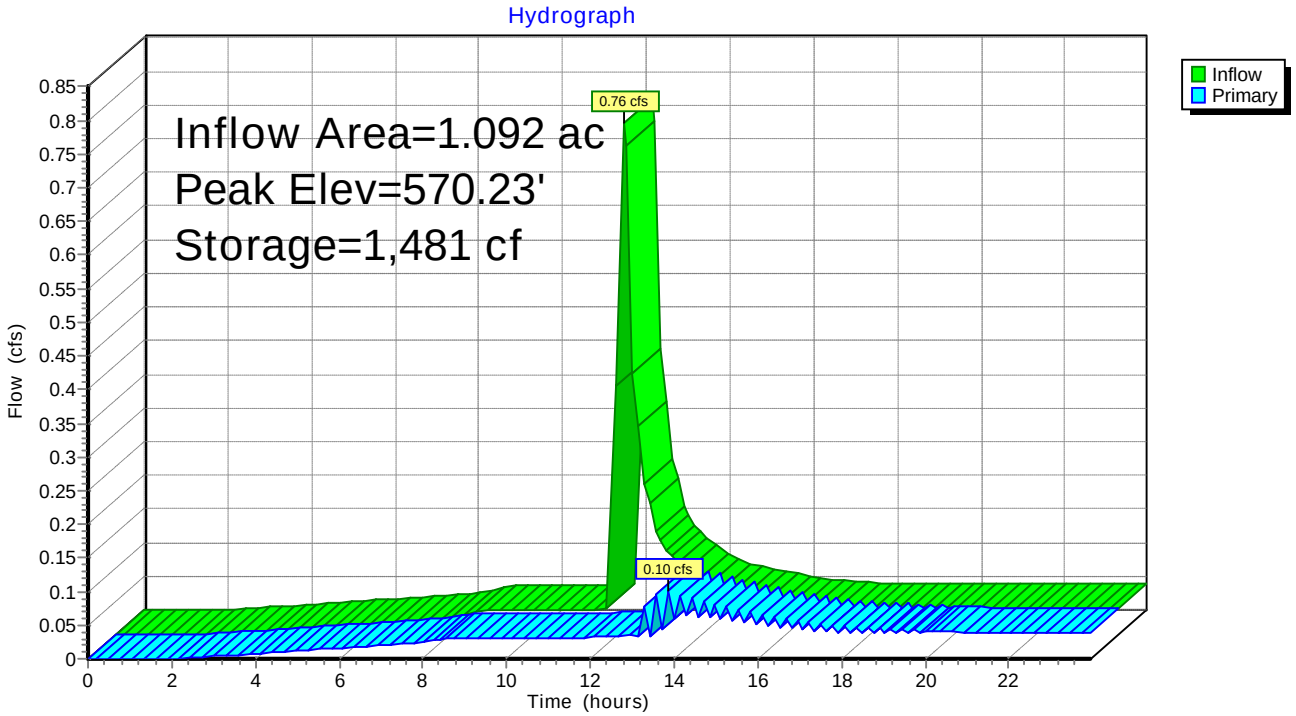
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	6.0" Round 6" Perforated HDPE Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	6.0" Round Culvert after elbow assembly L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.06 cfs @ 13.87 hrs HW=570.23' TW=570.22' (Dynamic Tailwater)
1=Culvert after elbow assembly (Outlet Controls 0.03 cfs @ 0.55 fps)
2=Exfiltration (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

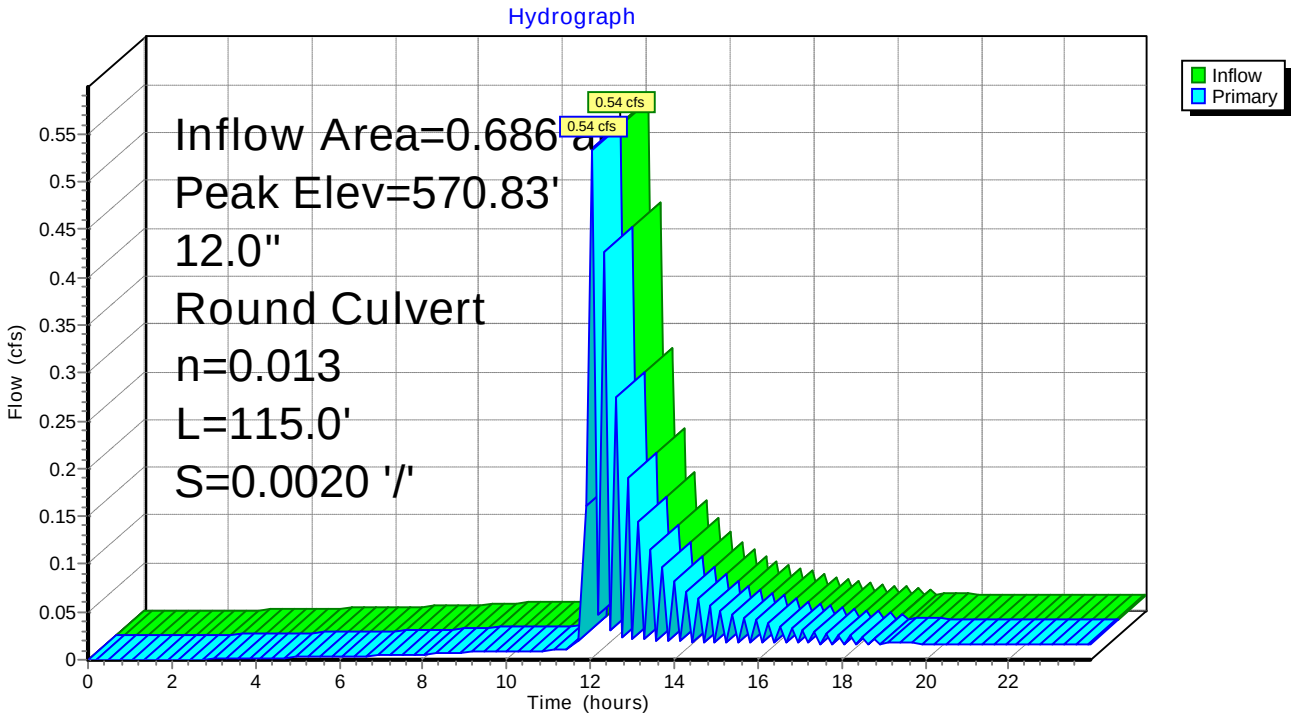
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 0.85" for 1-yr event
Inflow = 0.54 cfs @ 12.03 hrs, Volume= 0.049 af
Outflow = 0.54 cfs @ 12.03 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.03 hrs, Volume= 0.049 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.83' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	12.0" Round Culvert L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.03 hrs HW=570.81' TW=570.34' (Dynamic Tailwater)
└1=Culvert (Barrel Controls 0.50 cfs @ 1.90 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.14" for 1-yr event
Inflow = 0.94 cfs @ 11.89 hrs, Volume= 0.054 af
Outflow = 0.90 cfs @ 11.90 hrs, Volume= 0.049 af, Atten= 4%, Lag= 0.8 min
Primary = 0.01 cfs @ 11.90 hrs, Volume= 0.015 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 0.89 cfs @ 11.90 hrs, Volume= 0.034 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.31' @ 11.90 hrs Surf.Area= 943 sf Storage= 313 cf

Plug-Flow detention time= 71.6 min calculated for 0.049 af (90% of inflow)
Center-of-Mass det. time= 22.3 min (815.3 - 793.1)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

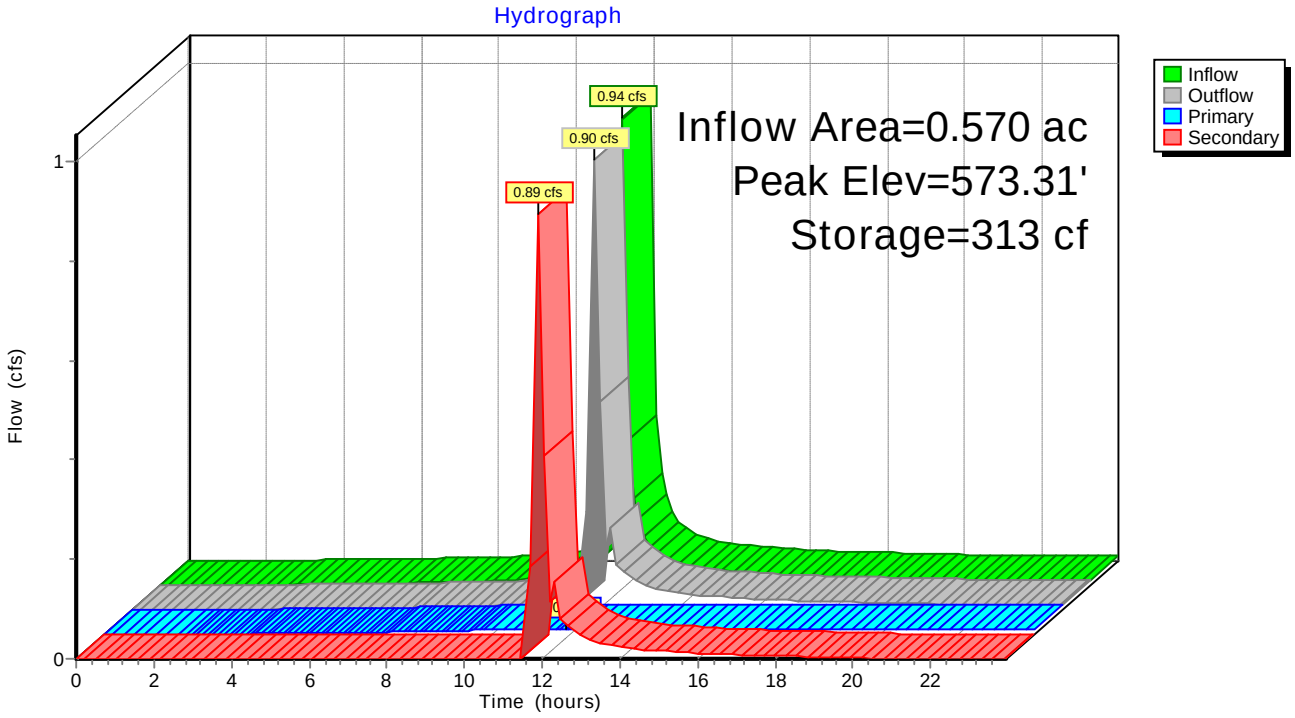
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	4.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	0.500 in/hr Exfiltration through soil media over Surface area

Primary OutFlow Max=0.01 cfs @ 11.90 hrs HW=573.31' TW=570.55' (Dynamic Tailwater)
└3=Exfiltration through soil media (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.88 cfs @ 11.90 hrs HW=573.31' TW=570.55' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Weir Controls 0.79 cfs @ 0.80 fps)
└2=Orifice/Grate (Weir Controls 0.09 cfs @ 0.98 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.03" for 1-yr event
Inflow = 0.90 cfs @ 11.90 hrs, Volume= 0.049 af
Outflow = 0.46 cfs @ 12.03 hrs, Volume= 0.044 af, Atten= 49%, Lag= 7.8 min
Primary = 0.46 cfs @ 12.03 hrs, Volume= 0.044 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.80' @ 12.16 hrs Surf.Area= 1,355 sf Storage= 593 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 45.7 min (861.0 - 815.3)

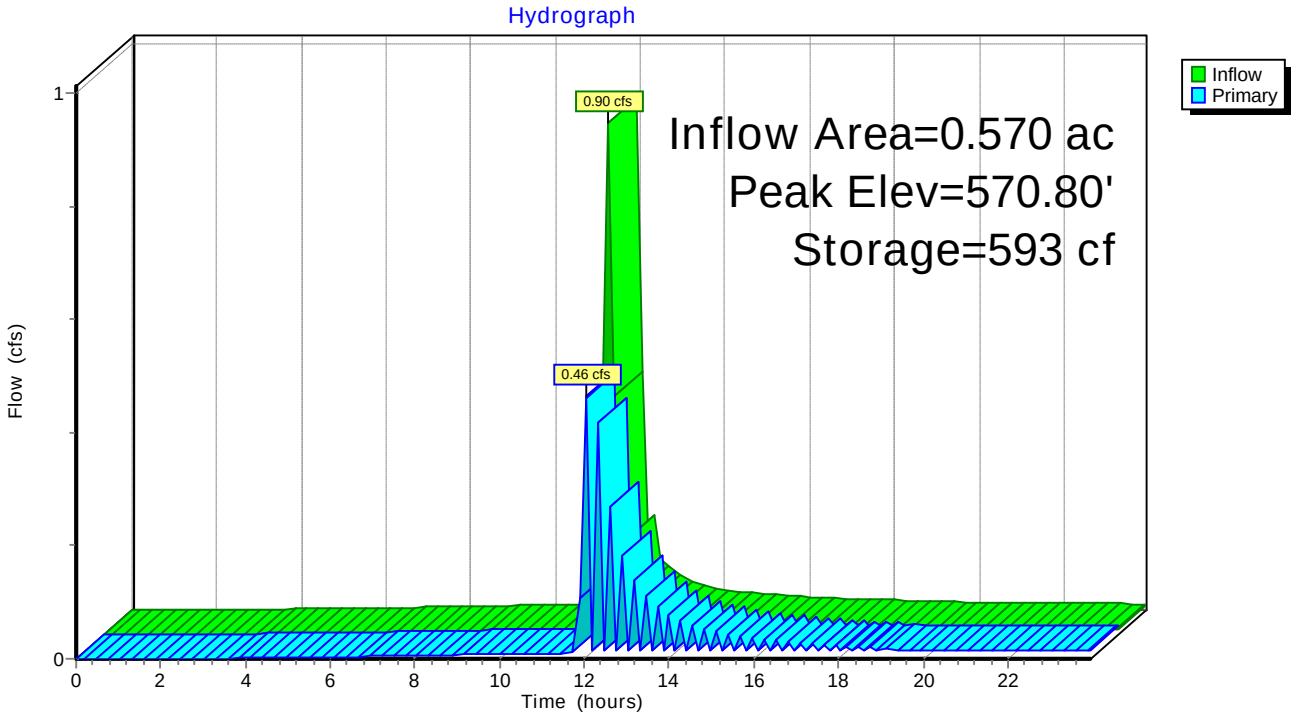
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	4.0" Round 4" Perforated HDPE Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	12.0" Round 12" Culvert L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.02 cfs @ 12.03 hrs HW=570.76' TW=570.82' (Dynamic Tailwater)
1=12" Culvert (Controls 0.00 cfs)
2=Exfiltration (Exfiltration Controls 0.02 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

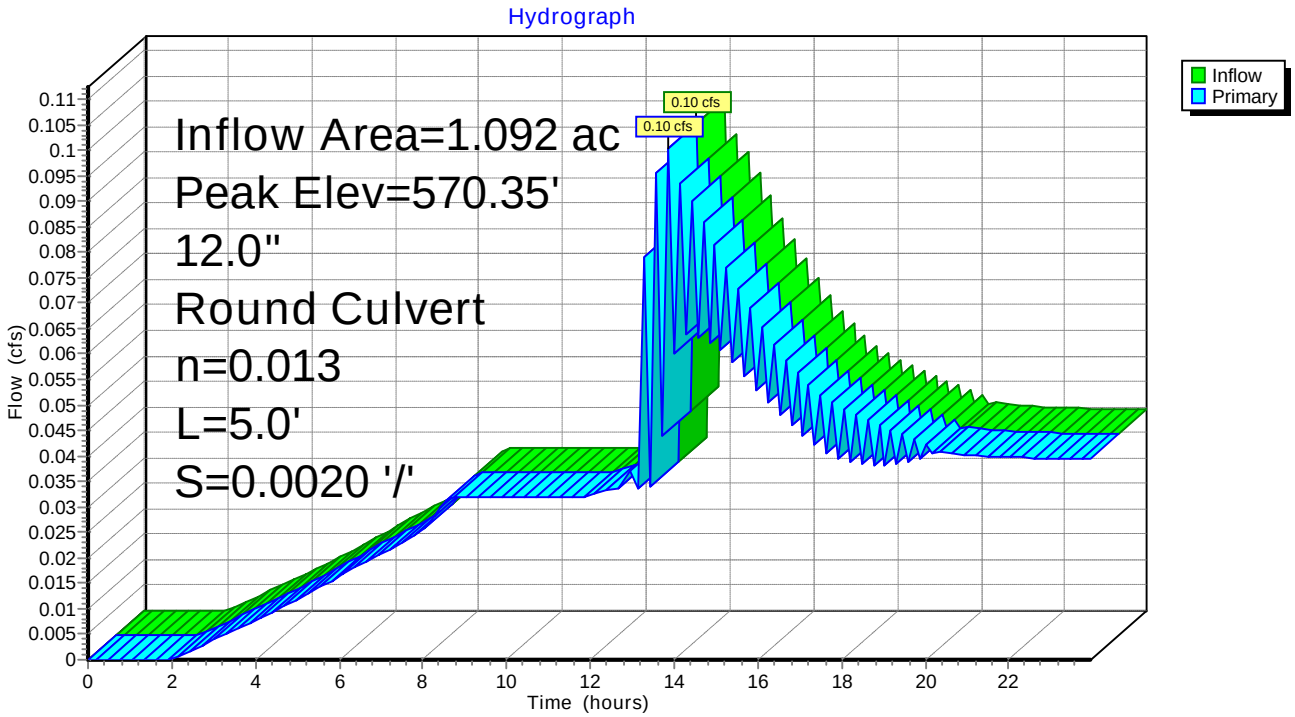
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 0.71" for 1-yr event
Inflow = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af
Outflow = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.35' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	12.0" Round 12 " Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 13.87 hrs HW=570.22' TW=570.16' (Dynamic Tailwater)
└1=12 " Culvert (Outlet Controls 0.11 cfs @ 1.37 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 1.35" for 1-yr event
Inflow = 0.93 cfs @ 11.89 hrs, Volume= 0.049 af
Outflow = 0.93 cfs @ 11.89 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 11.89 hrs, Volume= 0.049 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.68' @ 11.89 hrs
Flood Elev= 576.20'

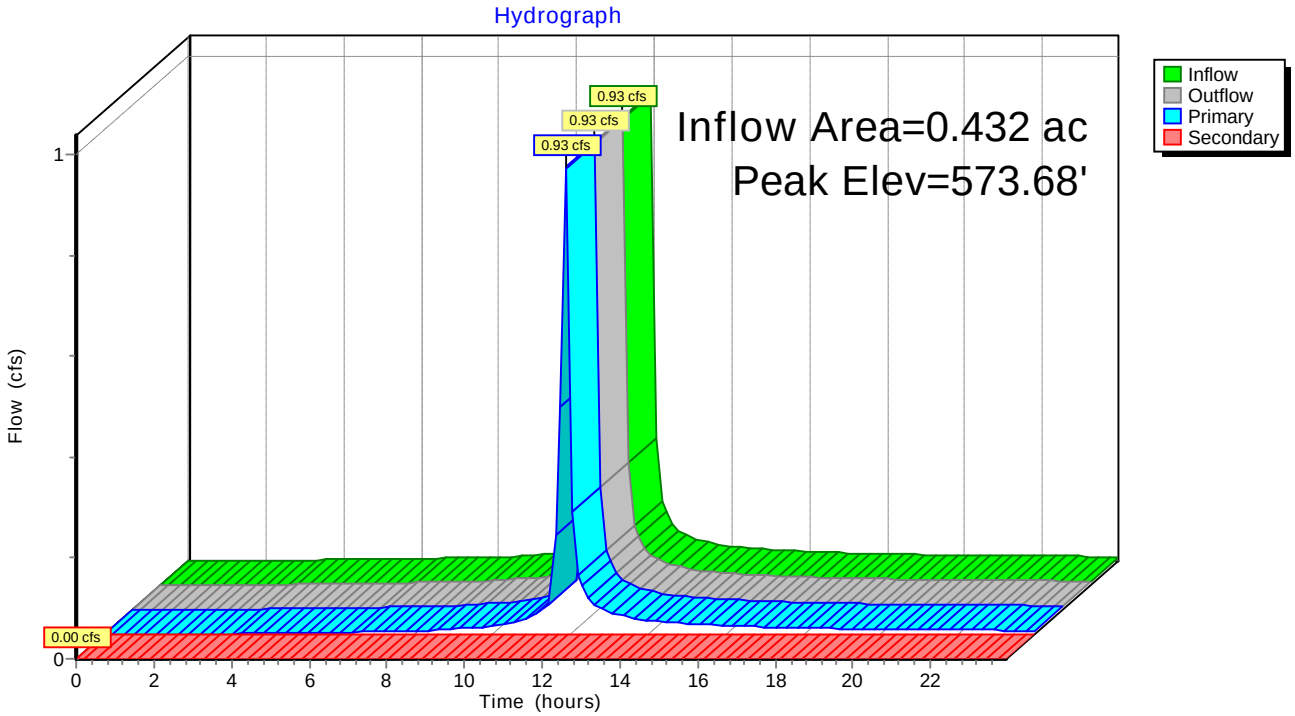
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	6.0" Horiz. Orifice/Grate X 5.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.86 cfs @ 11.89 hrs HW=573.67' TW=573.31' (Dynamic Tailwater)
- 1=Orifice/Grate (Orifice Controls 0.27 cfs @ 2.88 fps)
- 2=Orifice/Grate (Orifice Controls 0.42 cfs @ 2.19 fps)
- 3=Orifice/Grate (Orifice Controls 0.17 cfs @ 0.89 fps)
- 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- 5=Orifice/Grate (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

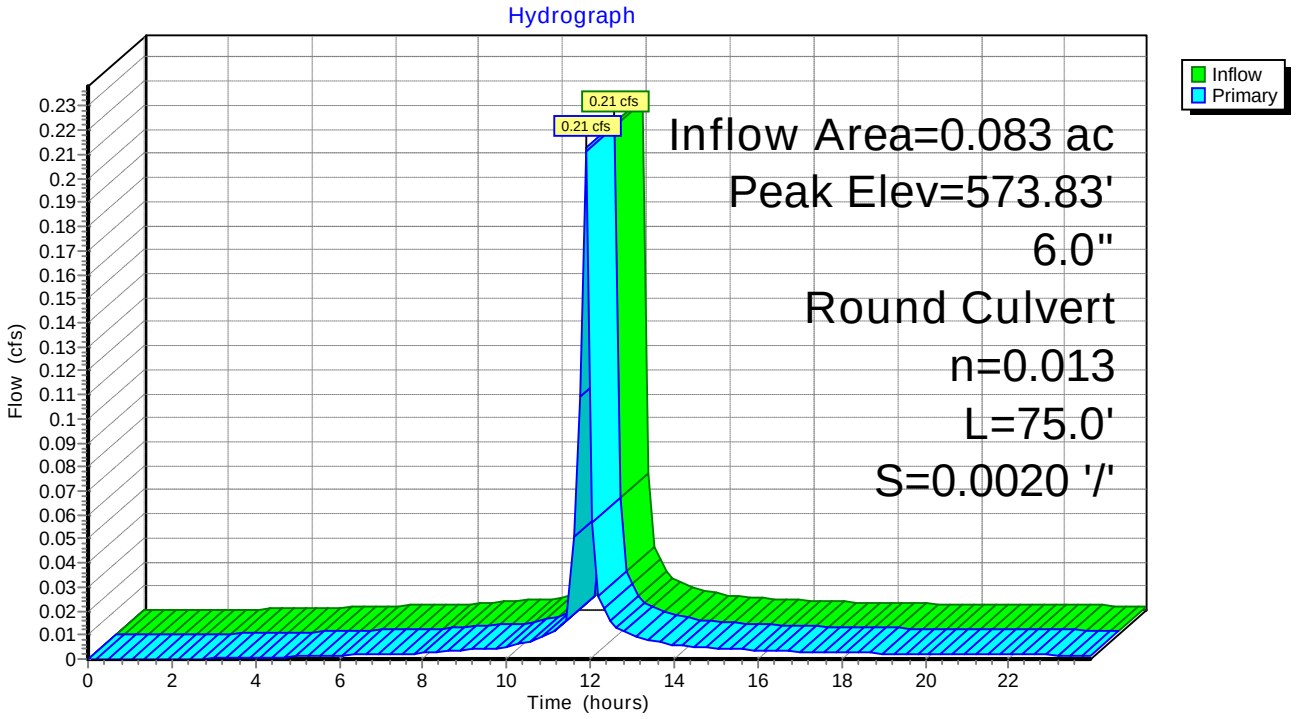
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 0.21 cfs @ 11.89 hrs, Volume= 0.012 af
Outflow = 0.21 cfs @ 11.89 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 11.89 hrs, Volume= 0.012 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.83' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.15 cfs @ 11.89 hrs HW=573.81' TW=573.66' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.15 cfs @ 1.21 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

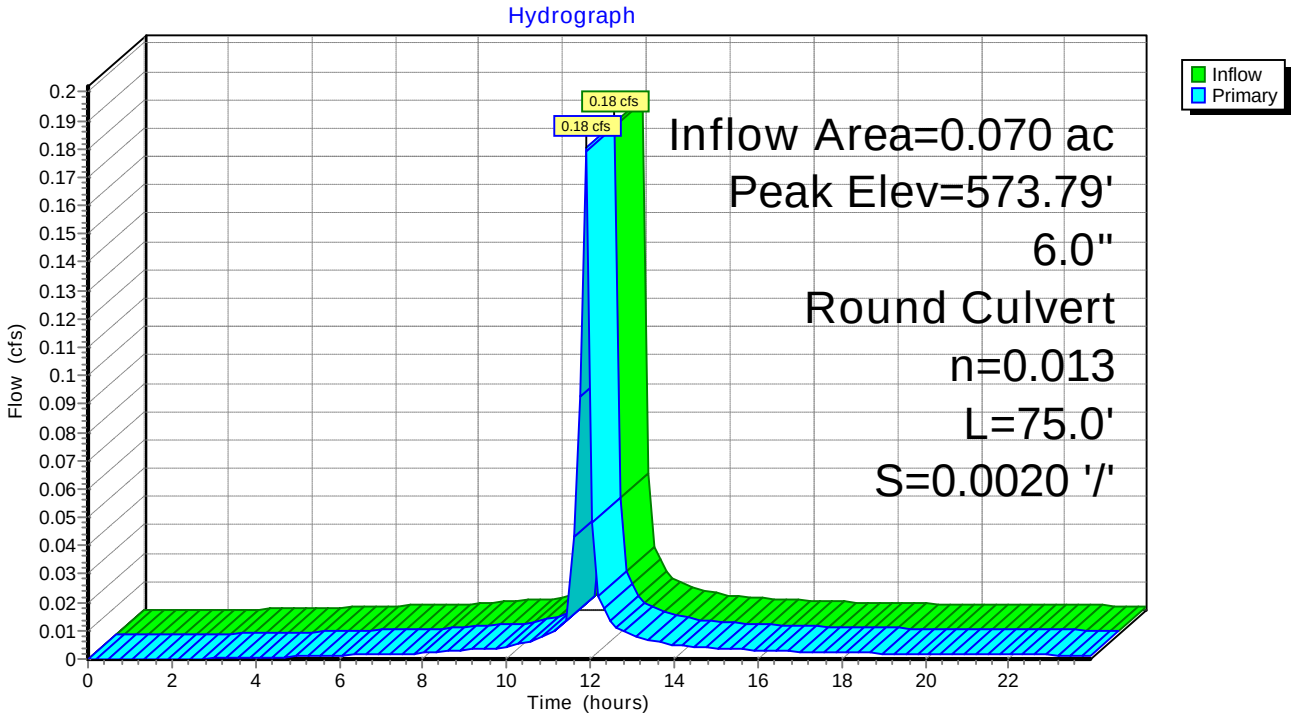
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 0.18 cfs @ 11.89 hrs, Volume= 0.010 af
Outflow = 0.18 cfs @ 11.89 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 11.89 hrs, Volume= 0.010 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.79' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.11 cfs @ 11.89 hrs HW=573.77' TW=573.66' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.11 cfs @ 1.01 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

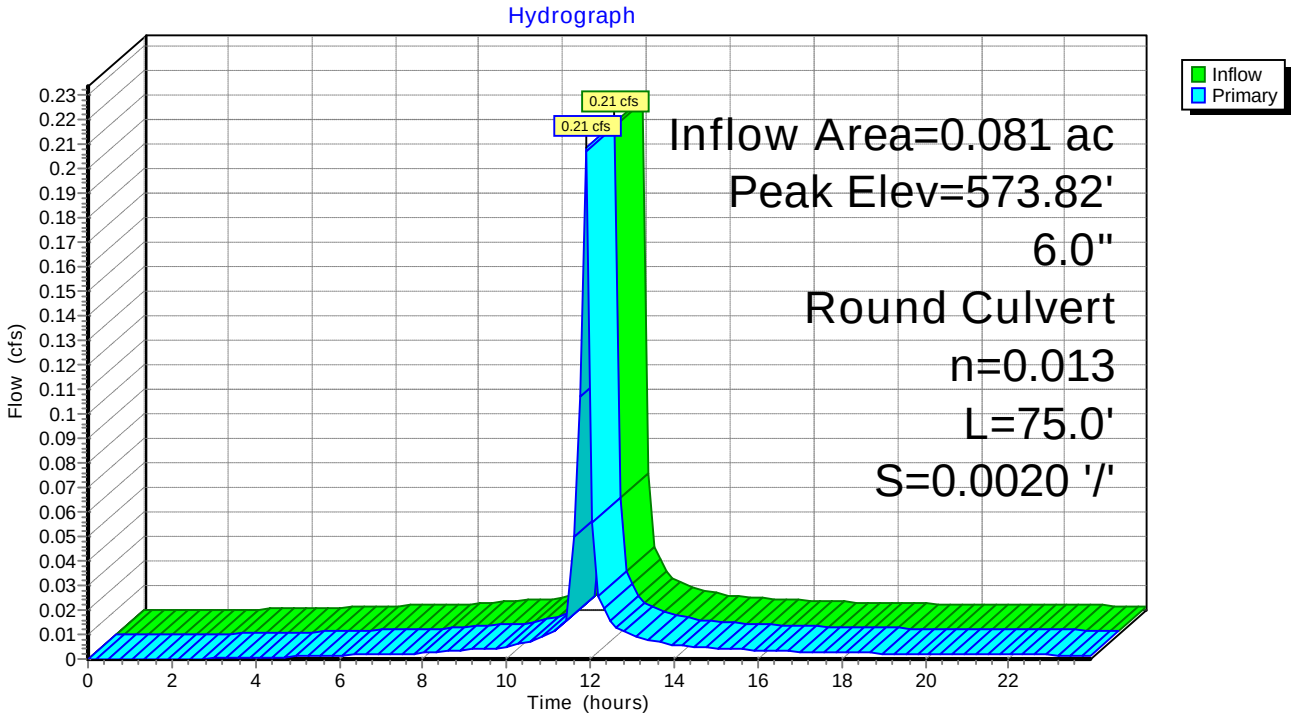
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 0.21 cfs @ 11.89 hrs, Volume= 0.011 af
Outflow = 0.21 cfs @ 11.89 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 11.89 hrs, Volume= 0.011 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.82' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.15 cfs @ 11.89 hrs HW=573.81' TW=573.66' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.15 cfs @ 1.18 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

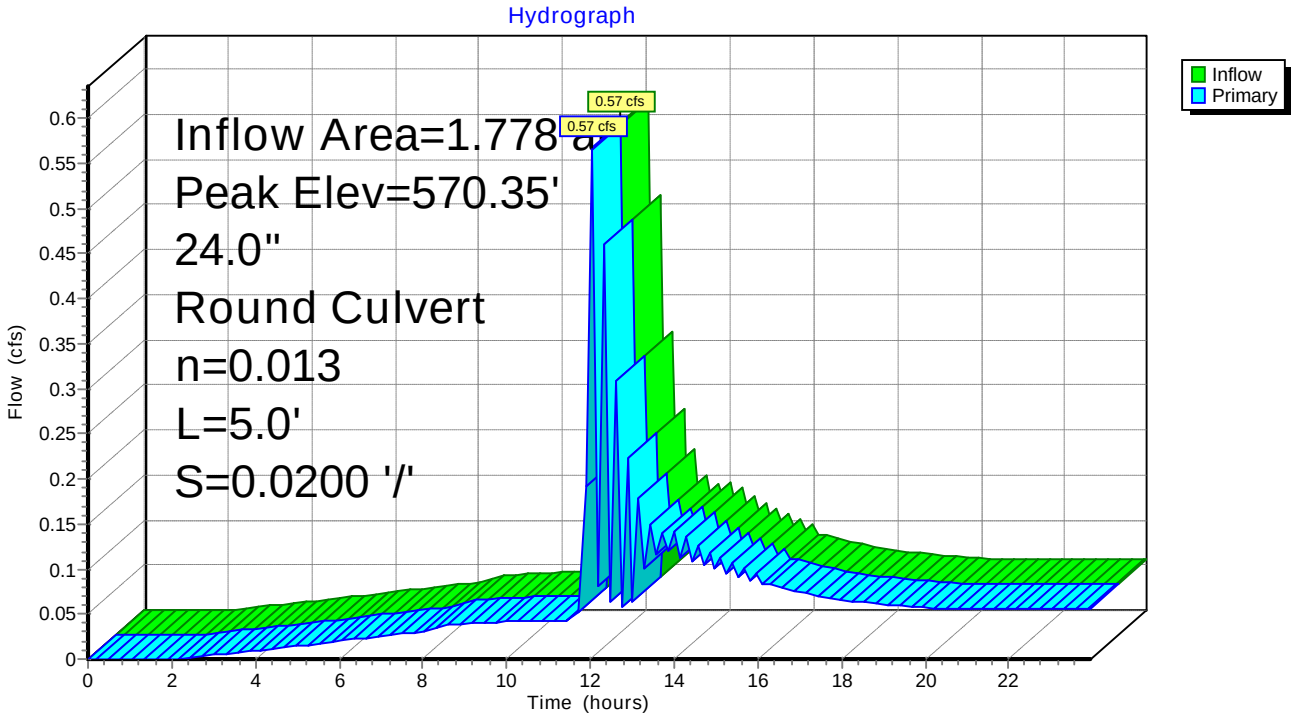
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 0.76" for 1-yr event
Inflow = 0.57 cfs @ 12.03 hrs, Volume= 0.113 af
Outflow = 0.57 cfs @ 12.03 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.03 hrs, Volume= 0.113 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.35' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	24.0" Round Culvert L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=0.54 cfs @ 12.03 hrs HW=570.34' (Free Discharge)
└1=Culvert (Barrel Controls 0.54 cfs @ 2.33 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 0.51" for 1-yr event
Inflow = 0.07 cfs @ 11.97 hrs, Volume= 0.005 af
Outflow = 0.07 cfs @ 12.01 hrs, Volume= 0.005 af, Atten= 2%, Lag= 2.9 min
Primary = 0.07 cfs @ 12.01 hrs, Volume= 0.005 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.78' @ 12.01 hrs Surf.Area= 257 sf Storage= 8 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (870.2 - 869.1)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

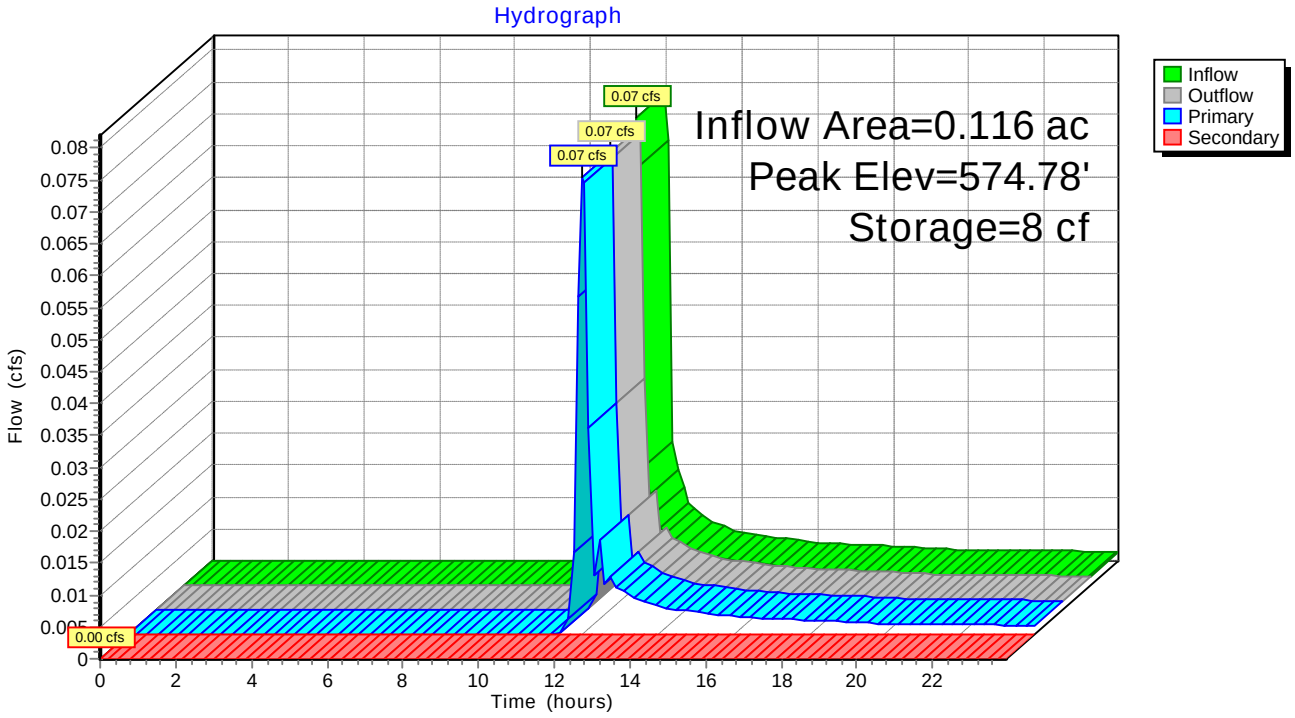
Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	6.0" Horiz. 6" Yard Drain C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	1.7" x 3.2" Horiz. CB Grate X 7.00 columns X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

Primary OutFlow Max=0.07 cfs @ 12.01 hrs HW=574.78' TW=570.79' (Dynamic Tailwater)
└1=6" Yard Drain (Weir Controls 0.07 cfs @ 0.77 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
└2=CB Grate (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=0.74 cfs 0.047 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.46 cfs 0.093 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>0.73"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.14 cfs 0.008 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>0.88"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.08 cfs 0.004 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>0.73"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.21 cfs 0.012 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>1.25"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=0.42 cfs 0.021 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>0.73"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.11 cfs 0.007 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.25 cfs 0.014 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.22 cfs 0.012 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.25 cfs 0.014 af

Reach 4R: East Swale Avg. Flow Depth=0.08' Max Vel=0.52 fps Inflow=0.14 cfs 0.008 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.09 cfs 0.008 af

Pond 5P: Front Vegetated Swale Peak Elev=574.05' Storage=176 cf Inflow=2.28 cfs 0.145 af
Primary=2.10 cfs 0.133 af Secondary=0.01 cfs 0.010 af Outflow=2.11 cfs 0.143 af

Pond 6P: CB1 Peak Elev=574.09' Inflow=0.74 cfs 0.047 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=0.74 cfs 0.047 af

Pond 7P: CB2 Peak Elev=574.44' Inflow=1.46 cfs 0.093 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=1.46 cfs 0.093 af

Pond 14P: Bio-Retention Area Storage Peak Elev=574.05' Storage=2,242 cf Inflow=2.32 cfs 0.155 af
Primary=0.04 cfs 0.060 af Secondary=1.89 cfs 0.061 af Outflow=1.93 cfs 0.121 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=570.43' Storage=1,835 cf Inflow=1.93 cfs 0.121 af
Outflow=0.30 cfs 0.091 af

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=570.95' Inflow=0.79 cfs 0.064 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=0.79 cfs 0.064 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.32' Storage=321 cf Inflow=1.17 cfs 0.068 af
Primary=0.01 cfs 0.016 af Secondary=1.07 cfs 0.047 af Outflow=1.08 cfs 0.063 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=570.93' Storage=700 cf Inflow=1.08 cfs 0.063 af
Outflow=0.68 cfs 0.057 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=570.43' Inflow=0.30 cfs 0.091 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=0.30 cfs 0.091 af

Pond 41P: Level Spreader Peak Elev=573.75' Inflow=1.14 cfs 0.060 af
Primary=1.14 cfs 0.060 af Secondary=0.00 cfs 0.000 af Outflow=1.14 cfs 0.060 af

Pond 42P: CB3 Peak Elev=573.88' Inflow=0.25 cfs 0.014 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.25 cfs 0.014 af

Pond 44P: CB4 Peak Elev=573.83' Inflow=0.22 cfs 0.012 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.22 cfs 0.012 af

Pond 45P: CB5 Peak Elev=573.87' Inflow=0.25 cfs 0.014 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.25 cfs 0.014 af

Pond 46P: STM MH Peak Elev=570.43' Inflow=0.82 cfs 0.155 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=0.82 cfs 0.155 af

Pond 47P: West Area to CB + YD Peak Elev=574.80' Storage=13 cf Inflow=0.11 cfs 0.007 af
Primary=0.11 cfs 0.007 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.007 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.233 af Average Runoff Depth = 1.57"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

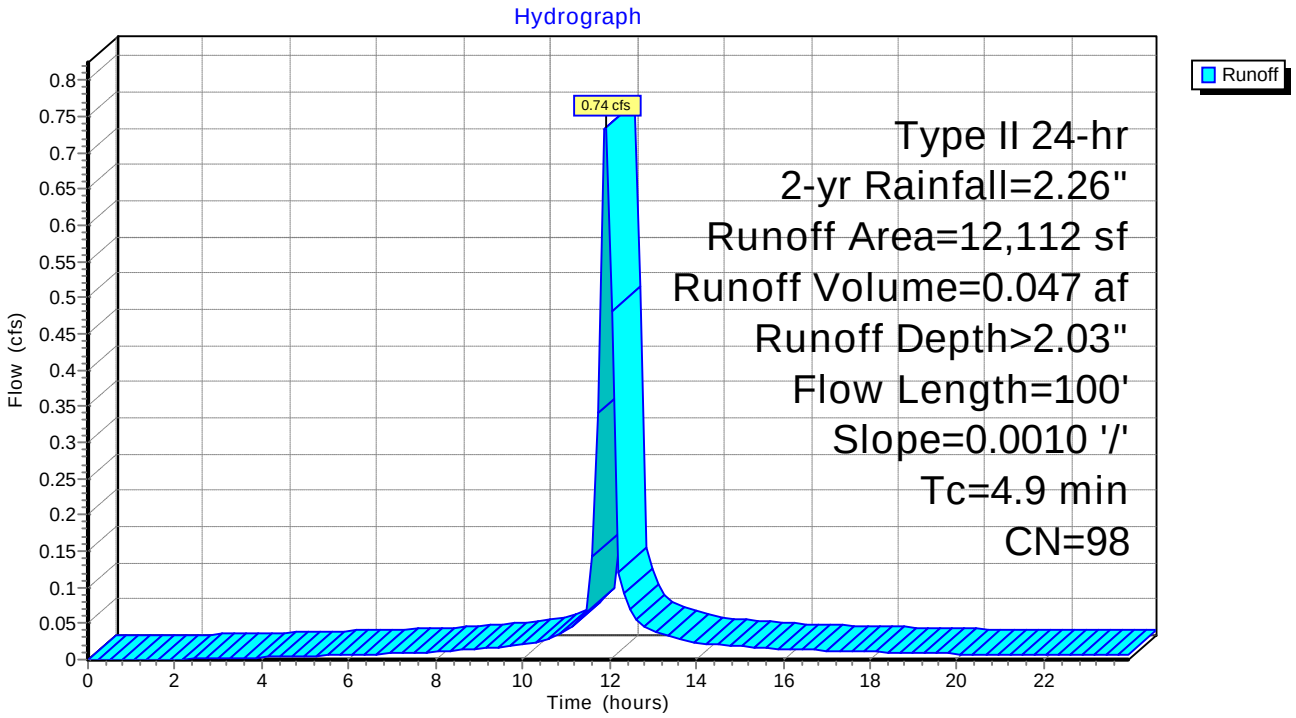
Runoff = 0.74 cfs @ 11.92 hrs, Volume= 0.047 af, Depth> 2.03"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

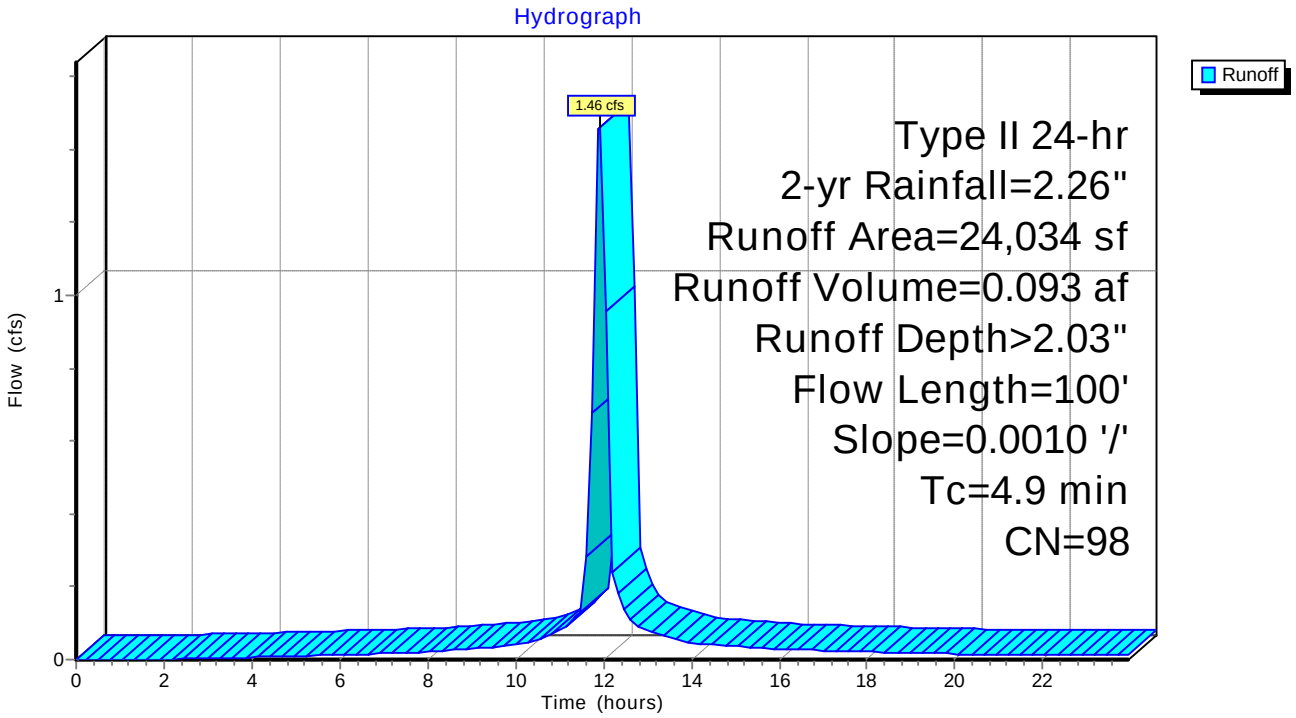
Runoff = 1.46 cfs @ 11.92 hrs, Volume= 0.093 af, Depth> 2.03"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

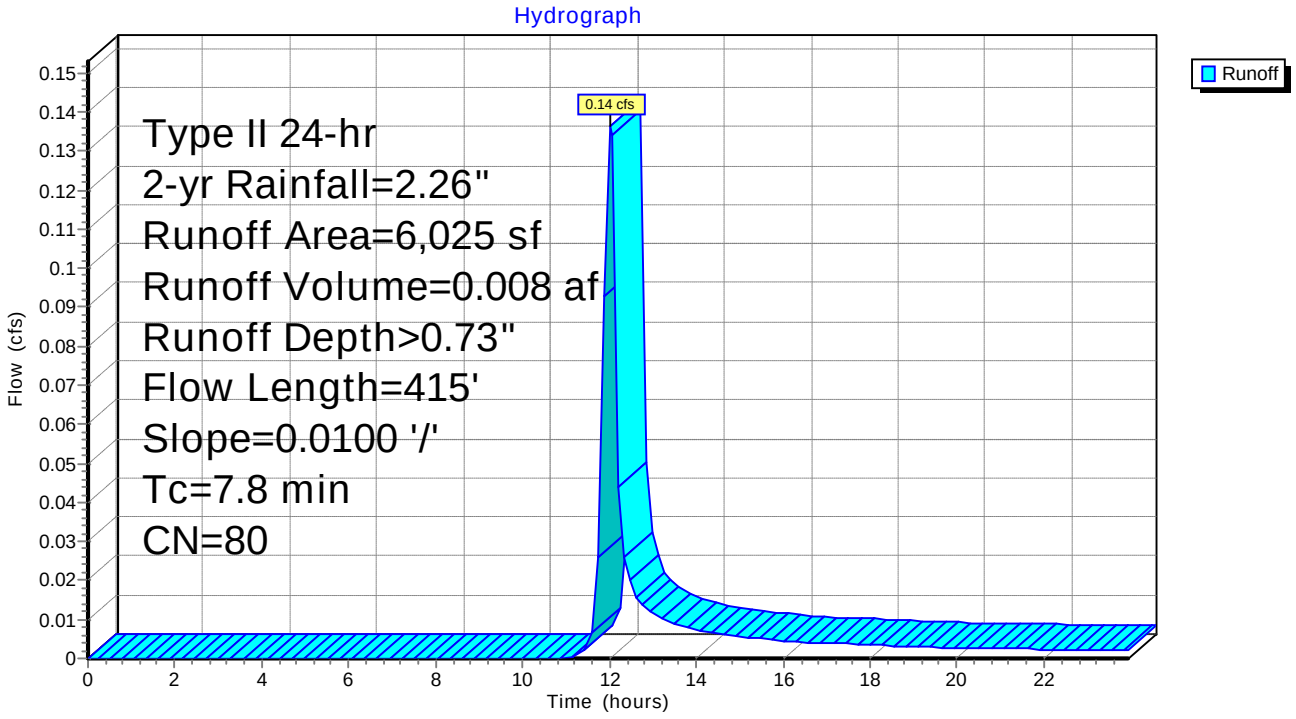
Runoff = 0.14 cfs @ 12.01 hrs, Volume= 0.008 af, Depth> 0.73"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

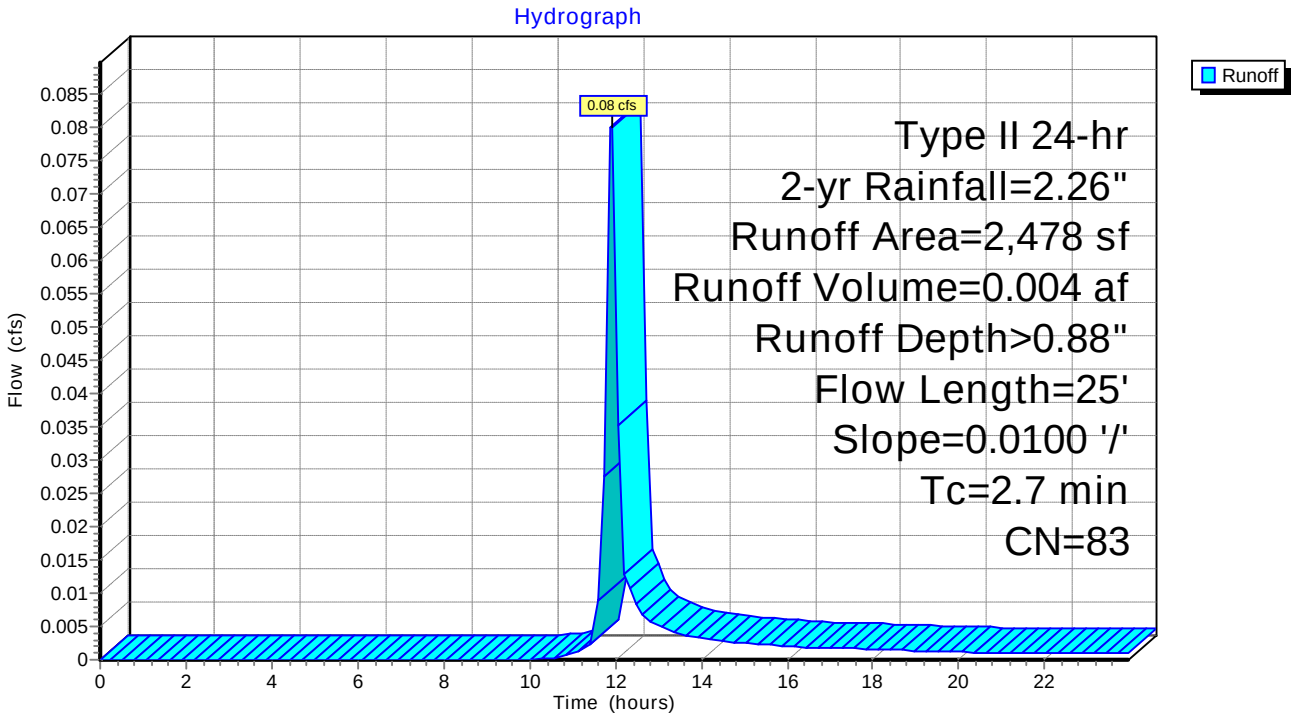
Runoff = 0.08 cfs @ 11.91 hrs, Volume= 0.004 af, Depth> 0.88"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

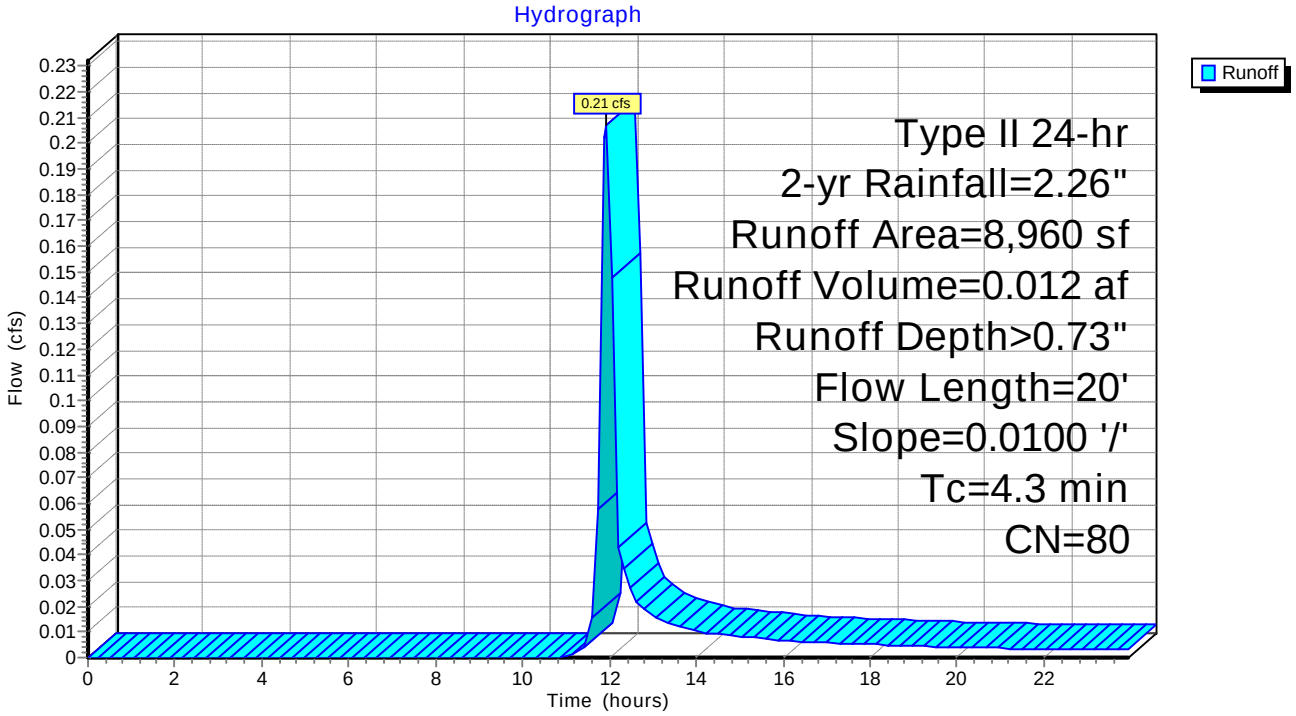
Runoff = 0.21 cfs @ 11.93 hrs, Volume= 0.012 af, Depth> 0.73"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

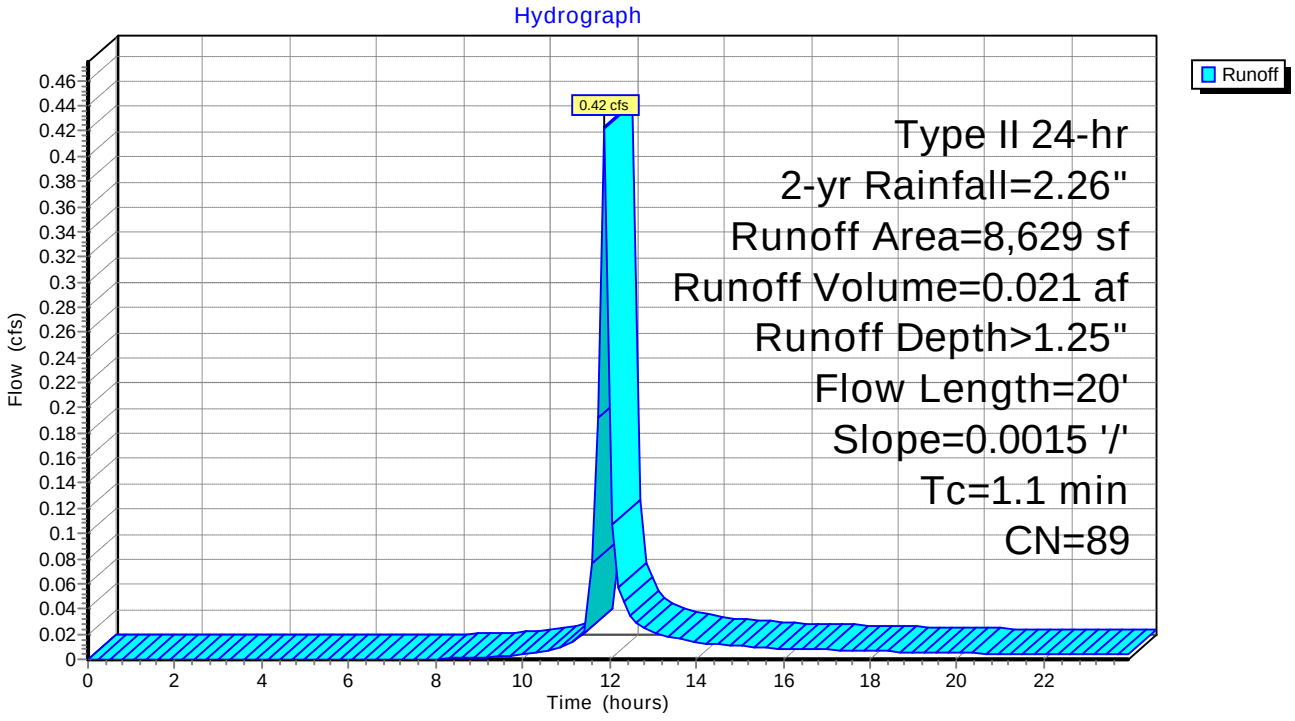
Runoff = 0.42 cfs @ 11.89 hrs, Volume= 0.021 af, Depth> 1.25"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

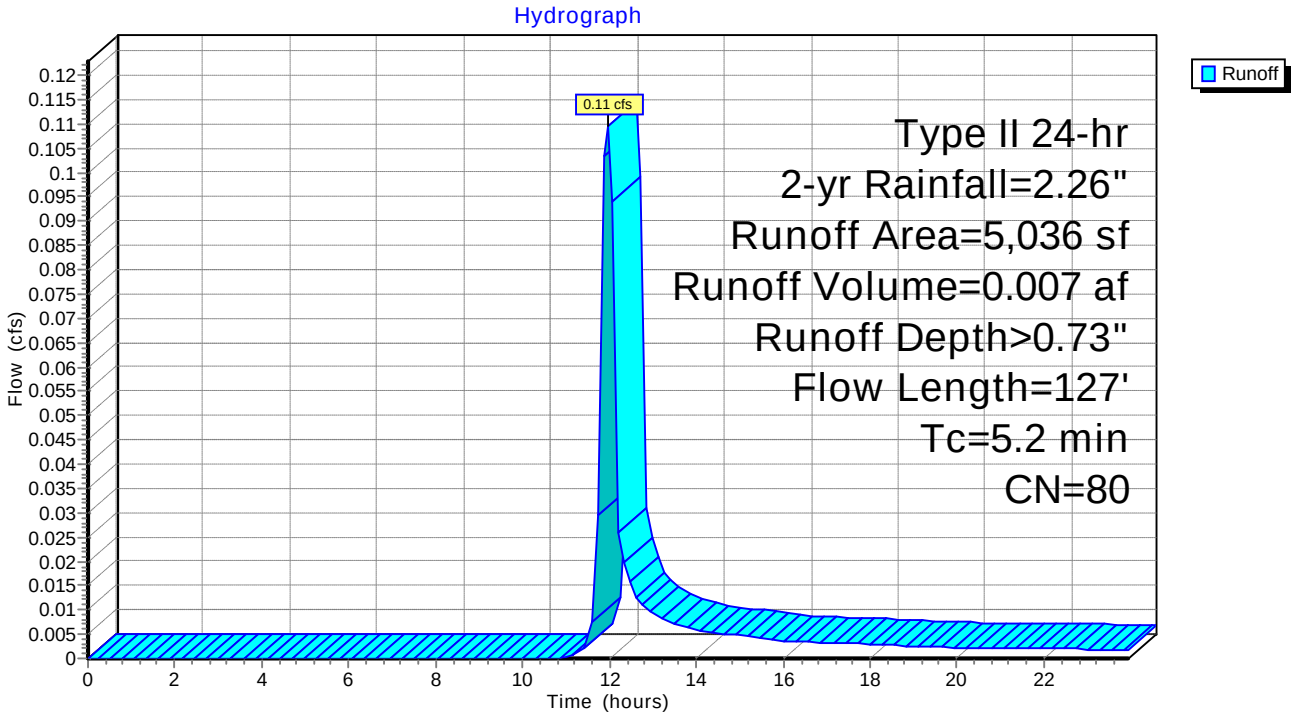
Runoff = 0.11 cfs @ 11.95 hrs, Volume= 0.007 af, Depth> 0.73"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

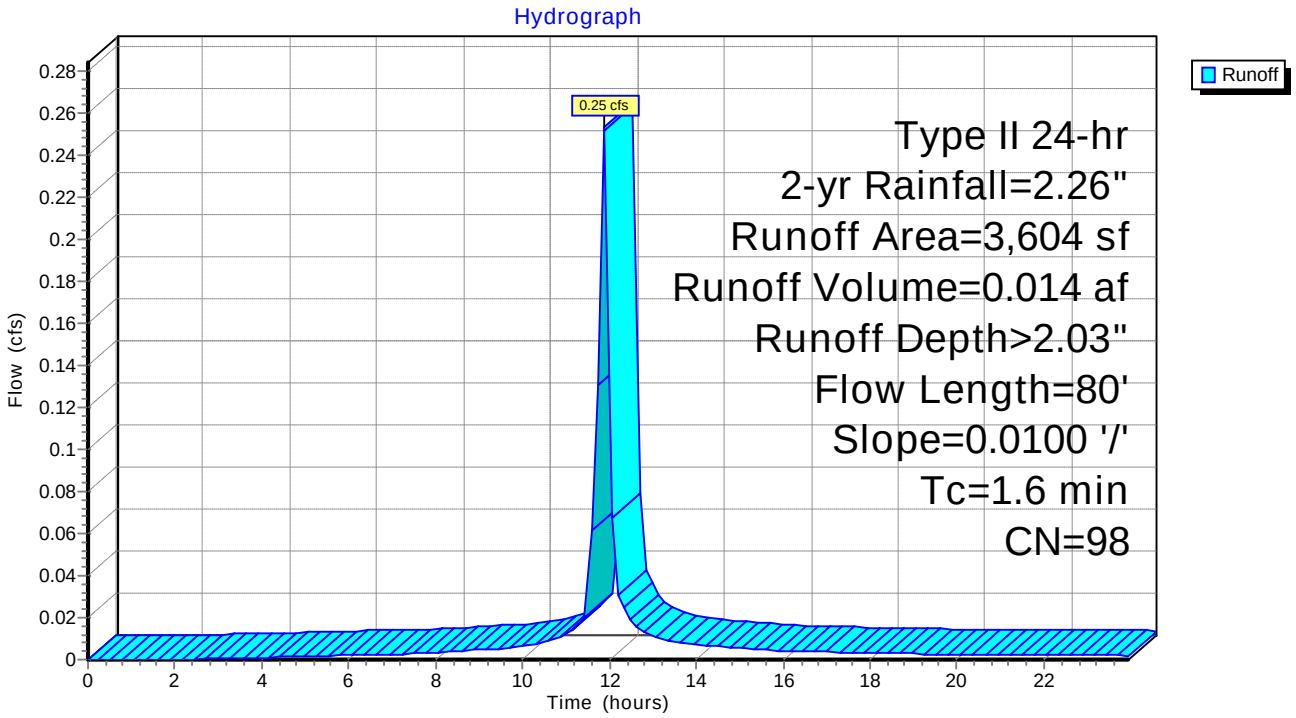
Runoff = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af, Depth> 2.03"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

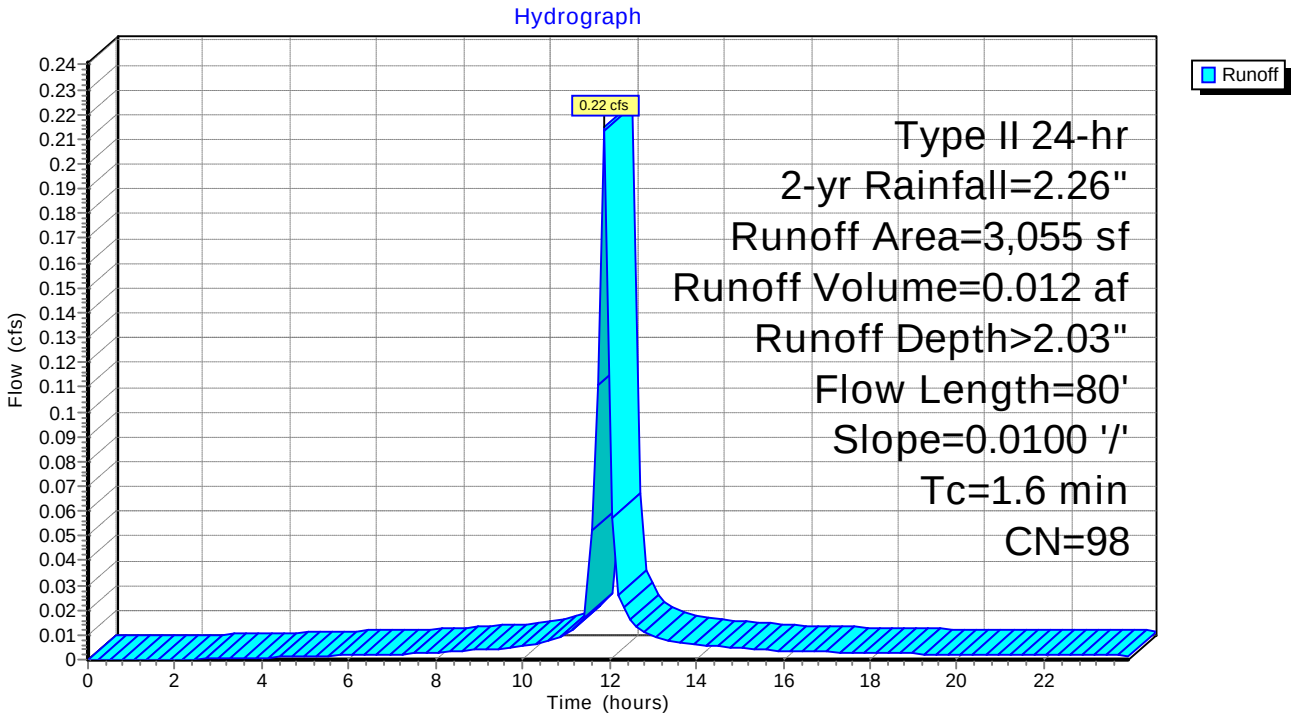
Runoff = 0.22 cfs @ 11.89 hrs, Volume= 0.012 af, Depth> 2.03"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

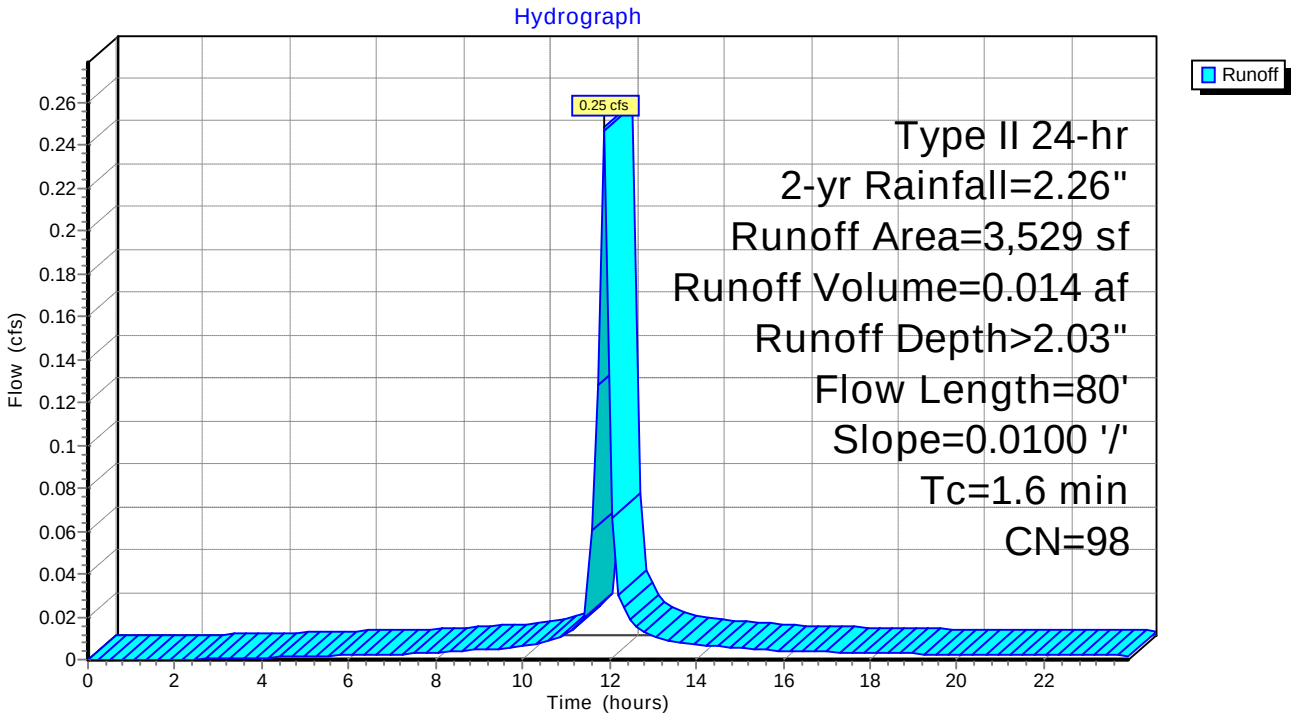
Runoff = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af, Depth> 2.03"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 0.73" for 2-yr event
Inflow = 0.14 cfs @ 12.01 hrs, Volume= 0.008 af
Outflow = 0.09 cfs @ 12.12 hrs, Volume= 0.008 af, Atten= 33%, Lag= 6.5 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

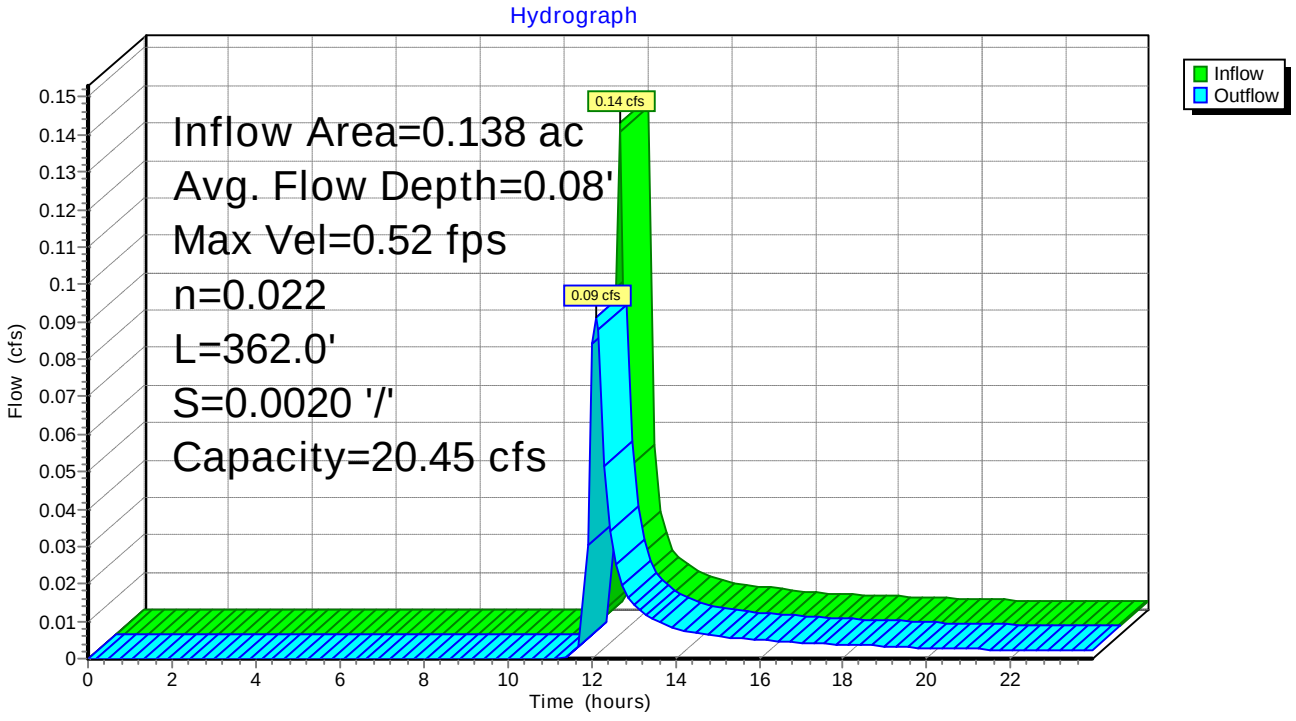
Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.52 fps, Min. Travel Time= 11.6 min
Avg. Velocity = 0.21 fps, Avg. Travel Time= 29.3 min

Peak Storage= 63 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 2.32'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



Reach 4R: East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 1.96" for 2-yr event
Inflow = 2.28 cfs @ 11.91 hrs, Volume= 0.145 af
Outflow = 2.11 cfs @ 11.92 hrs, Volume= 0.143 af, Atten= 7%, Lag= 0.4 min
Primary = 2.10 cfs @ 11.92 hrs, Volume= 0.133 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.01 cfs @ 12.20 hrs, Volume= 0.010 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.05' @ 12.20 hrs Surf.Area= 523 sf Storage= 176 cf

Plug-Flow detention time= 11.3 min calculated for 0.142 af (98% of inflow)
Center-of-Mass det. time= 3.3 min (764.8 - 761.5)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

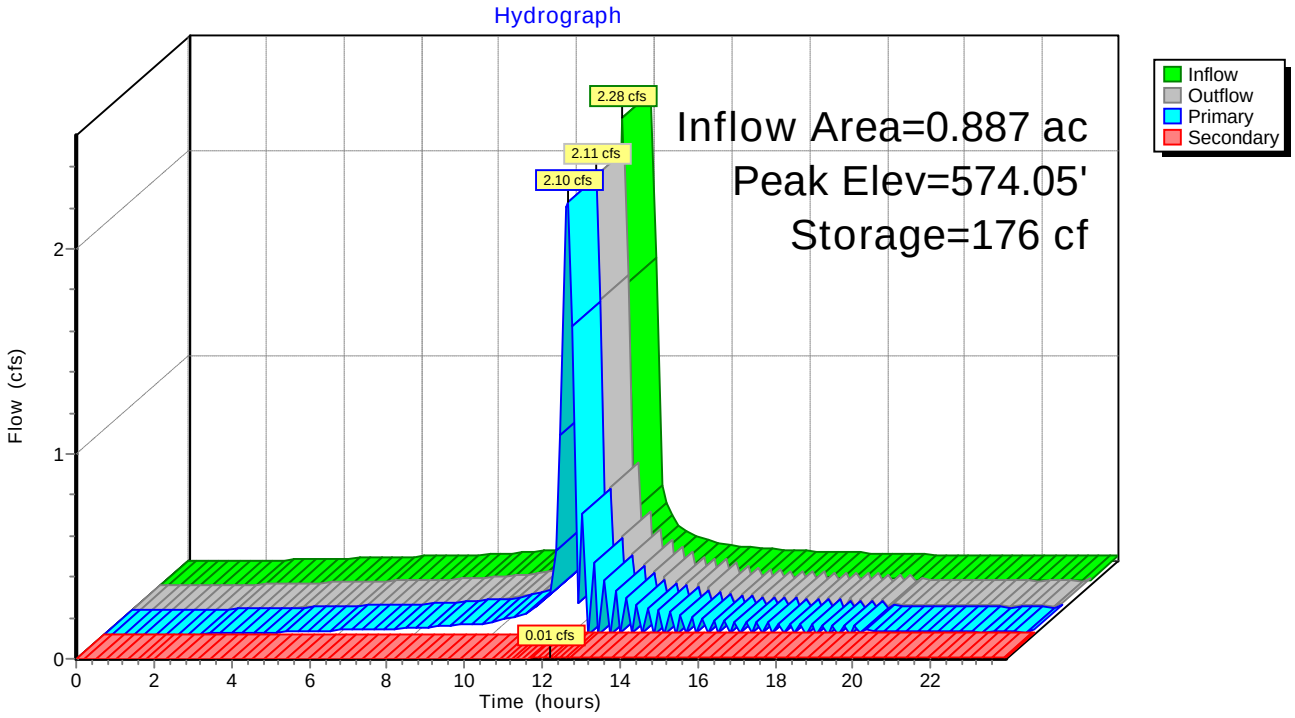
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	3.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	1.000 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.00 cfs @ 11.92 hrs HW=573.89' TW=573.93' (Dynamic Tailwater)
└1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Secondary OutFlow Max=0.01 cfs @ 12.20 hrs HW=574.04' TW=573.98' (Dynamic Tailwater)
└2=Exfiltration (Exfiltration Controls 0.01 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

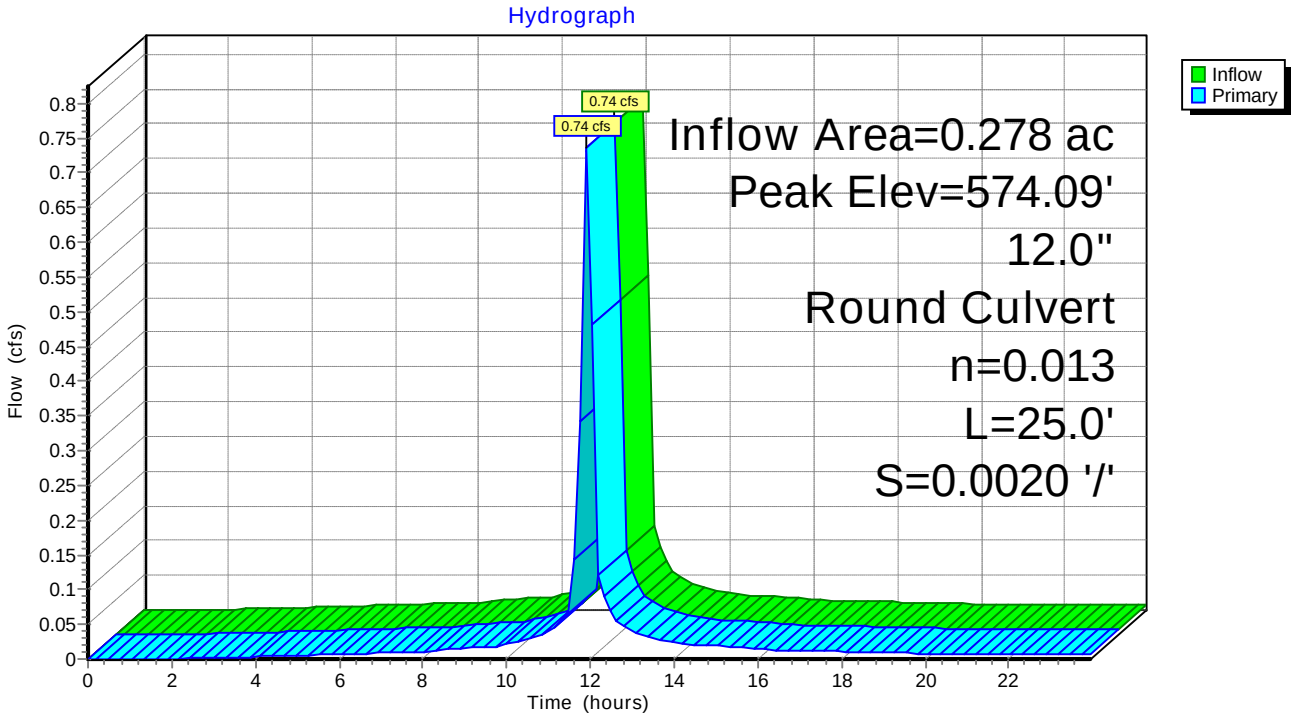
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 0.74 cfs @ 11.92 hrs, Volume= 0.047 af
Outflow = 0.74 cfs @ 11.92 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 11.92 hrs, Volume= 0.047 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.09' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	12.0" Round 12" CULVERT L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 11.92 hrs HW=574.07' TW=573.89' (Dynamic Tailwater)
└1=12" CULVERT (Outlet Controls 0.71 cfs @ 2.24 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

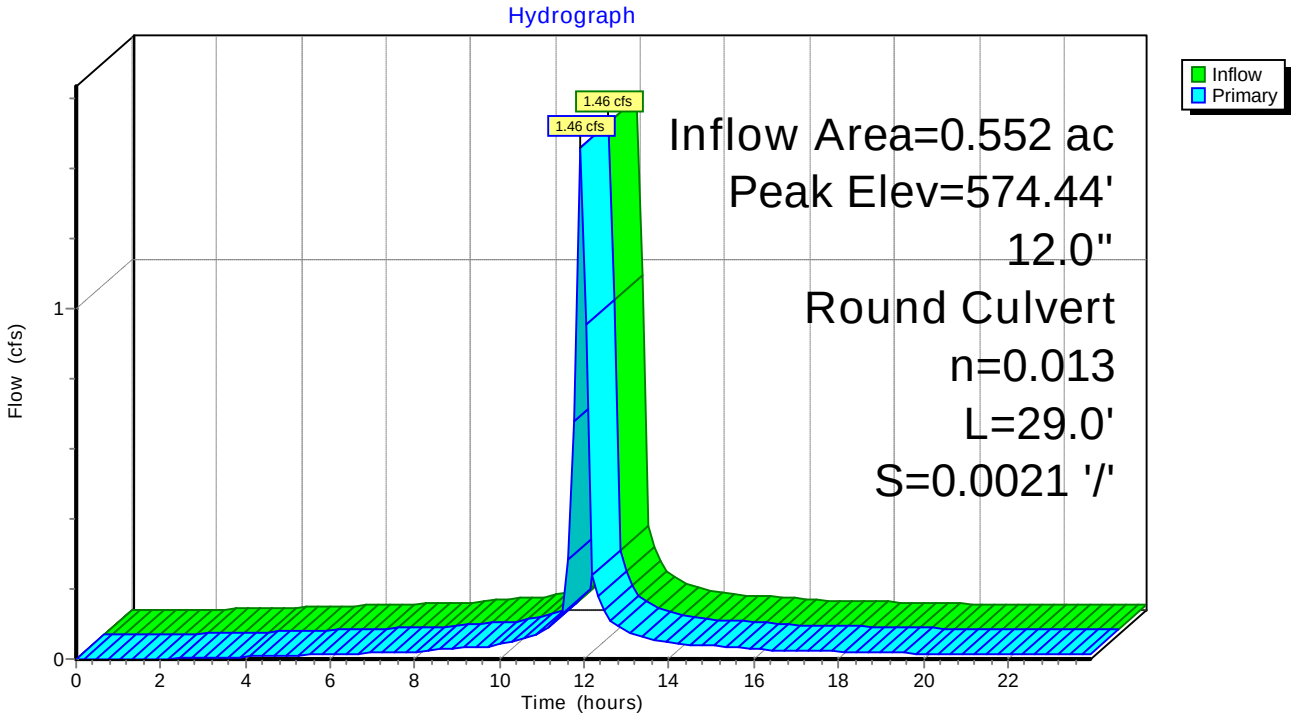
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 1.46 cfs @ 11.92 hrs, Volume= 0.093 af
Outflow = 1.46 cfs @ 11.92 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.0 min
Primary = 1.46 cfs @ 11.92 hrs, Volume= 0.093 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.44' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	12.0" Round 12" CULVERT L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.40 cfs @ 11.92 hrs HW=574.41' TW=573.89' (Dynamic Tailwater)
└1=12" CULVERT (Barrel Controls 1.40 cfs @ 2.74 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.70" for 2-yr event
Inflow = 2.32 cfs @ 11.92 hrs, Volume= 0.155 af
Outflow = 1.93 cfs @ 12.05 hrs, Volume= 0.121 af, Atten= 17%, Lag= 7.9 min
Primary = 0.04 cfs @ 12.06 hrs, Volume= 0.060 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 1.89 cfs @ 12.05 hrs, Volume= 0.061 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.05' @ 12.07 hrs Surf.Area= 3,549 sf Storage= 2,242 cf

Plug-Flow detention time= 138.0 min calculated for 0.121 af (78% of inflow)
Center-of-Mass det. time= 50.8 min (822.9 - 772.2)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

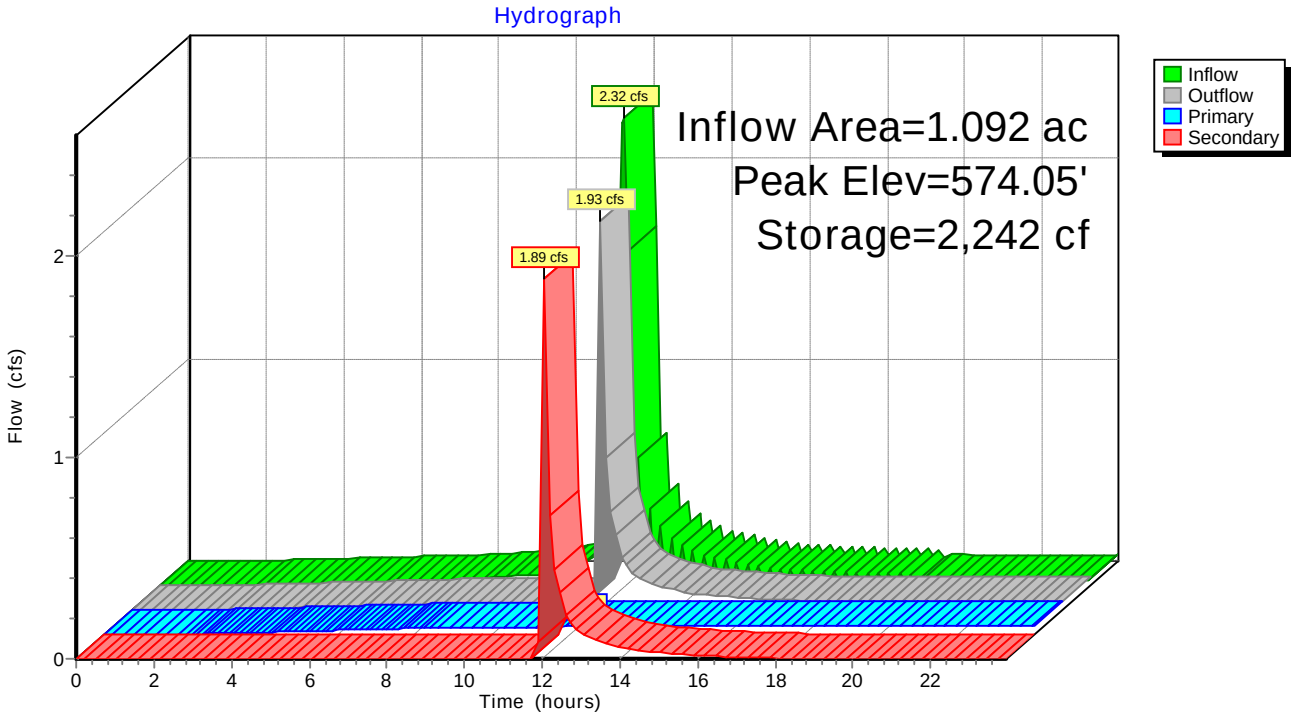
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	6.0" Horiz. Orifice/Grate X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	0.500 in/hr Exfiltration of Soil Media over Surface area

Primary OutFlow Max=0.04 cfs @ 12.06 hrs HW=574.04' TW=569.77' (Dynamic Tailwater)
└3=Exfiltration of Soil Media (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=1.70 cfs @ 12.05 hrs HW=574.04' TW=569.76' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Weir Controls 0.40 cfs @ 0.64 fps)
└2=Orifice/Grate (Weir Controls 1.29 cfs @ 1.30 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.33" for 2-yr event
Inflow = 1.93 cfs @ 12.05 hrs, Volume= 0.121 af
Outflow = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af, Atten= 85%, Lag= 43.2 min
Primary = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.43' @ 12.76 hrs Surf.Area= 2,969 sf Storage= 1,835 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 55.6 min (878.5 - 822.9)

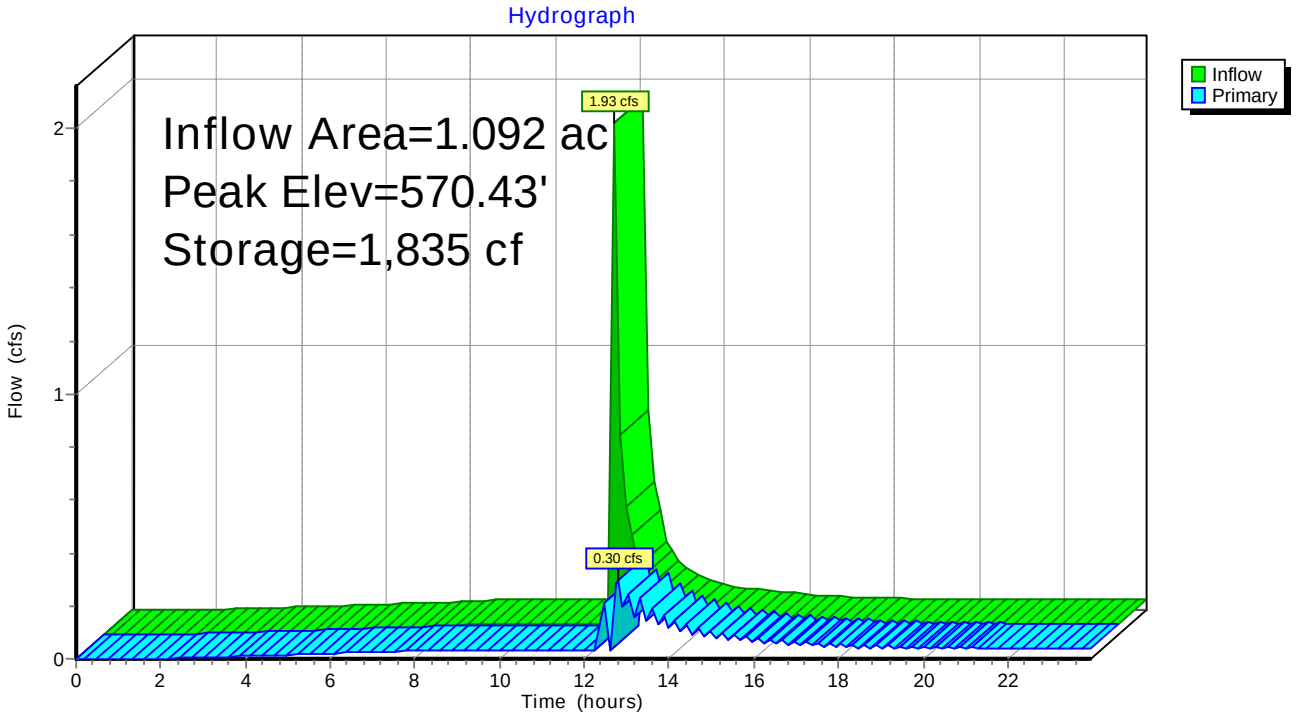
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	6.0" Round 6" Perforated HDPE Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	6.0" Round Culvert after elbow assembly L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.24 cfs @ 12.77 hrs HW=570.43' TW=570.35' (Dynamic Tailwater)
1=Culvert after elbow assembly (Outlet Controls 0.20 cfs @ 1.61 fps)
2=Exfiltration (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

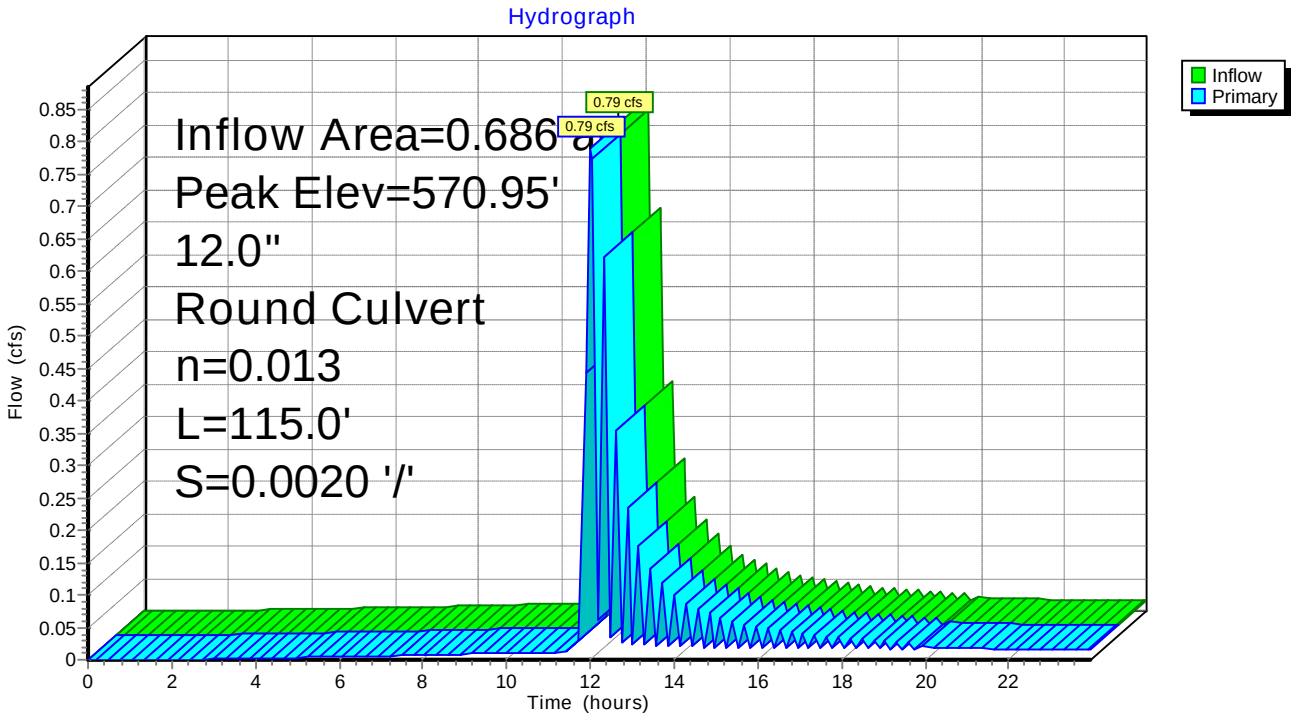
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 1.12" for 2-yr event
Inflow = 0.79 cfs @ 12.01 hrs, Volume= 0.064 af
Outflow = 0.79 cfs @ 12.01 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.01 hrs, Volume= 0.064 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.95' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	12.0" Round Culvert L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 12.01 hrs HW=570.91' TW=570.40' (Dynamic Tailwater)
└1=Culvert (Barrel Controls 0.71 cfs @ 2.10 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.44" for 2-yr event
Inflow = 1.17 cfs @ 11.89 hrs, Volume= 0.068 af
Outflow = 1.08 cfs @ 11.90 hrs, Volume= 0.063 af, Atten= 8%, Lag= 0.6 min
Primary = 0.01 cfs @ 11.90 hrs, Volume= 0.016 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 1.07 cfs @ 11.90 hrs, Volume= 0.047 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.32' @ 11.90 hrs Surf.Area= 946 sf Storage= 321 cf

Plug-Flow detention time= 61.2 min calculated for 0.063 af (92% of inflow)
Center-of-Mass det. time= 19.3 min (808.5 - 789.2)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

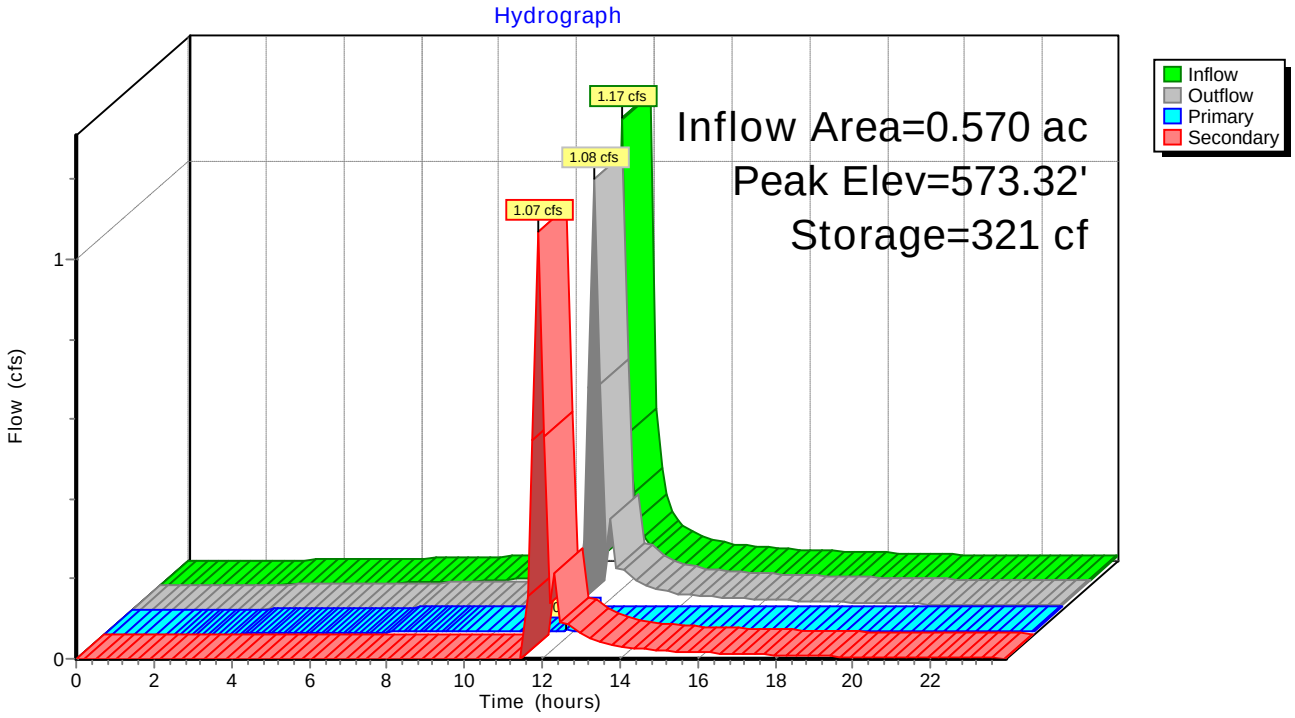
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	4.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	0.500 in/hr Exfiltration through soil media over Surface area

Primary OutFlow Max=0.01 cfs @ 11.90 hrs HW=573.32' TW=570.73' (Dynamic Tailwater)
└3=Exfiltration through soil media (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=1.07 cfs @ 11.90 hrs HW=573.32' TW=570.73' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Orifice Controls 0.96 cfs @ 1.27 fps)
└2=Orifice/Grate (Weir Controls 0.11 cfs @ 1.03 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.33" for 2-yr event
Inflow = 1.08 cfs @ 11.90 hrs, Volume= 0.063 af
Outflow = 0.68 cfs @ 12.01 hrs, Volume= 0.057 af, Atten= 37%, Lag= 6.9 min
Primary = 0.68 cfs @ 12.01 hrs, Volume= 0.057 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.93' @ 12.13 hrs Surf.Area= 1,377 sf Storage= 700 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 32.0 min (840.5 - 808.5)

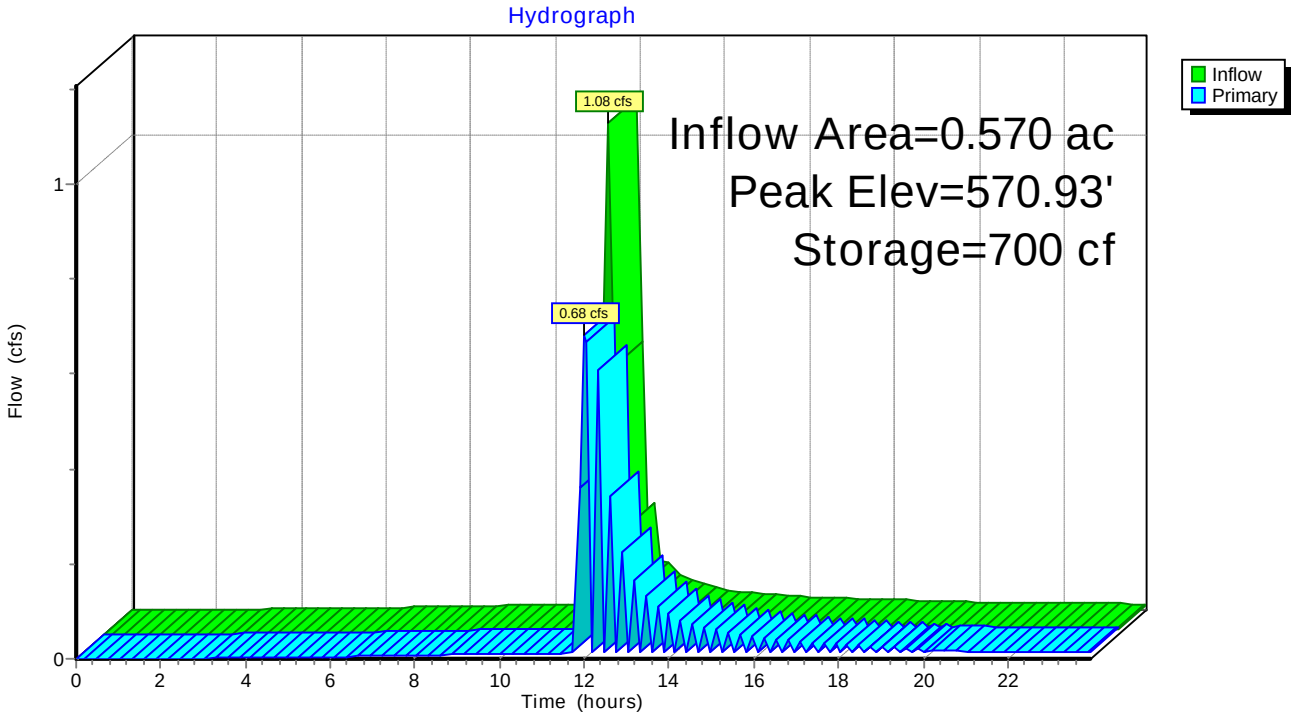
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	4.0" Round 4" Perforated HDPE Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	12.0" Round 12" Culvert L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.02 cfs @ 12.01 hrs HW=570.88' TW=570.91' (Dynamic Tailwater)
1=12" Culvert (Controls 0.00 cfs)
2=Exfiltration (Exfiltration Controls 0.02 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

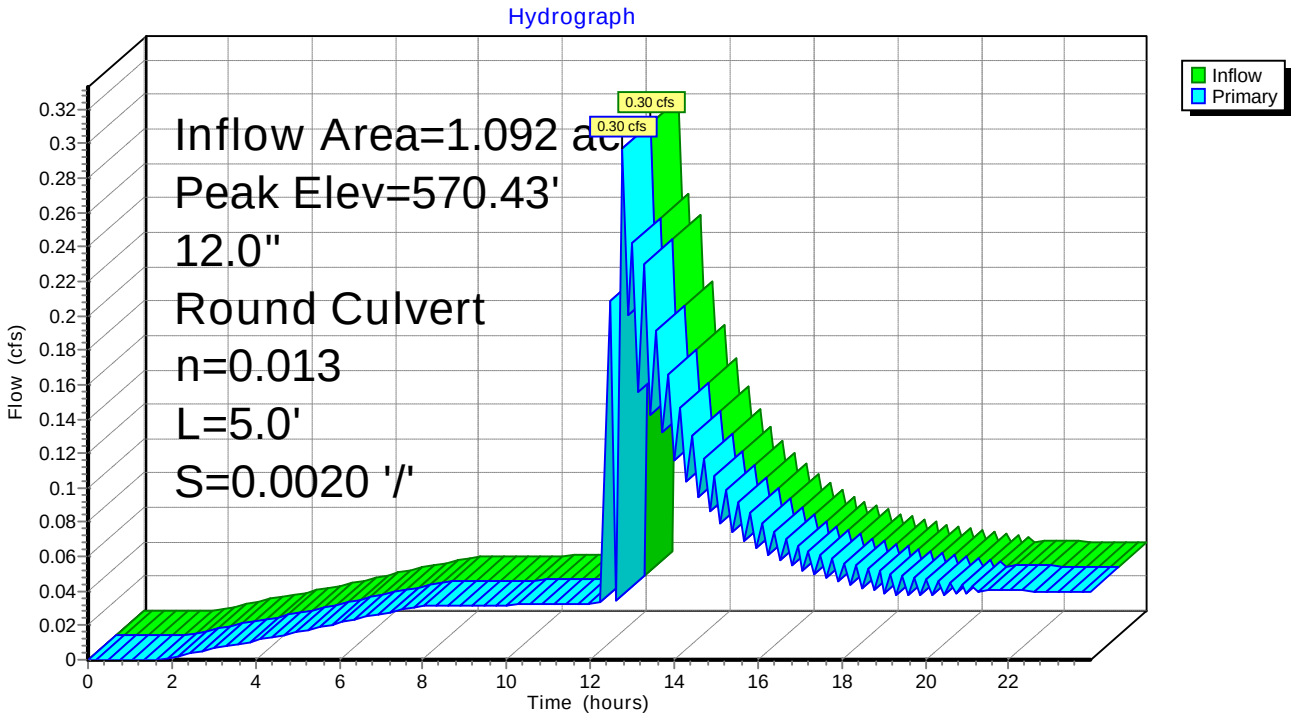
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.00" for 2-yr event
Inflow = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af
Outflow = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.43' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	12.0" Round 12 " Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 12.77 hrs HW=570.35' TW=570.27' (Dynamic Tailwater)
└1=12 " Culvert (Outlet Controls 0.28 cfs @ 1.76 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 1.67" for 2-yr event
Inflow = 1.14 cfs @ 11.89 hrs, Volume= 0.060 af
Outflow = 1.14 cfs @ 11.89 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Primary = 1.14 cfs @ 11.89 hrs, Volume= 0.060 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.75' @ 11.89 hrs
Flood Elev= 576.20'

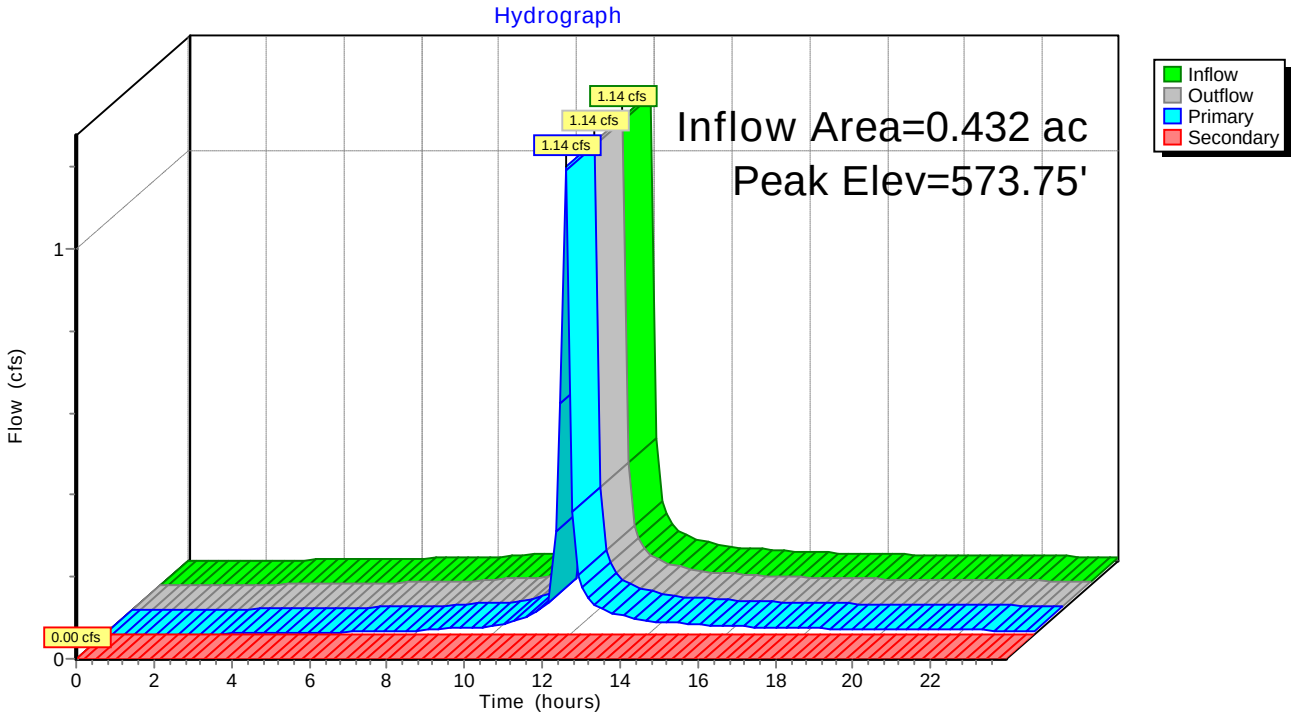
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	6.0" Horiz. Orifice/Grate X 5.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.07 cfs @ 11.89 hrs HW=573.74' TW=573.32' (Dynamic Tailwater)
- 1=Orifice/Grate (Orifice Controls 0.30 cfs @ 3.11 fps)
- 2=Orifice/Grate (Orifice Controls 0.48 cfs @ 2.54 fps)
- 3=Orifice/Grate (Orifice Controls 0.30 cfs @ 1.57 fps)
- 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- 5=Orifice/Grate (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

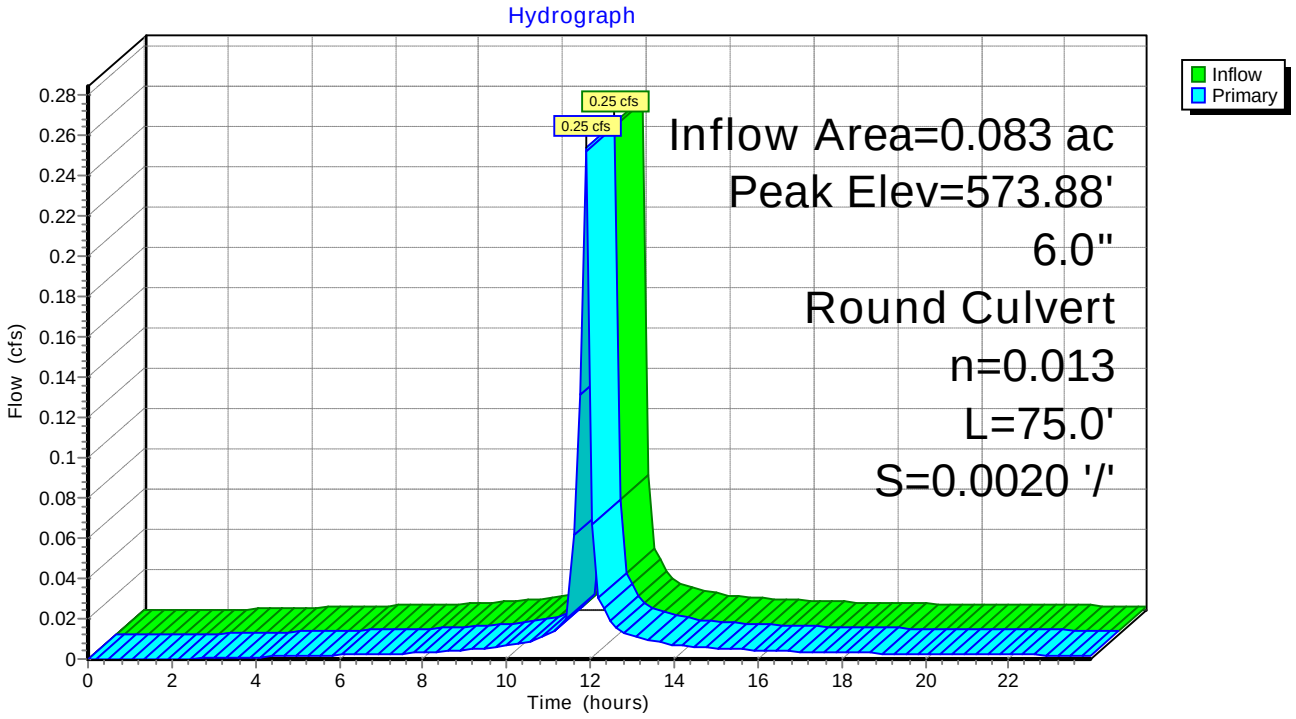
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af
Outflow = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.88' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.17 cfs @ 11.89 hrs HW=573.86' TW=573.73' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.17 cfs @ 1.15 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

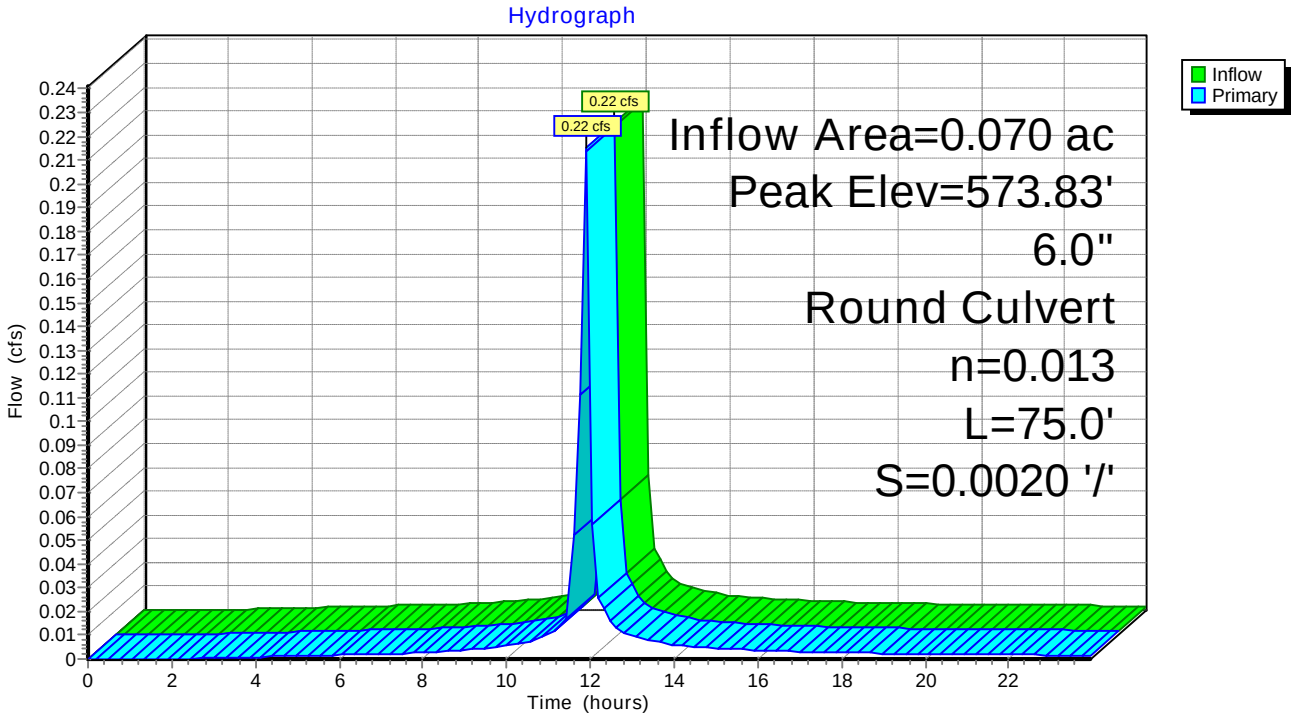
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 0.22 cfs @ 11.89 hrs, Volume= 0.012 af
Outflow = 0.22 cfs @ 11.89 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 11.89 hrs, Volume= 0.012 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.83' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.12 cfs @ 11.89 hrs HW=573.82' TW=573.73' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.12 cfs @ 0.90 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

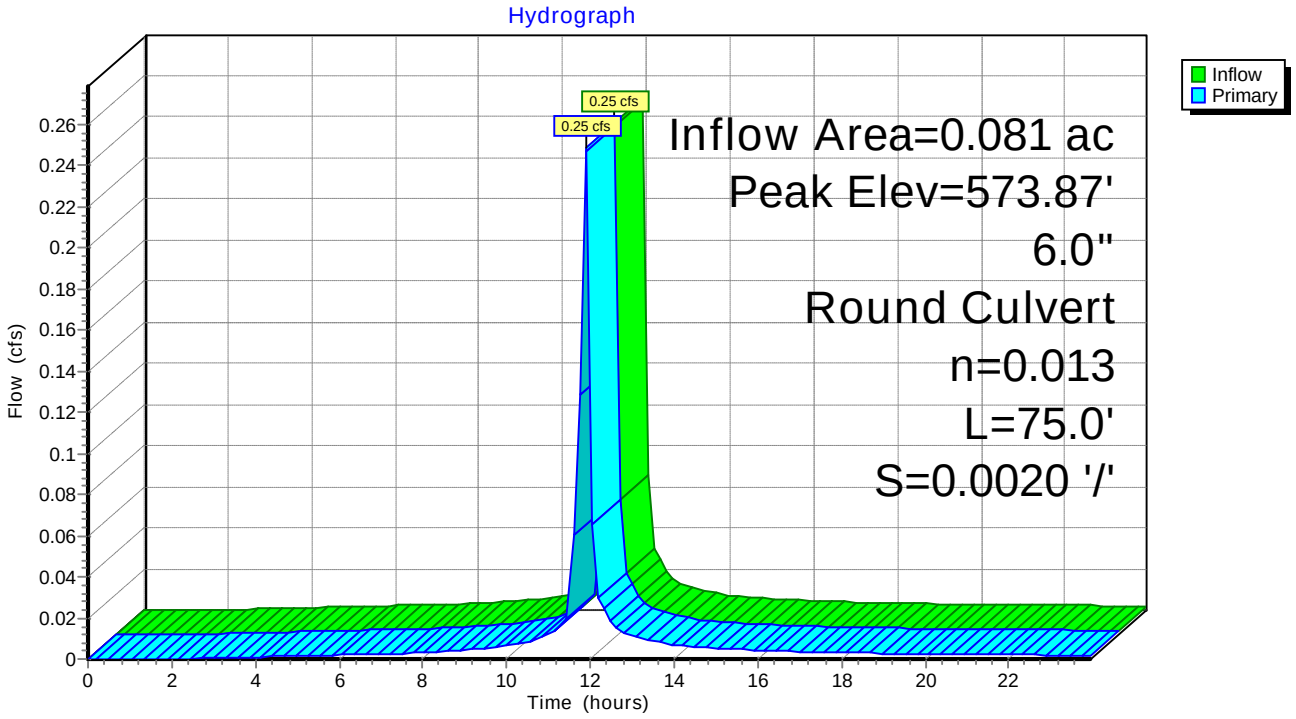
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af
Outflow = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.87' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.16 cfs @ 11.89 hrs HW=573.85' TW=573.73' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.16 cfs @ 1.11 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

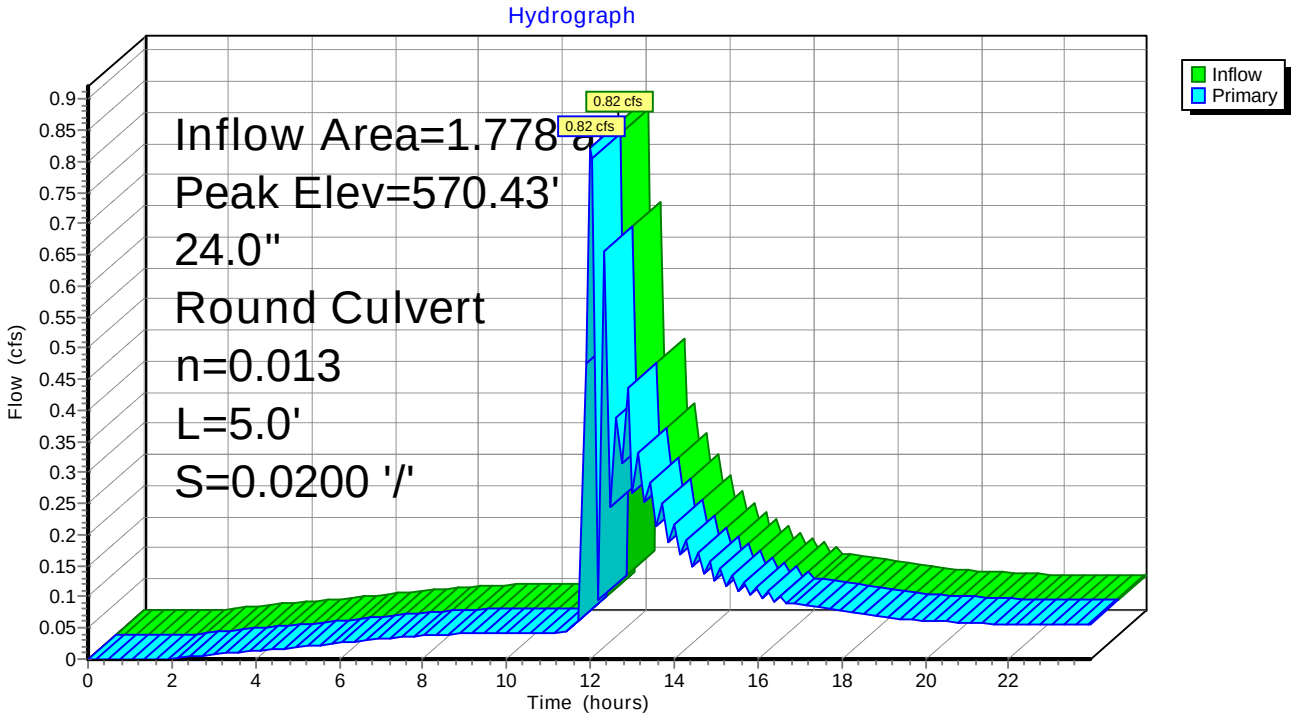
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 1.04" for 2-yr event
Inflow = 0.82 cfs @ 12.01 hrs, Volume= 0.155 af
Outflow = 0.82 cfs @ 12.01 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.01 hrs, Volume= 0.155 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.43' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	24.0" Round Culvert L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=0.74 cfs @ 12.01 hrs HW=570.40' (Free Discharge)
└1=Culvert (Barrel Controls 0.74 cfs @ 2.47 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 0.73" for 2-yr event
Inflow = 0.11 cfs @ 11.95 hrs, Volume= 0.007 af
Outflow = 0.11 cfs @ 12.01 hrs, Volume= 0.007 af, Atten= 4%, Lag= 3.4 min
Primary = 0.11 cfs @ 12.01 hrs, Volume= 0.007 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.80' @ 12.01 hrs Surf.Area= 329 sf Storage= 13 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.2 min (858.7 - 857.6)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

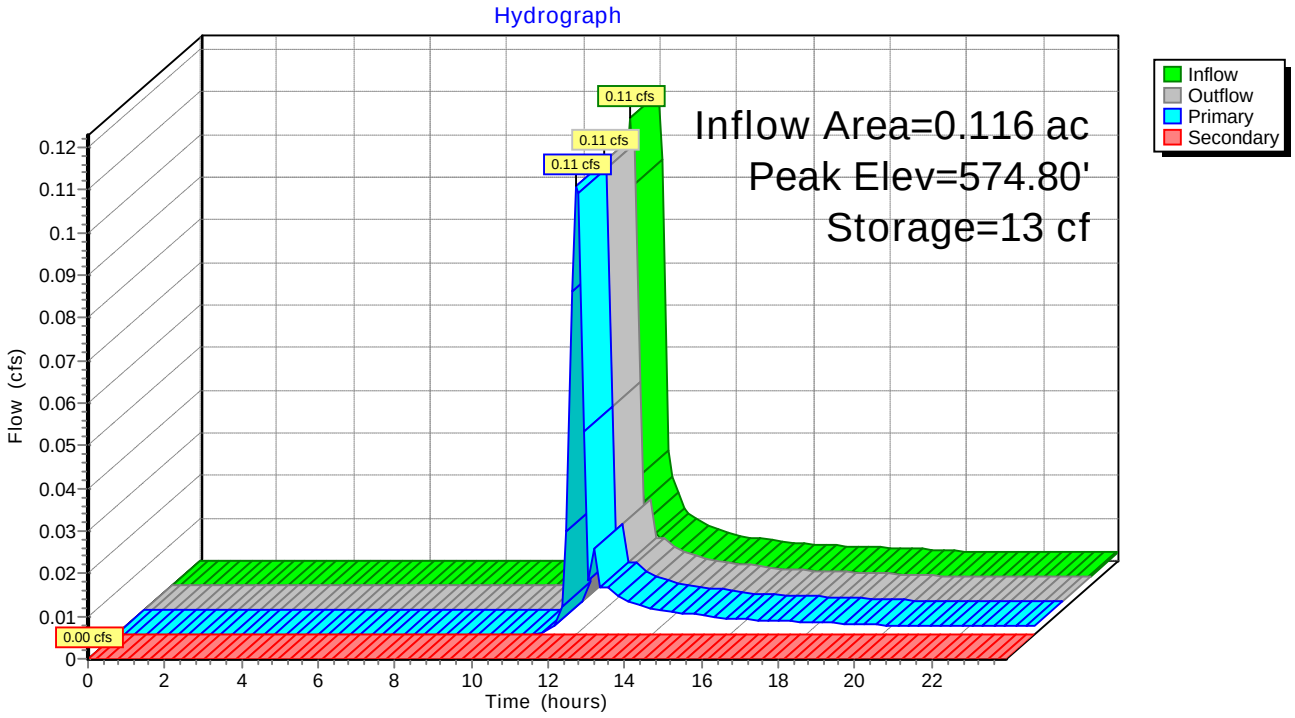
Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	6.0" Horiz. 6" Yard Drain C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	1.7" x 3.2" Horiz. CB Grate X 7.00 columns X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

Primary OutFlow Max=0.10 cfs @ 12.01 hrs HW=574.79' TW=570.91' (Dynamic Tailwater)
└1=6" Yard Drain (Weir Controls 0.10 cfs @ 0.88 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
└2=CB Grate (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>3.08"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.10 cfs 0.071 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>3.08"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=2.18 cfs 0.142 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.28 cfs 0.017 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>1.71"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.16 cfs 0.008 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.45 cfs 0.026 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>2.19"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=0.73 cfs 0.036 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.24 cfs 0.014 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>3.09"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.38 cfs 0.021 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>3.09"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.32 cfs 0.018 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>3.09"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.37 cfs 0.021 af

Reach 4R: East Swale Avg. Flow Depth=0.14' Max Vel=0.72 fps Inflow=0.28 cfs 0.017 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.23 cfs 0.017 af

Pond 5P: Front Vegetated Swale Peak Elev=574.15' Storage=235 cf Inflow=3.43 cfs 0.221 af
Primary=3.12 cfs 0.208 af Secondary=0.01 cfs 0.011 af Outflow=3.13 cfs 0.219 af

Pond 6P: CB1 Peak Elev=574.25' Inflow=1.10 cfs 0.071 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=1.10 cfs 0.071 af

Pond 7P: CB2 Peak Elev=574.69' Inflow=2.18 cfs 0.142 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=2.18 cfs 0.142 af

Pond 14P: Bio-Retention Area Storage Peak Elev=574.11' Storage=2,471 cf Inflow=3.58 cfs 0.245 af
Primary=0.04 cfs 0.066 af Secondary=3.13 cfs 0.141 af Outflow=3.17 cfs 0.207 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=571.18' Storage=3,200 cf Inflow=3.17 cfs 0.207 af
Outflow=0.71 cfs 0.176 af

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=571.17' Inflow=1.33 cfs 0.115 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=1.33 cfs 0.115 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.40' Storage=399 cf Inflow=1.90 cfs 0.113 af
Primary=0.01 cfs 0.017 af Secondary=1.60 cfs 0.090 af Outflow=1.61 cfs 0.108 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=571.23' Storage=1,013 cf Inflow=1.61 cfs 0.108 af
Outflow=1.11 cfs 0.101 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=570.73' Inflow=0.71 cfs 0.176 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=0.71 cfs 0.176 af

Pond 41P: Level Spreader Peak Elev=573.98' Inflow=1.80 cfs 0.096 af
Primary=1.80 cfs 0.096 af Secondary=0.00 cfs 0.000 af Outflow=1.80 cfs 0.096 af

Pond 42P: CB3 Peak Elev=574.18' Inflow=0.38 cfs 0.021 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.38 cfs 0.021 af

Pond 44P: CB4 Peak Elev=574.04' Inflow=0.32 cfs 0.018 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.32 cfs 0.018 af

Pond 45P: CB5 Peak Elev=574.16' Inflow=0.37 cfs 0.021 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.37 cfs 0.021 af

Pond 46P: STM MH Peak Elev=570.66' Inflow=1.77 cfs 0.291 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=1.77 cfs 0.291 af

Pond 47P: West Area to CB + YD Peak Elev=574.84' Storage=33 cf Inflow=0.24 cfs 0.014 af
Primary=0.22 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.014 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.375 af Average Runoff Depth = 2.53"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

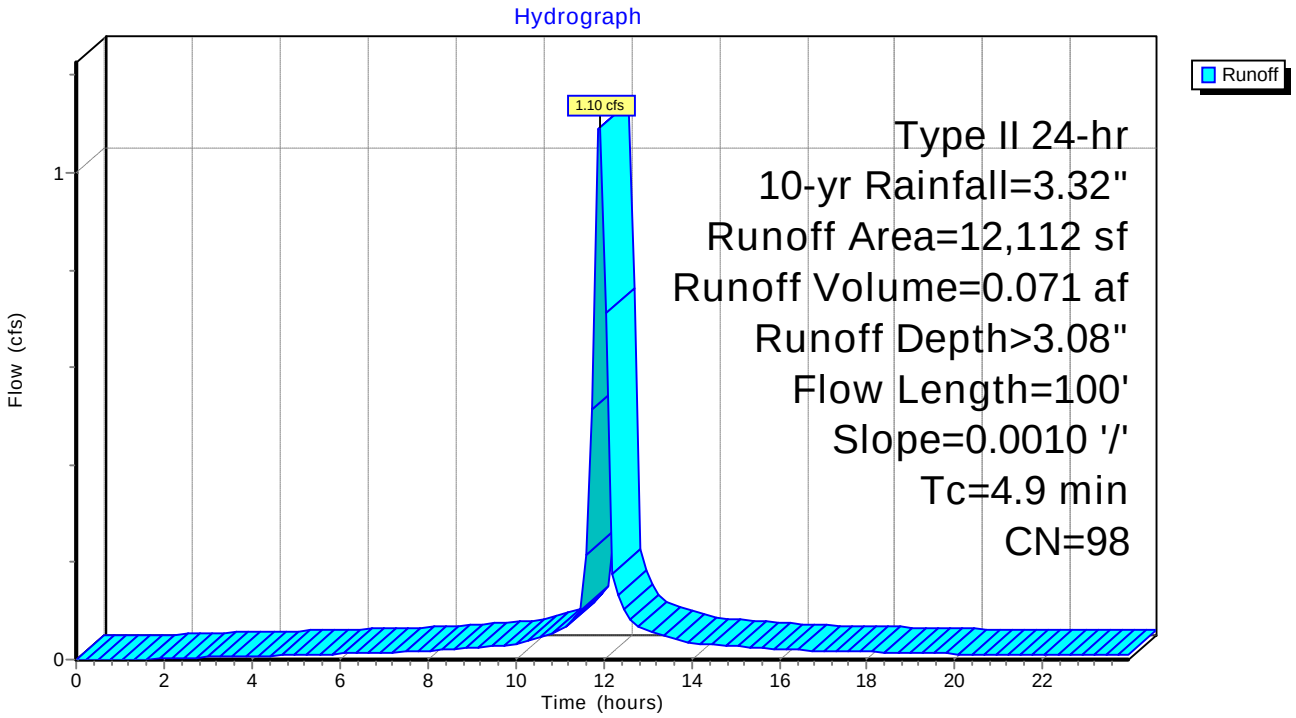
Runoff = 1.10 cfs @ 11.91 hrs, Volume= 0.071 af, Depth> 3.08"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

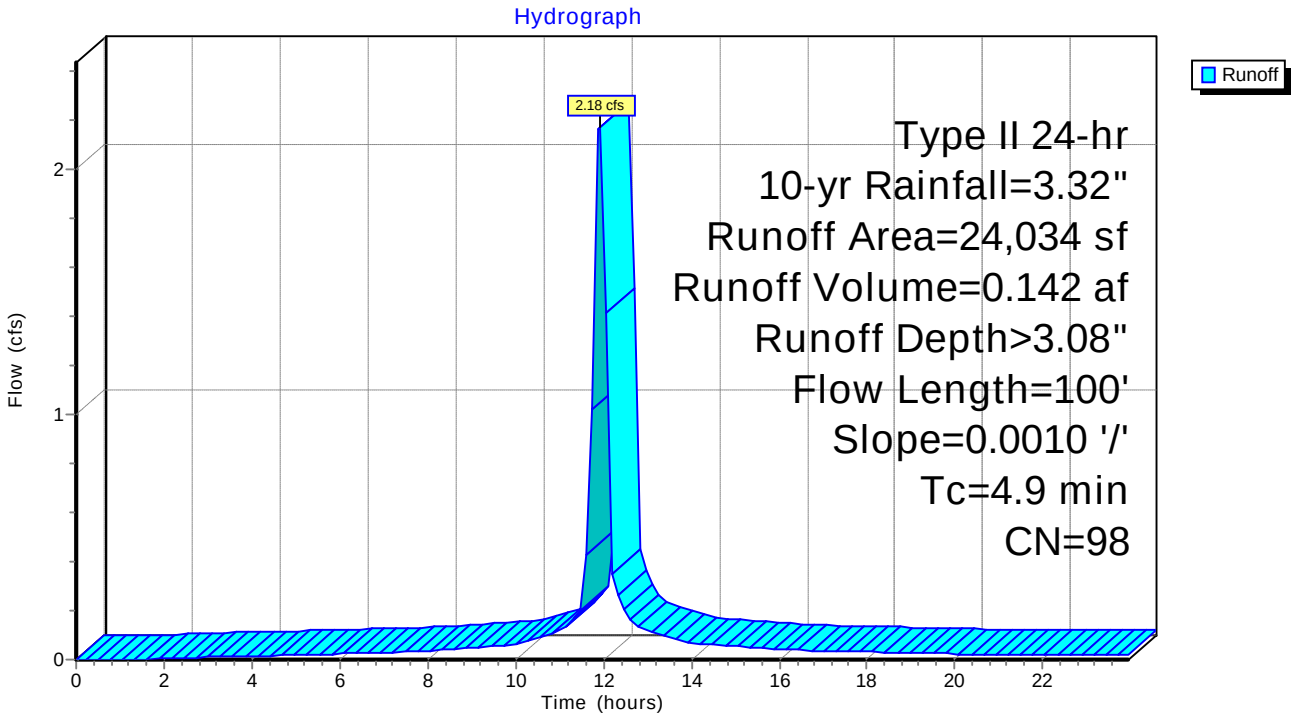
Runoff = 2.18 cfs @ 11.91 hrs, Volume= 0.142 af, Depth> 3.08"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

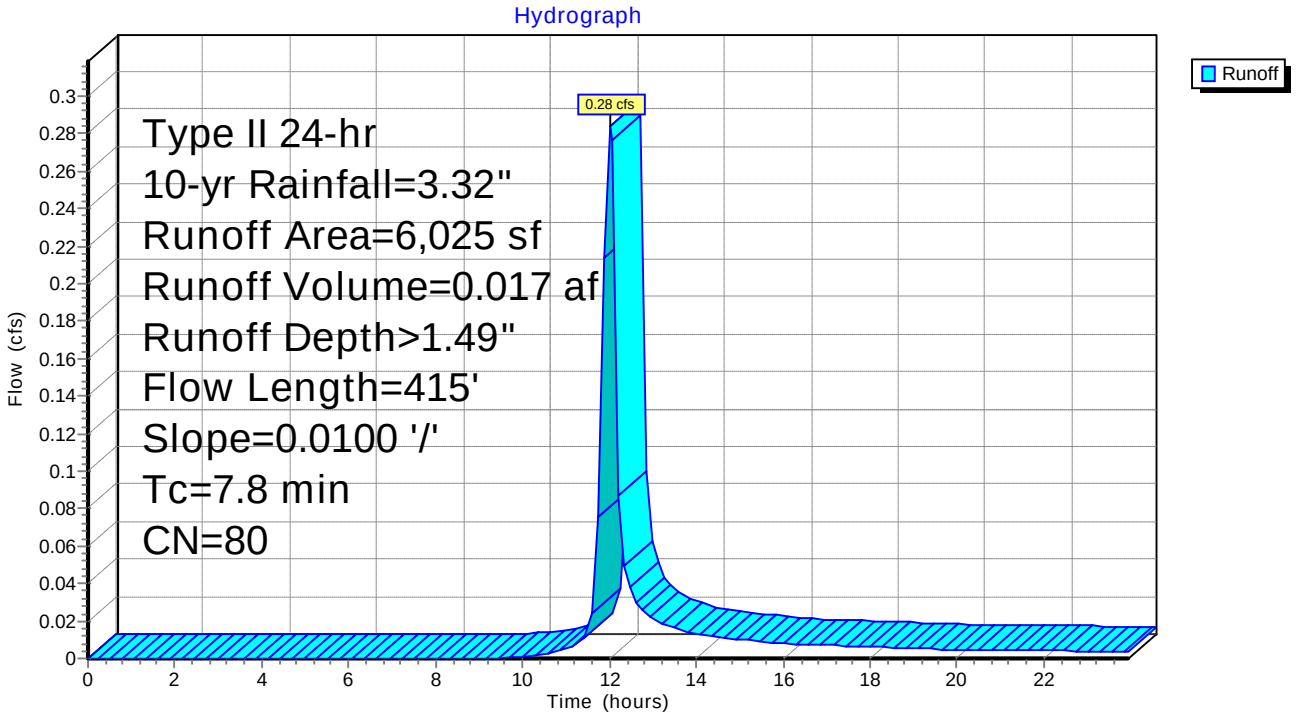
Runoff = 0.28 cfs @ 12.00 hrs, Volume= 0.017 af, Depth> 1.49"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

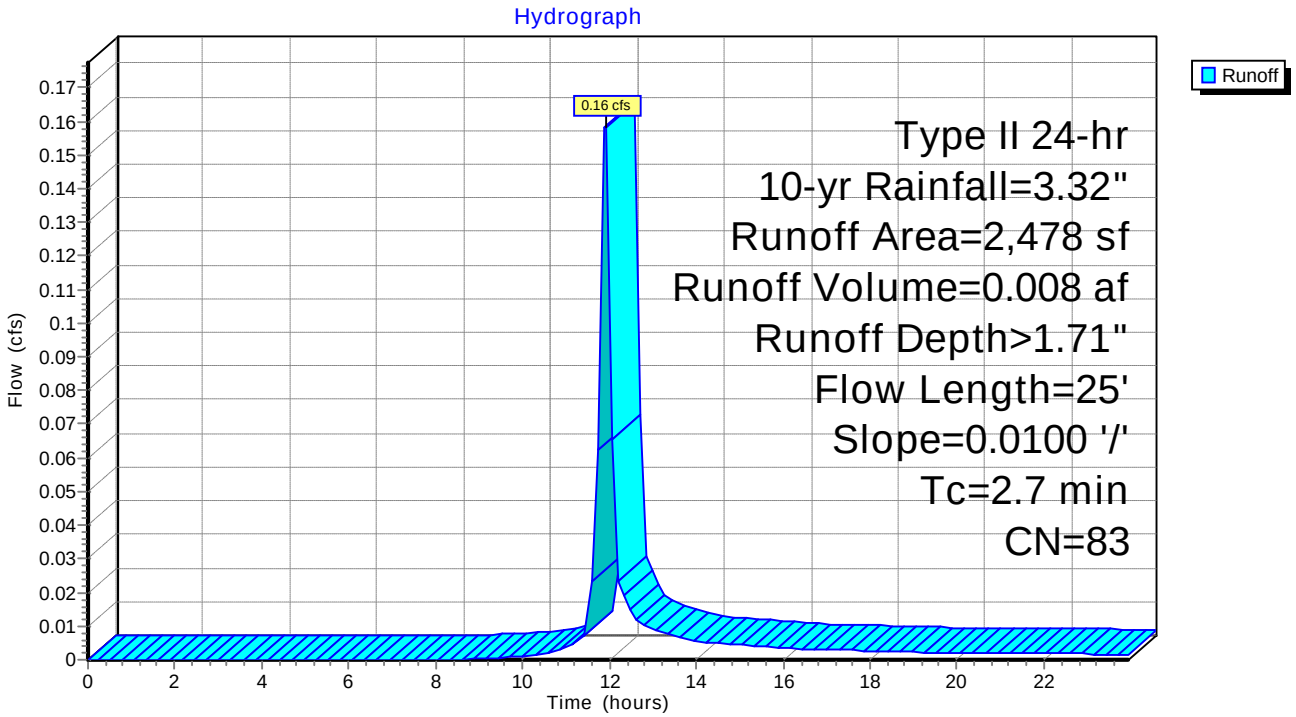
Runoff = 0.16 cfs @ 11.90 hrs, Volume= 0.008 af, Depth> 1.71"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

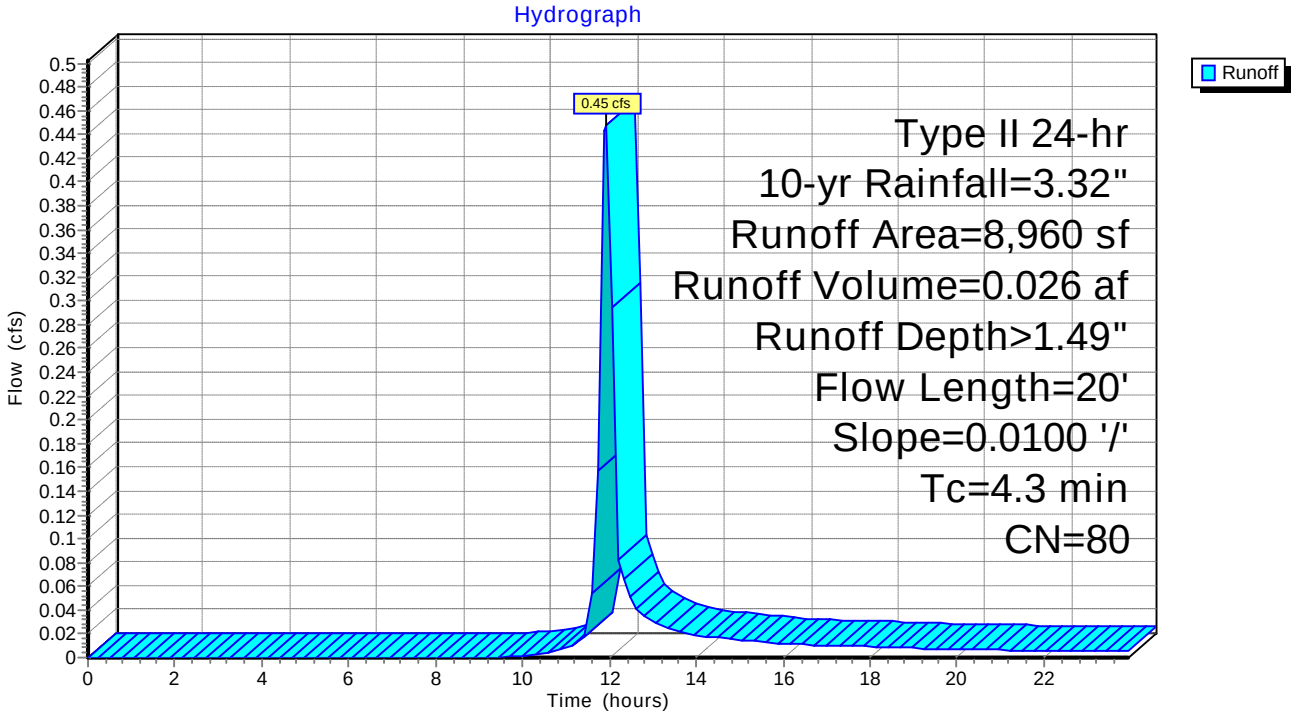
Runoff = 0.45 cfs @ 11.92 hrs, Volume= 0.026 af, Depth> 1.49"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

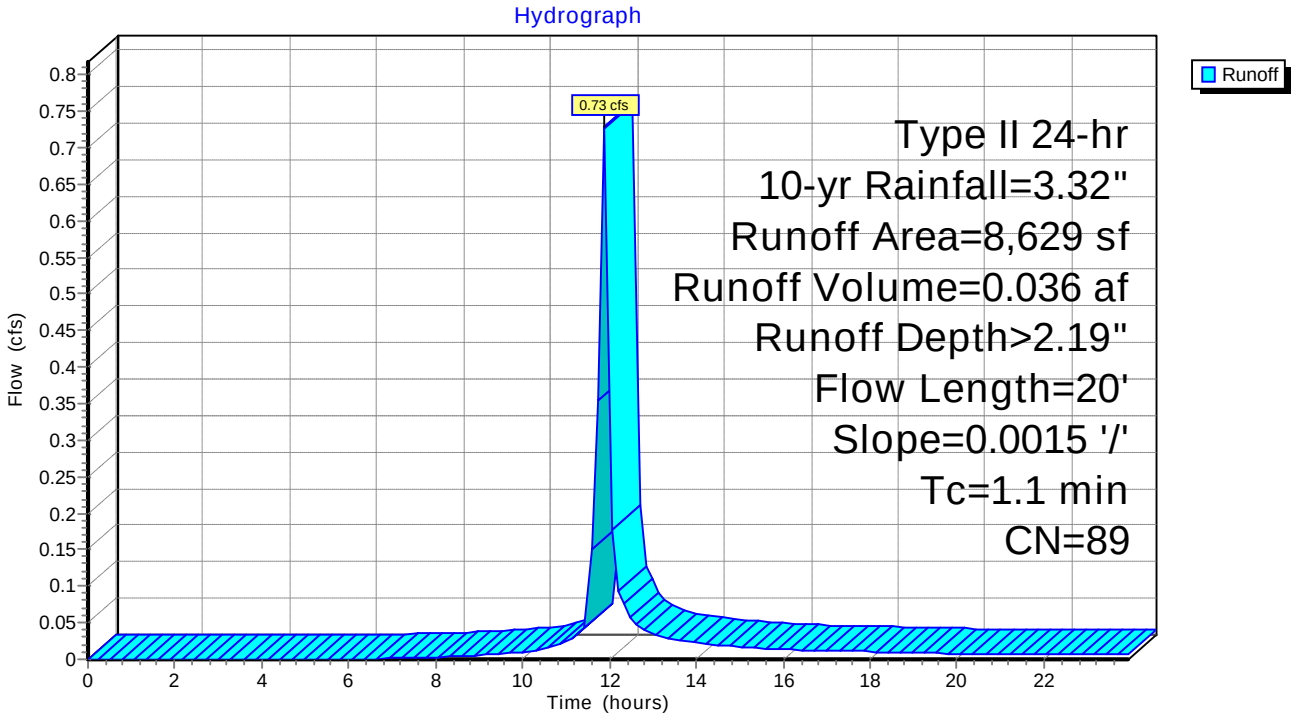
Runoff = 0.73 cfs @ 11.89 hrs, Volume= 0.036 af, Depth> 2.19"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

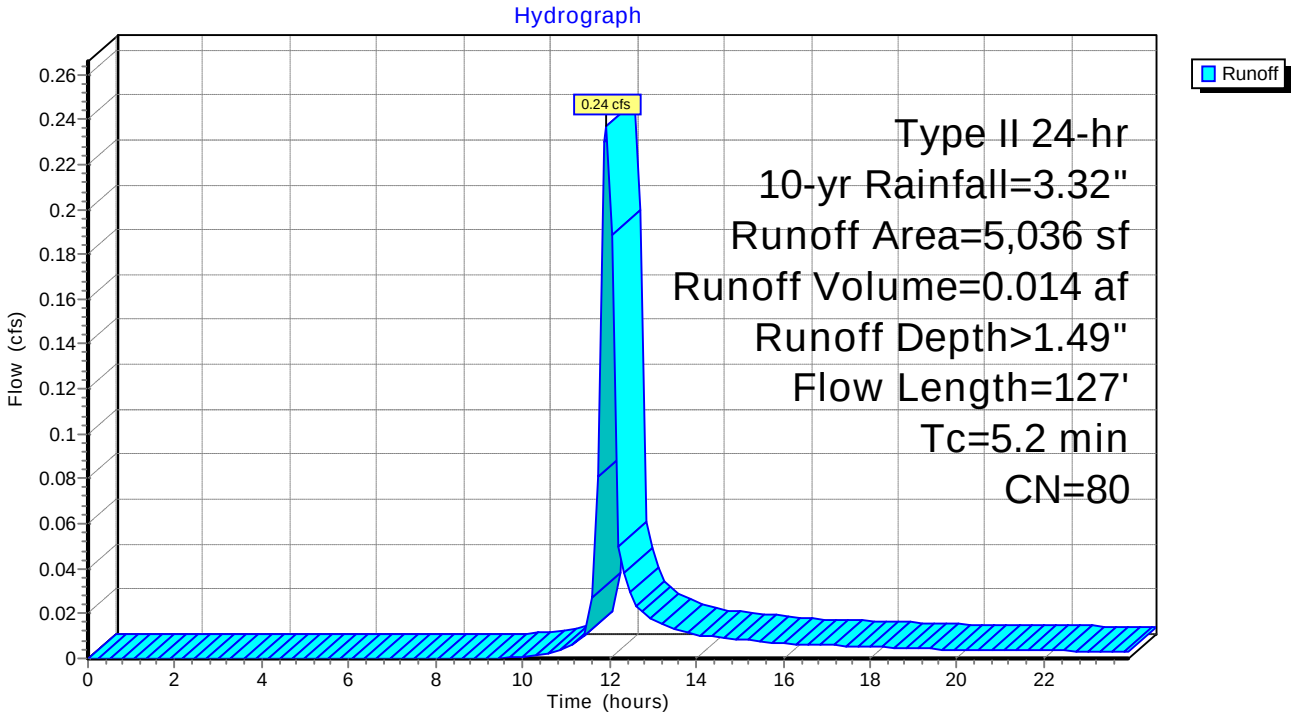
Runoff = 0.24 cfs @ 11.94 hrs, Volume= 0.014 af, Depth> 1.49"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

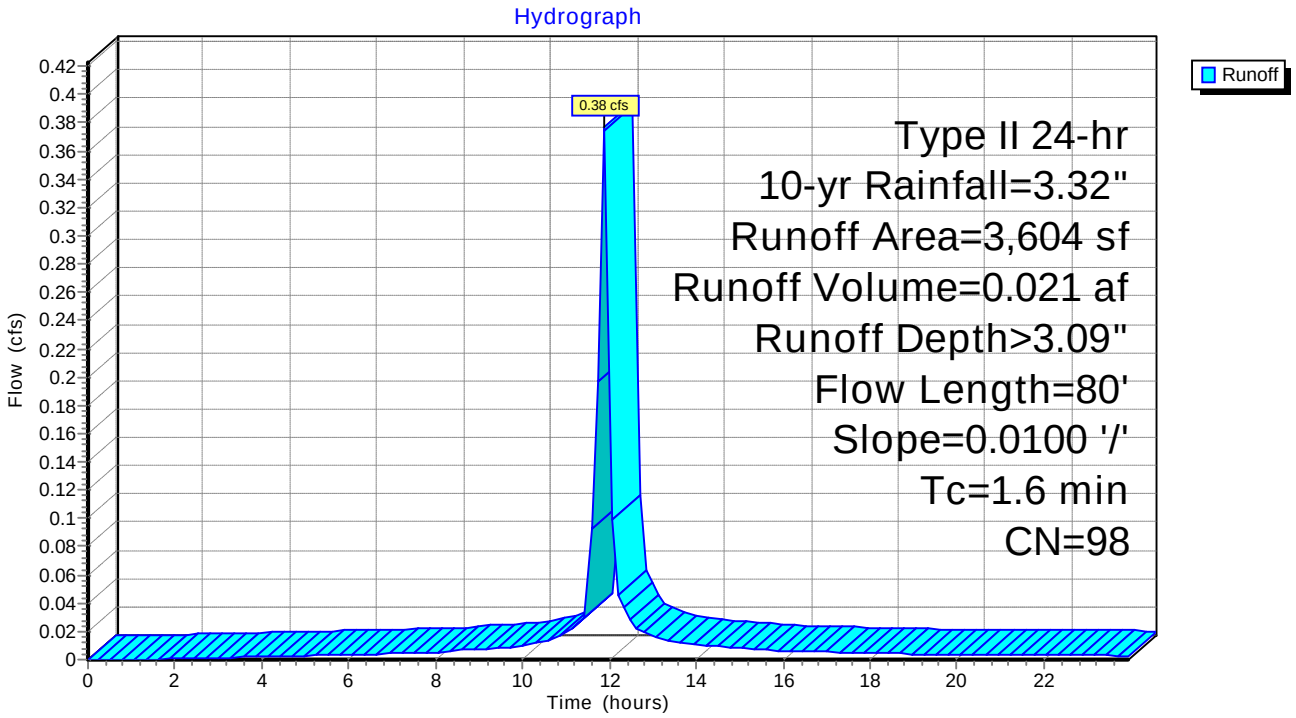
Runoff = 0.38 cfs @ 11.89 hrs, Volume= 0.021 af, Depth> 3.09"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

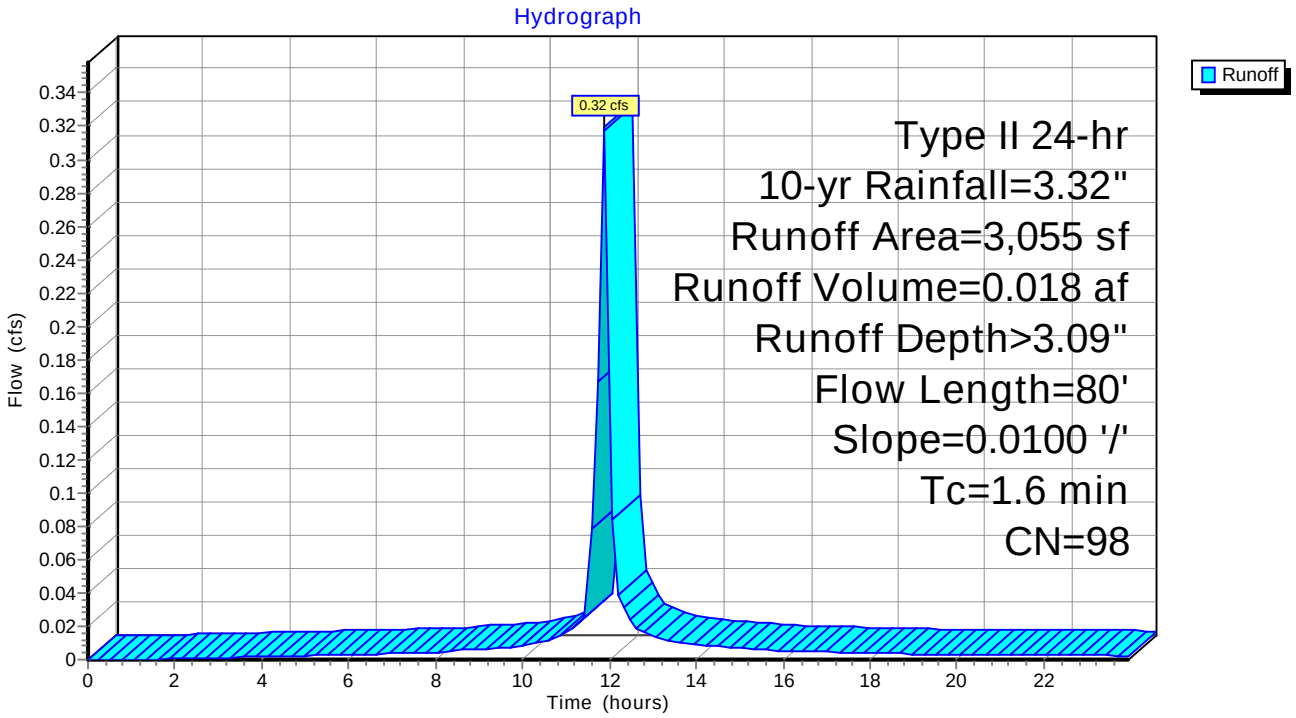
Runoff = 0.32 cfs @ 11.89 hrs, Volume= 0.018 af, Depth> 3.09"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

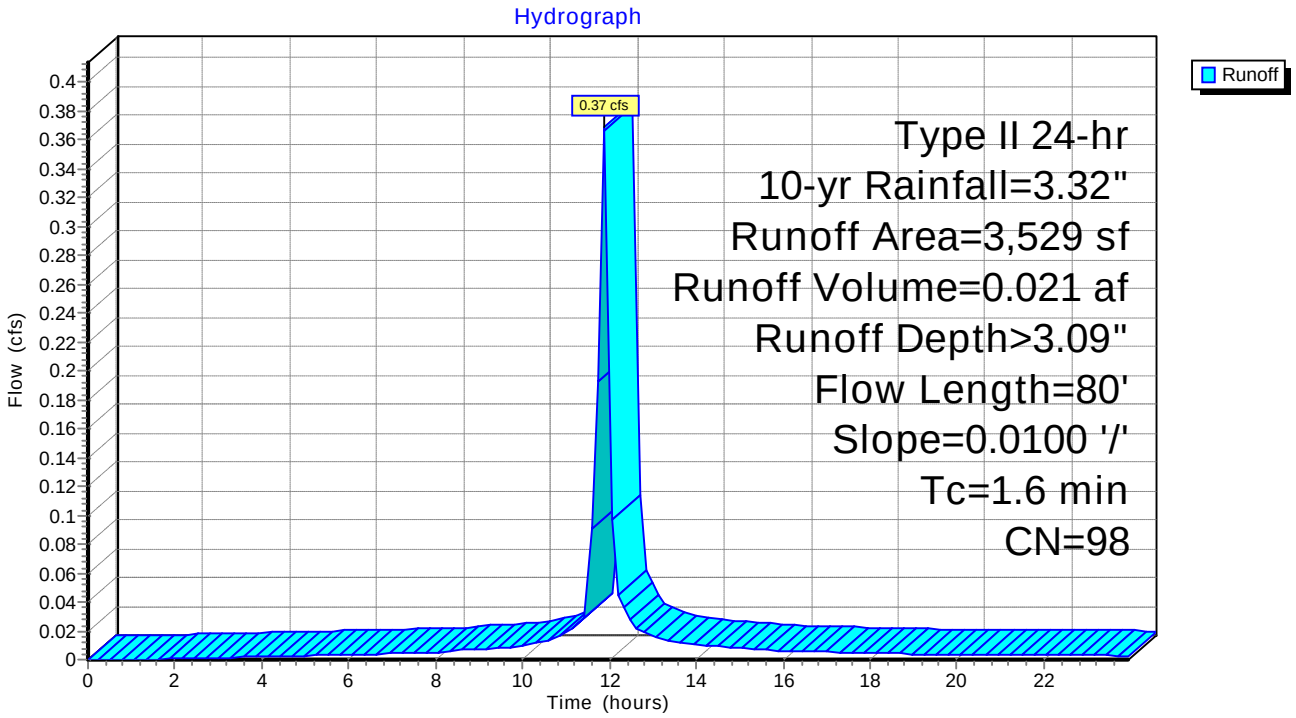
Runoff = 0.37 cfs @ 11.89 hrs, Volume= 0.021 af, Depth> 3.09"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 1.49" for 10-yr event
Inflow = 0.28 cfs @ 12.00 hrs, Volume= 0.017 af
Outflow = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af, Atten= 21%, Lag= 4.4 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

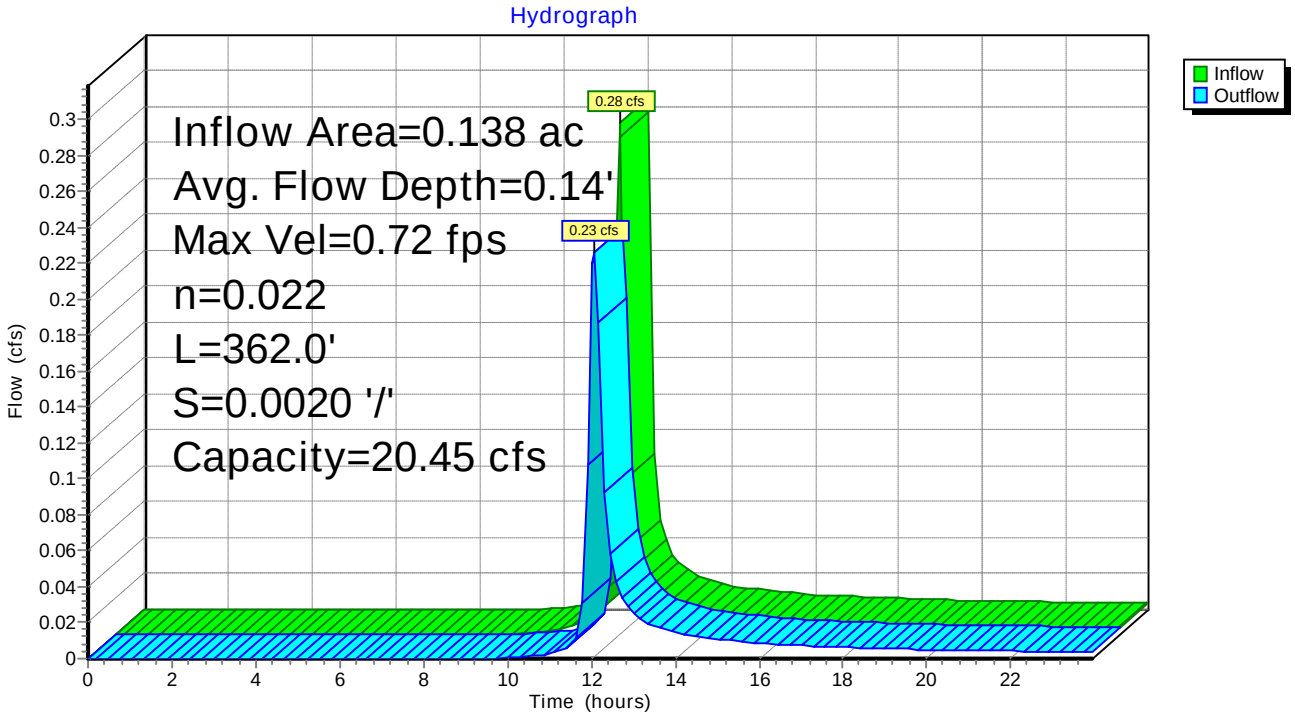
Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.72 fps, Min. Travel Time= 8.4 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 26.2 min

Peak Storage= 113 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.14' , Surface Width= 2.55'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



Reach 4R: East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 3.00" for 10-yr event
Inflow = 3.43 cfs @ 11.91 hrs, Volume= 0.221 af
Outflow = 3.13 cfs @ 11.93 hrs, Volume= 0.219 af, Atten= 9%, Lag= 0.9 min
Primary = 3.12 cfs @ 11.93 hrs, Volume= 0.208 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.01 cfs @ 12.05 hrs, Volume= 0.011 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.15' @ 12.05 hrs Surf.Area= 576 sf Storage= 235 cf

Plug-Flow detention time= 8.4 min calculated for 0.219 af (99% of inflow)
Center-of-Mass det. time= 1.2 min (754.1 - 752.9)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

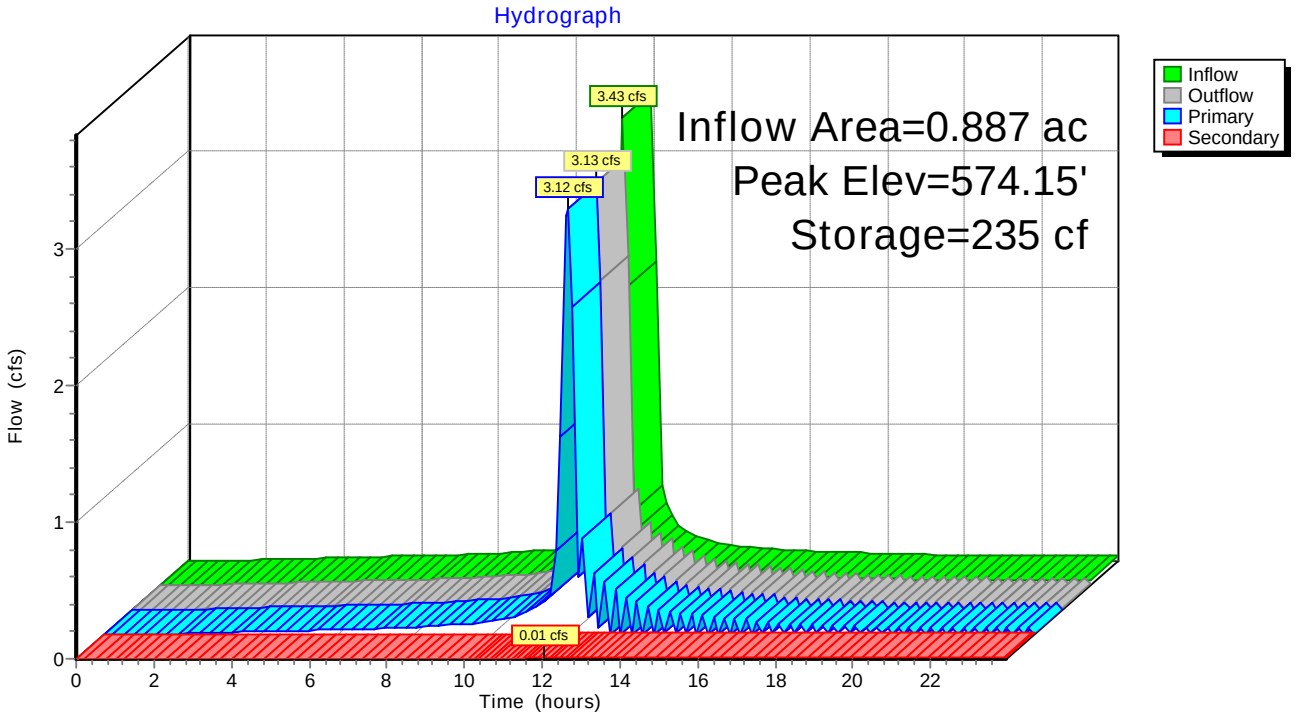
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	3.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	1.000 in/hr Exfiltration over Surface area

Primary OutFlow Max=1.51 cfs @ 11.93 hrs HW=574.11' TW=574.09' (Dynamic Tailwater)
└1=Broad-Crested Rectangular Weir (Weir Controls 1.51 cfs @ 0.71 fps)

Secondary OutFlow Max=0.01 cfs @ 12.05 hrs HW=574.15' TW=574.10' (Dynamic Tailwater)
└2=Exfiltration (Exfiltration Controls 0.01 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

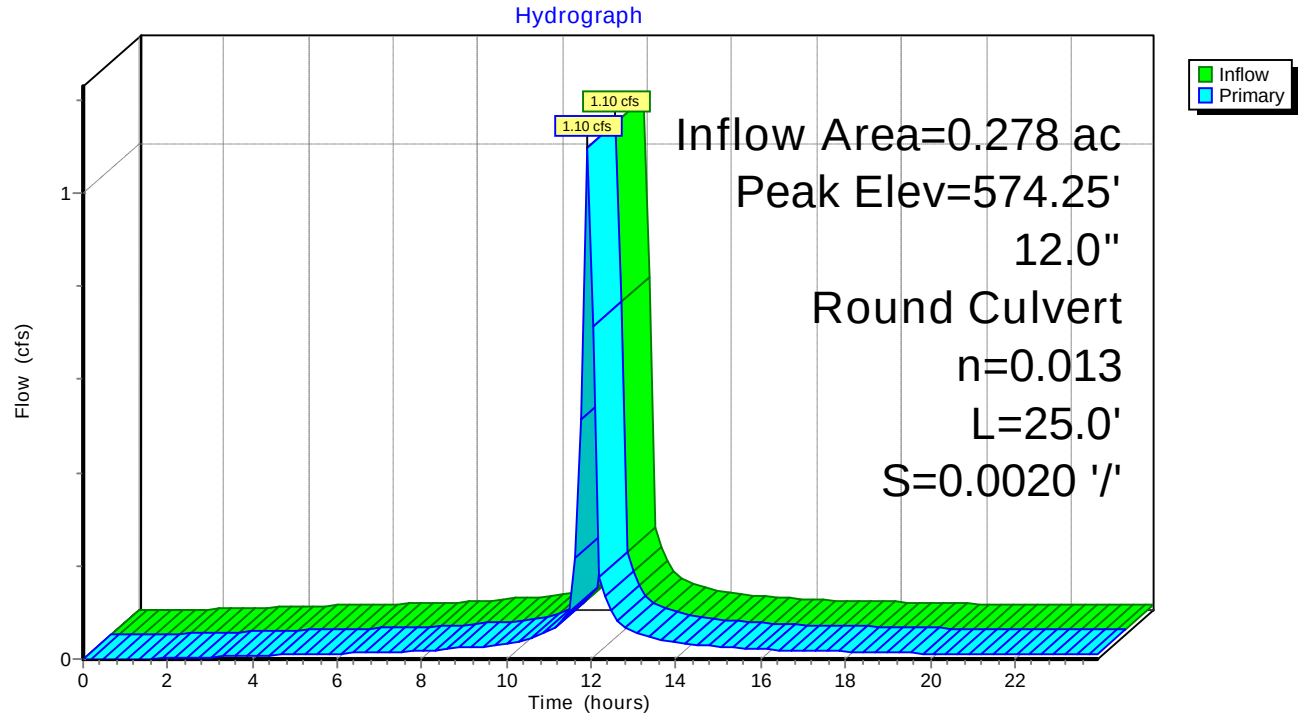
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 3.08" for 10-yr event
Inflow = 1.10 cfs @ 11.91 hrs, Volume= 0.071 af
Outflow = 1.10 cfs @ 11.91 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min
Primary = 1.10 cfs @ 11.91 hrs, Volume= 0.071 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.25' @ 11.96 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	12.0" Round 12" CULVERT L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.77 cfs @ 11.91 hrs HW=574.22' TW=574.11' (Dynamic Tailwater)
└1=12" CULVERT (Outlet Controls 0.77 cfs @ 1.81 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

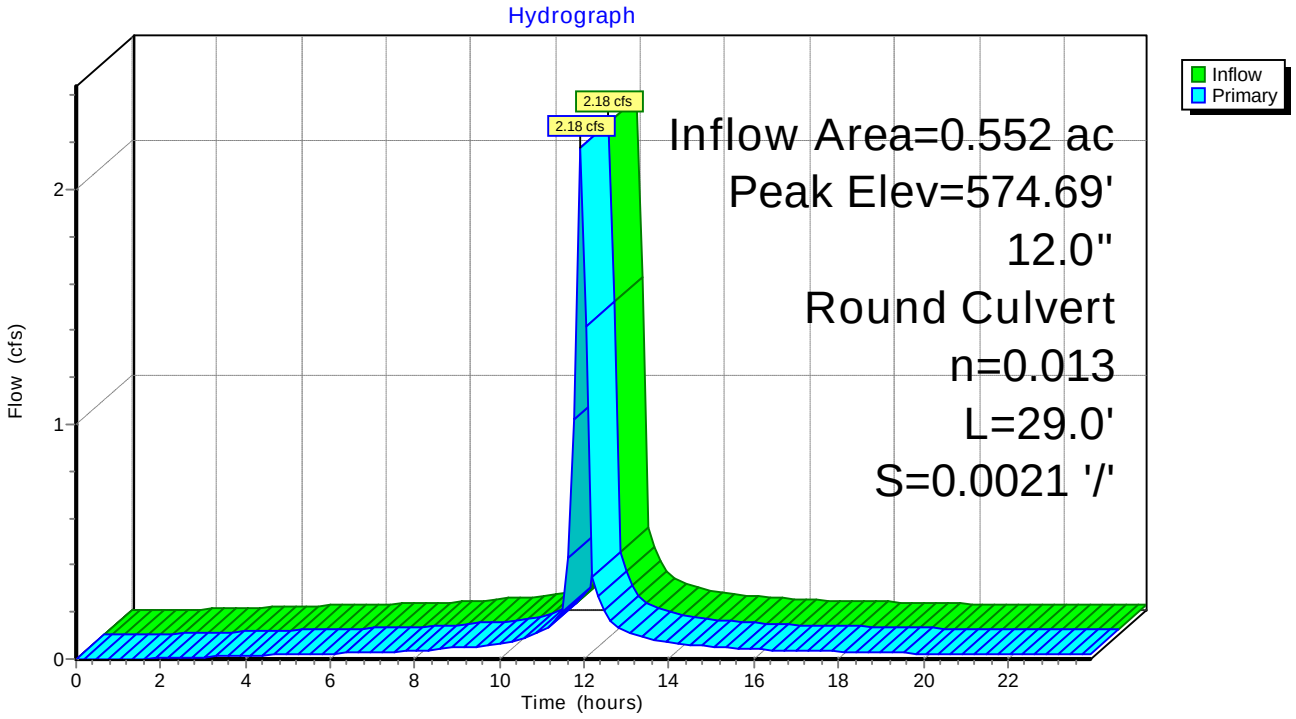
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 3.08" for 10-yr event
Inflow = 2.18 cfs @ 11.91 hrs, Volume= 0.142 af
Outflow = 2.18 cfs @ 11.91 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min
Primary = 2.18 cfs @ 11.91 hrs, Volume= 0.142 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.69' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	12.0" Round 12" CULVERT L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.09 cfs @ 11.91 hrs HW=574.66' TW=574.11' (Dynamic Tailwater)
└1=12" CULVERT (Barrel Controls 2.09 cfs @ 3.10 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 2.69" for 10-yr event
Inflow = 3.58 cfs @ 11.93 hrs, Volume= 0.245 af
Outflow = 3.17 cfs @ 11.99 hrs, Volume= 0.207 af, Atten= 11%, Lag= 3.8 min
Primary = 0.04 cfs @ 12.01 hrs, Volume= 0.066 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 3.13 cfs @ 11.99 hrs, Volume= 0.141 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.11' @ 12.01 hrs Surf.Area= 3,612 sf Storage= 2,471 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 28.3 min (790.9 - 762.6)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

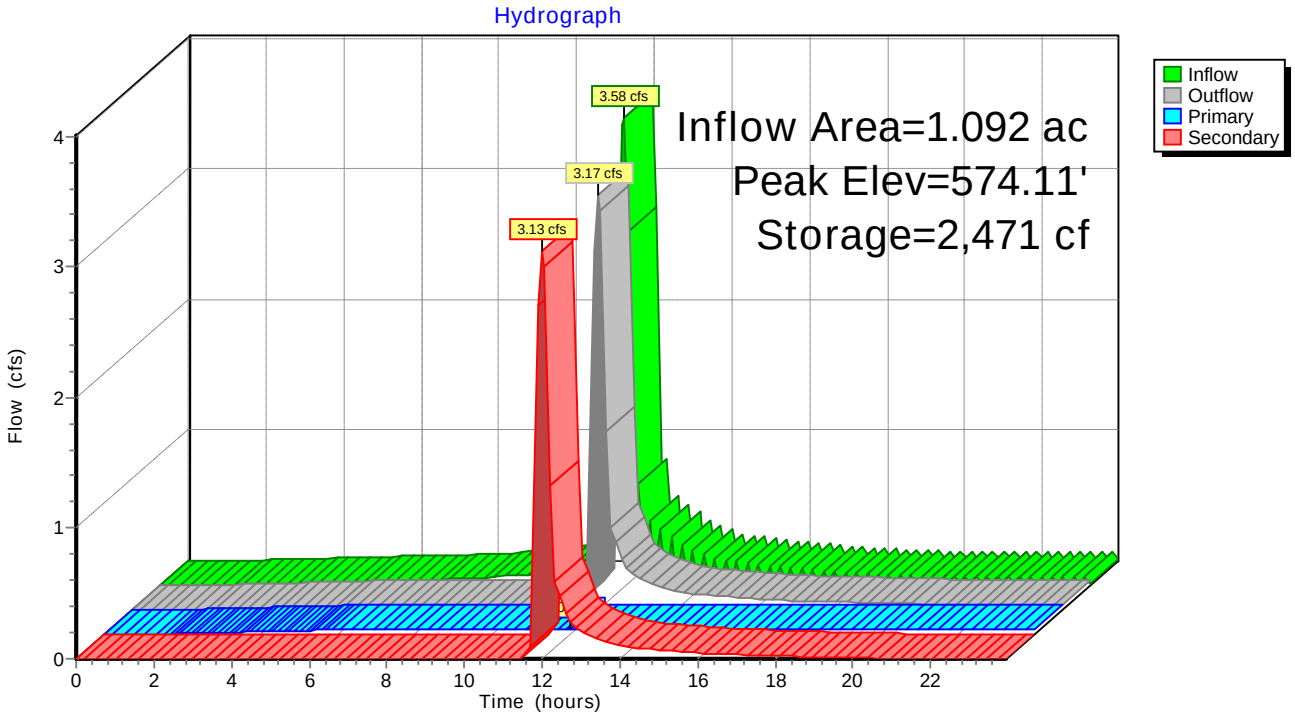
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	6.0" Horiz. Orifice/Grate X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	0.500 in/hr Exfiltration of Soil Media over Surface area

Primary OutFlow Max=0.04 cfs @ 12.01 hrs HW=574.10' TW=570.47' (Dynamic Tailwater)
└3=Exfiltration of Soil Media (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=2.91 cfs @ 11.99 hrs HW=574.10' TW=570.38' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Orifice Controls 1.14 cfs @ 1.51 fps)
└2=Orifice/Grate (Orifice Controls 1.77 cfs @ 2.25 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 2.27" for 10-yr event
Inflow = 3.17 cfs @ 11.99 hrs, Volume= 0.207 af
Outflow = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af, Atten= 78%, Lag= 27.2 min
Primary = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.18' @ 12.35 hrs Surf.Area= 3,113 sf Storage= 3,200 cf

Plug-Flow detention time= 114.6 min calculated for 0.175 af (85% of inflow)
Center-of-Mass det. time= 44.7 min (835.7 - 790.9)

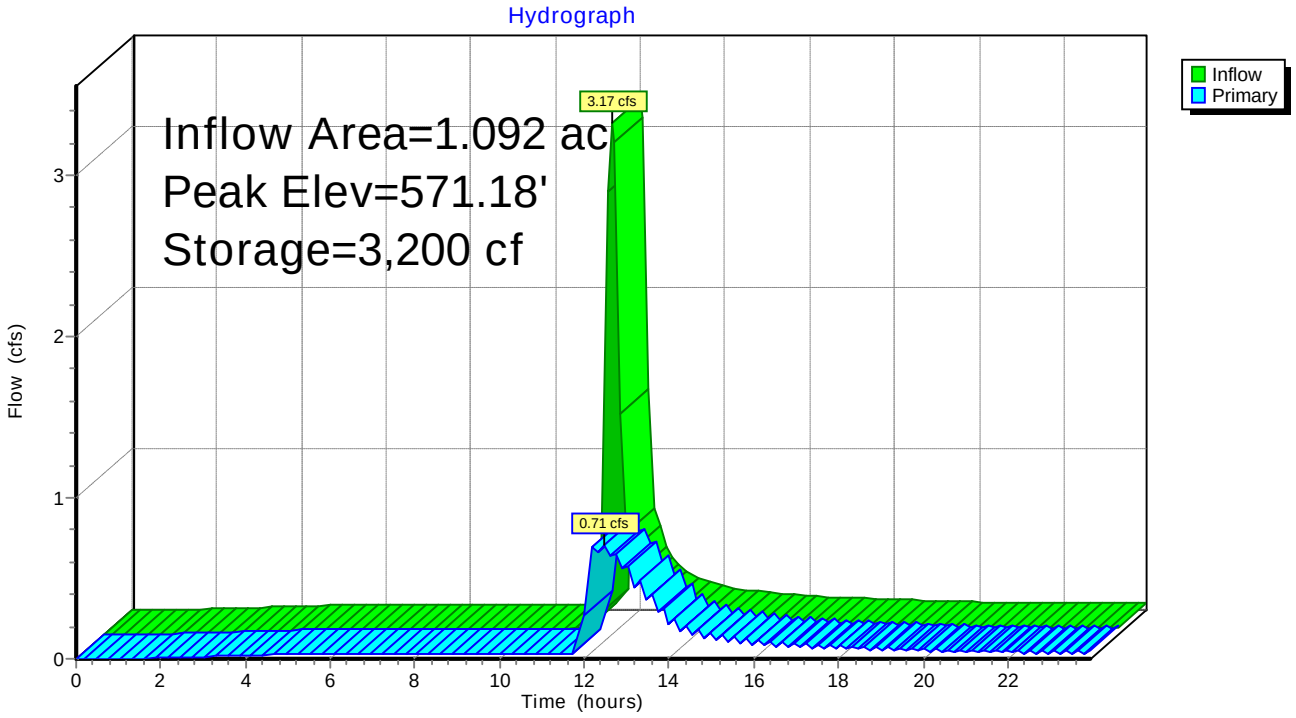
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	6.0" Round 6" Perforated HDPE Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	6.0" Round Culvert after elbow assembly L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.69 cfs @ 12.44 hrs HW=571.15' TW=570.67' (Dynamic Tailwater)
1=Culvert after elbow assembly (Inlet Controls 0.65 cfs @ 3.33 fps)
2=Exfiltration (Exfiltration Controls 0.04 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

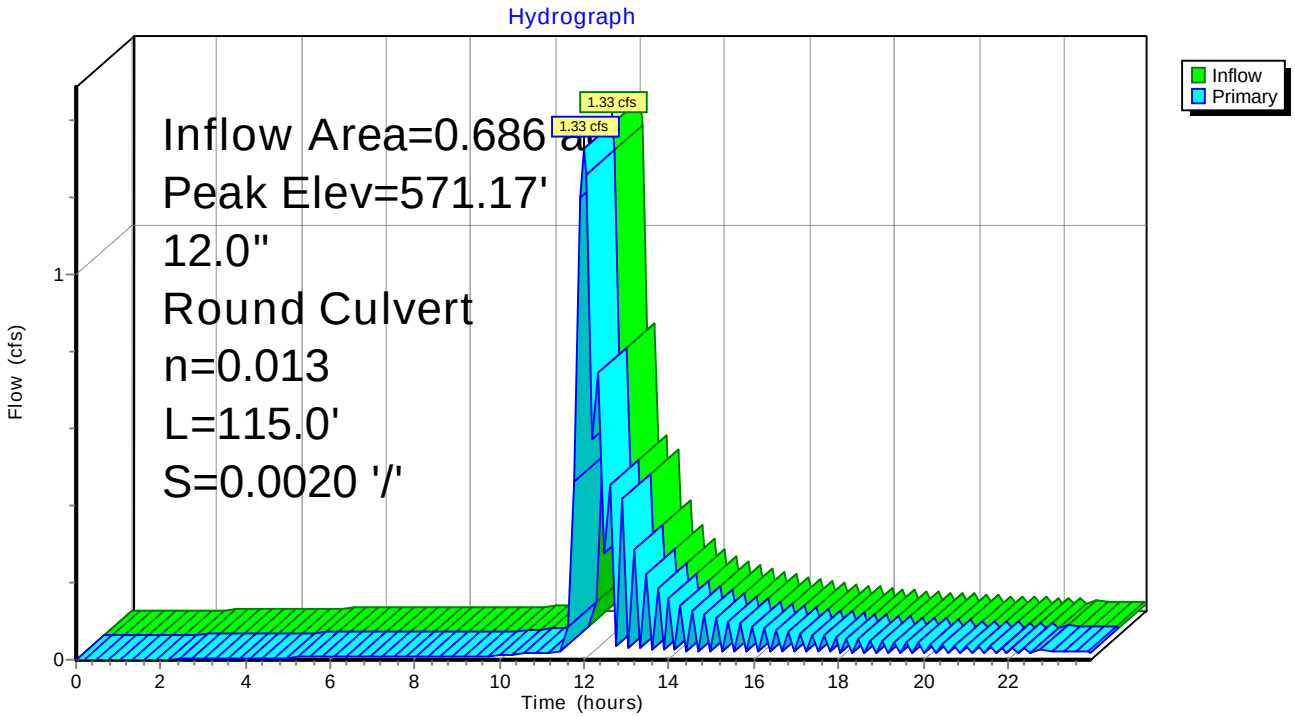
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 2.01" for 10-yr event
Inflow = 1.33 cfs @ 11.98 hrs, Volume= 0.115 af
Outflow = 1.33 cfs @ 11.98 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min
Primary = 1.33 cfs @ 11.98 hrs, Volume= 0.115 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.17' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	12.0" Round Culvert L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.24 cfs @ 11.98 hrs HW=571.13' TW=570.61' (Dynamic Tailwater)
└1=Culvert (Barrel Controls 1.24 cfs @ 2.46 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 2.38" for 10-yr event
Inflow = 1.90 cfs @ 11.89 hrs, Volume= 0.113 af
Outflow = 1.61 cfs @ 11.92 hrs, Volume= 0.108 af, Atten= 15%, Lag= 1.8 min
Primary = 0.01 cfs @ 11.91 hrs, Volume= 0.017 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 1.60 cfs @ 11.92 hrs, Volume= 0.090 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.40' @ 11.91 hrs Surf.Area= 970 sf Storage= 399 cf

Plug-Flow detention time= 44.6 min calculated for 0.107 af (94% of inflow)
Center-of-Mass det. time= 16.1 min (796.3 - 780.2)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

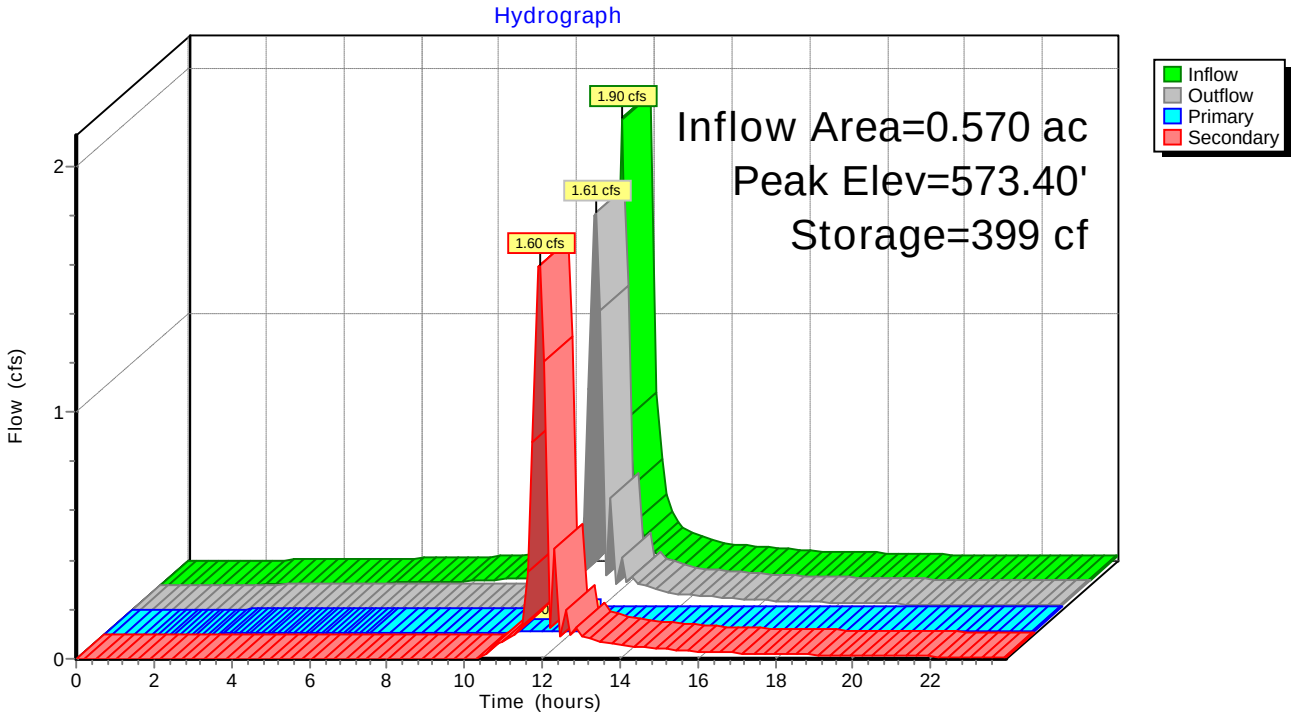
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	4.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	0.500 in/hr Exfiltration through soil media over Surface area

Primary OutFlow Max=0.01 cfs @ 11.91 hrs HW=573.39' TW=571.03' (Dynamic Tailwater)
└3=Exfiltration through soil media (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=1.54 cfs @ 11.92 hrs HW=573.39' TW=571.04' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Orifice Controls 1.36 cfs @ 1.81 fps)
└2=Orifice/Grate (Orifice Controls 0.17 cfs @ 1.99 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 2.27" for 10-yr event
Inflow = 1.61 cfs @ 11.92 hrs, Volume= 0.108 af
Outflow = 1.11 cfs @ 11.97 hrs, Volume= 0.101 af, Atten= 31%, Lag= 3.2 min
Primary = 1.11 cfs @ 11.97 hrs, Volume= 0.101 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.23' @ 12.08 hrs Surf.Area= 2,674 sf Storage= 1,013 cf

Plug-Flow detention time= 58.7 min calculated for 0.101 af (94% of inflow)
Center-of-Mass det. time= 22.6 min (818.8 - 796.3)

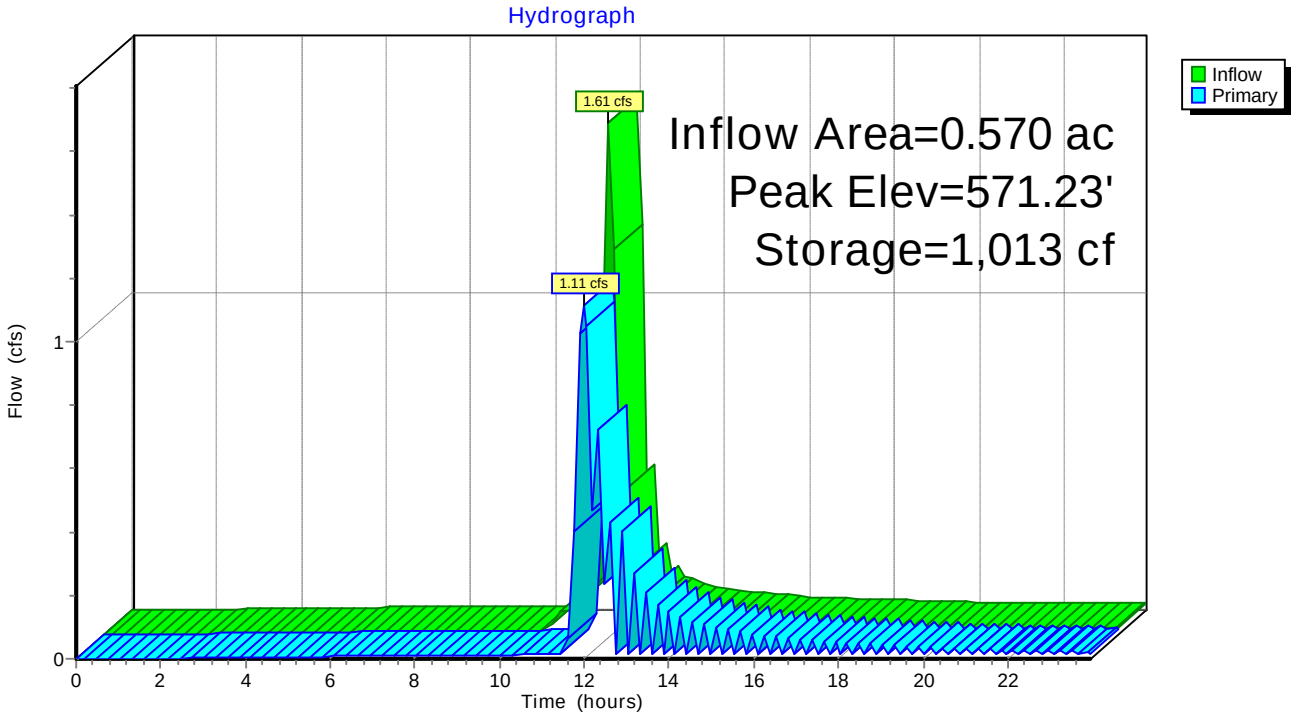
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	4.0" Round 4" Perforated HDPE Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	12.0" Round 12" Culvert L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.03 cfs @ 11.97 hrs HW=571.12' TW=571.13' (Dynamic Tailwater)
1=12" Culvert (Controls 0.00 cfs)
2=Exfiltration (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

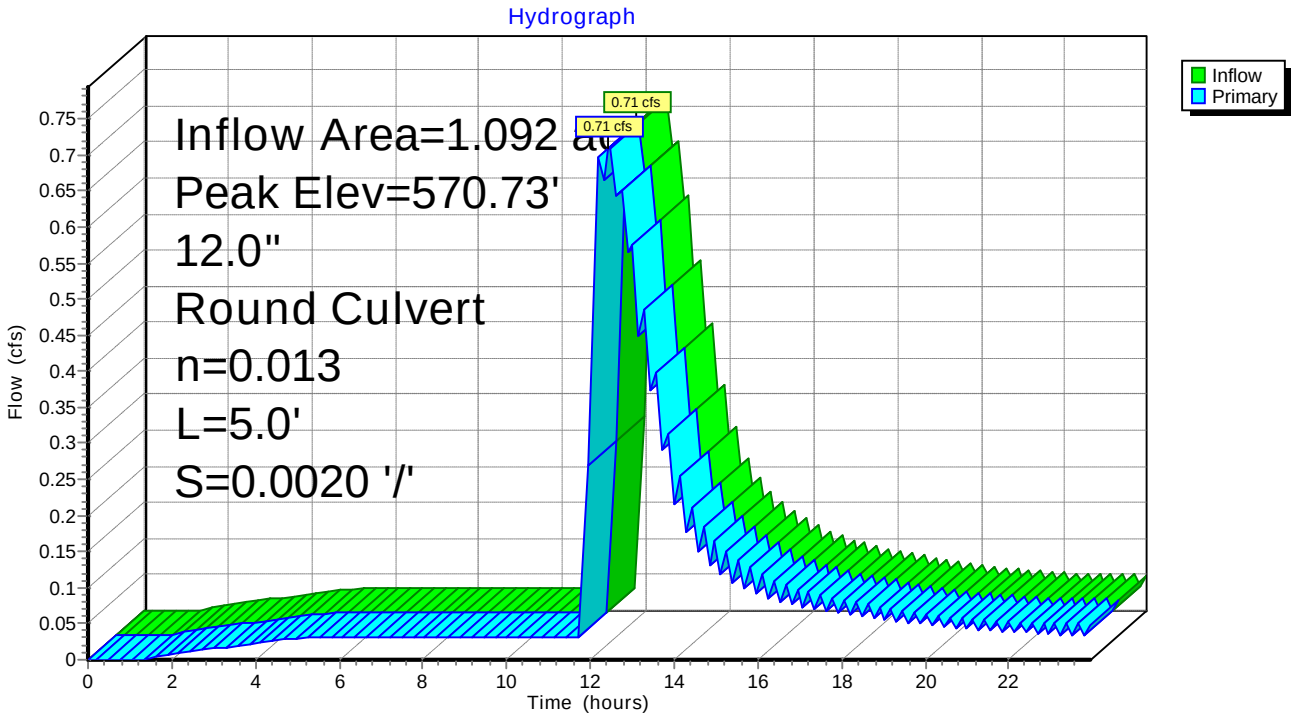
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.93" for 10-yr event
Inflow = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af
Outflow = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.73' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	12.0" Round 12 " Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 12.44 hrs HW=570.67' TW=570.49' (Dynamic Tailwater)
└1=12 " Culvert (Barrel Controls 1.00 cfs @ 2.60 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 2.68" for 10-yr event
Inflow = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af
Outflow = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.98' @ 11.89 hrs
Flood Elev= 576.20'

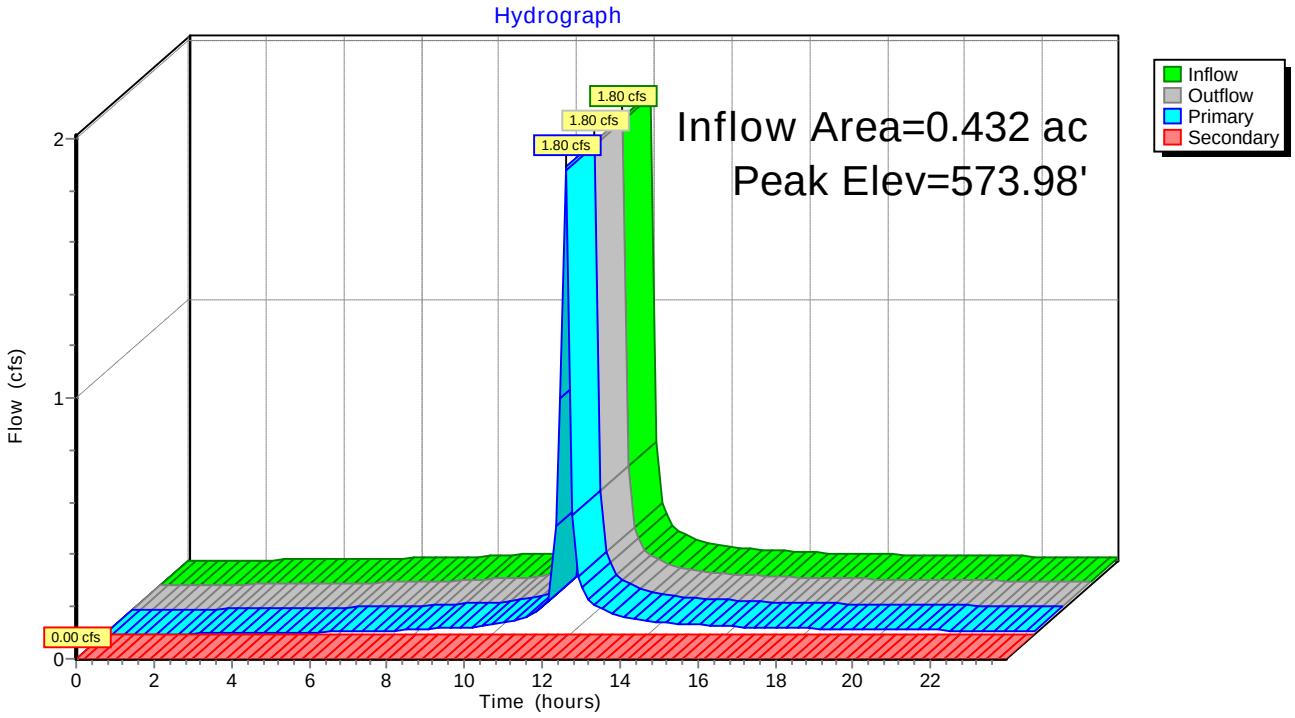
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	6.0" Horiz. Orifice/Grate X 5.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.69 cfs @ 11.89 hrs HW=573.95' TW=573.39' (Dynamic Tailwater)
- 1=Orifice/Grate (Orifice Controls 0.34 cfs @ 3.58 fps)
- 2=Orifice/Grate (Orifice Controls 0.64 cfs @ 3.36 fps)
- 3=Orifice/Grate (Orifice Controls 0.51 cfs @ 2.71 fps)
- 4=Orifice/Grate (Orifice Controls 0.20 cfs @ 2.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- 5=Orifice/Grate (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

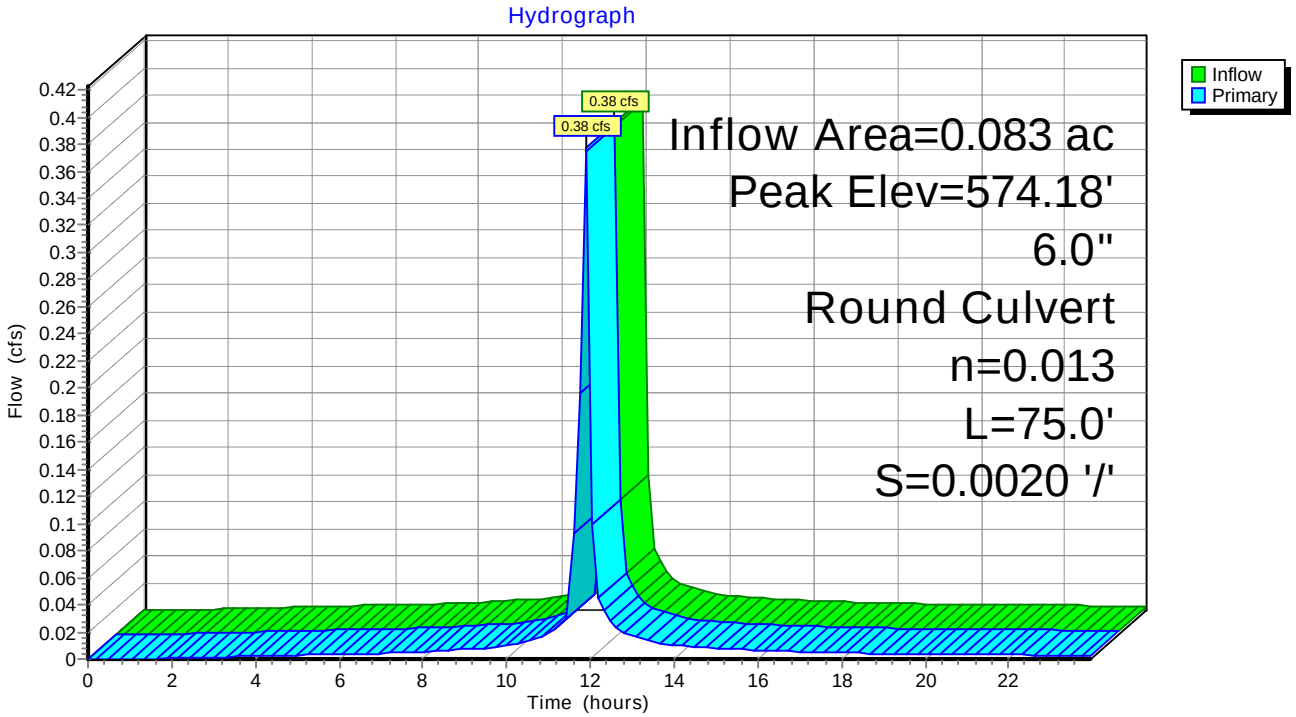
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 3.09" for 10-yr event
Inflow = 0.38 cfs @ 11.89 hrs, Volume= 0.021 af
Outflow = 0.38 cfs @ 11.89 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 11.89 hrs, Volume= 0.021 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.18' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.25 cfs @ 11.89 hrs HW=574.13' TW=573.94' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.25 cfs @ 1.28 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

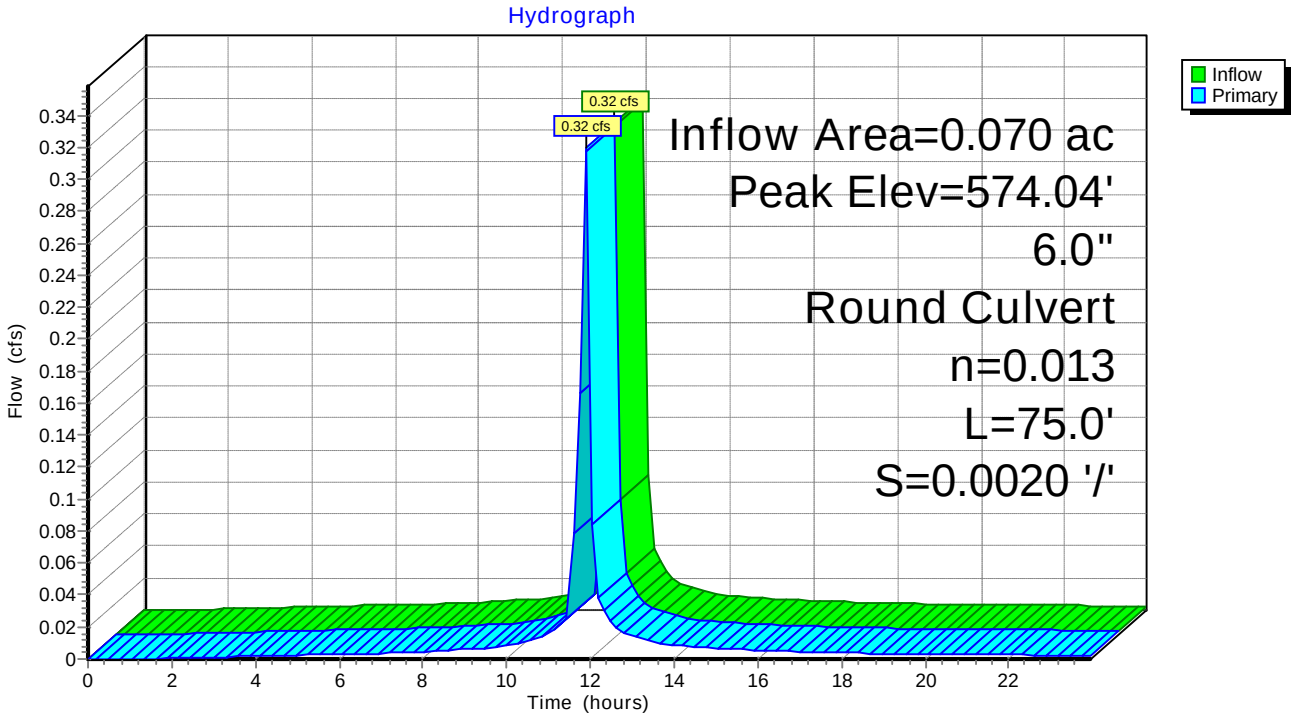
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 3.09" for 10-yr event
Inflow = 0.32 cfs @ 11.89 hrs, Volume= 0.018 af
Outflow = 0.32 cfs @ 11.89 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 11.89 hrs, Volume= 0.018 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.04' @ 11.98 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.06 cfs @ 11.89 hrs HW=573.95' TW=573.94' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.06 cfs @ 0.33 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

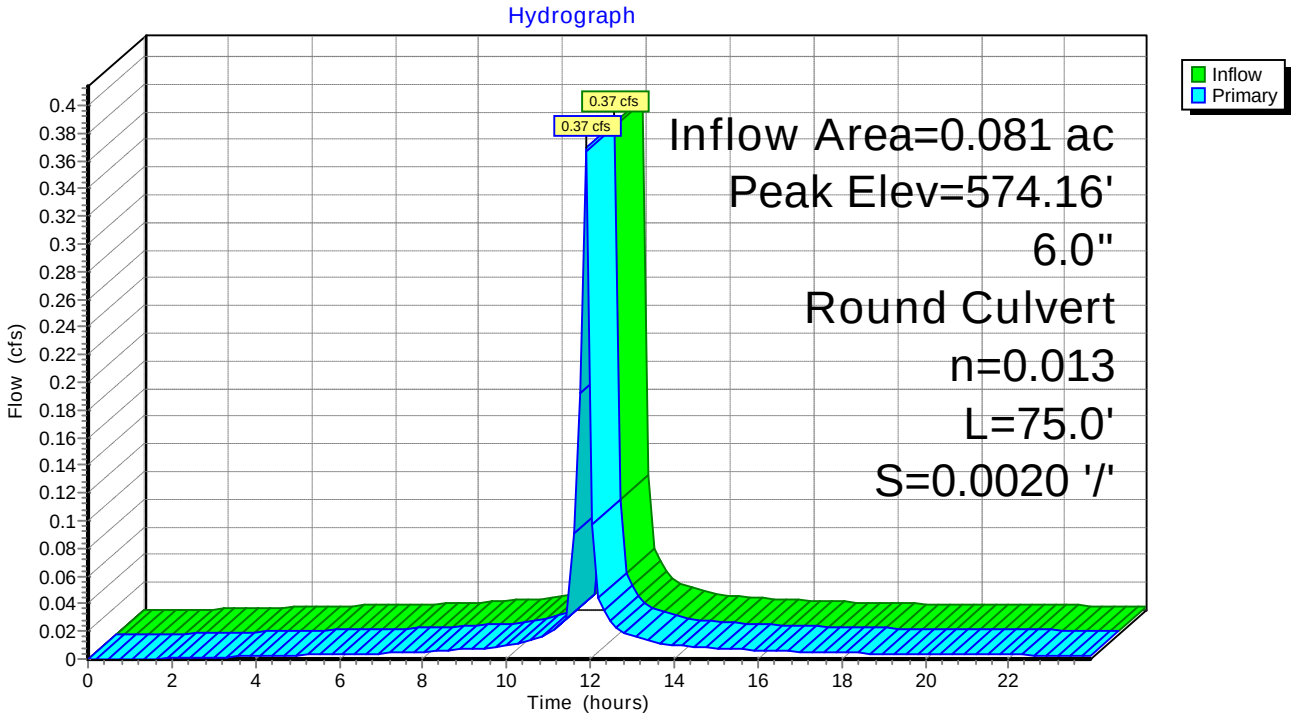
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 3.09" for 10-yr event
Inflow = 0.37 cfs @ 11.89 hrs, Volume= 0.021 af
Outflow = 0.37 cfs @ 11.89 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 11.89 hrs, Volume= 0.021 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.16' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.24 cfs @ 11.89 hrs HW=574.12' TW=573.94' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.24 cfs @ 1.22 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

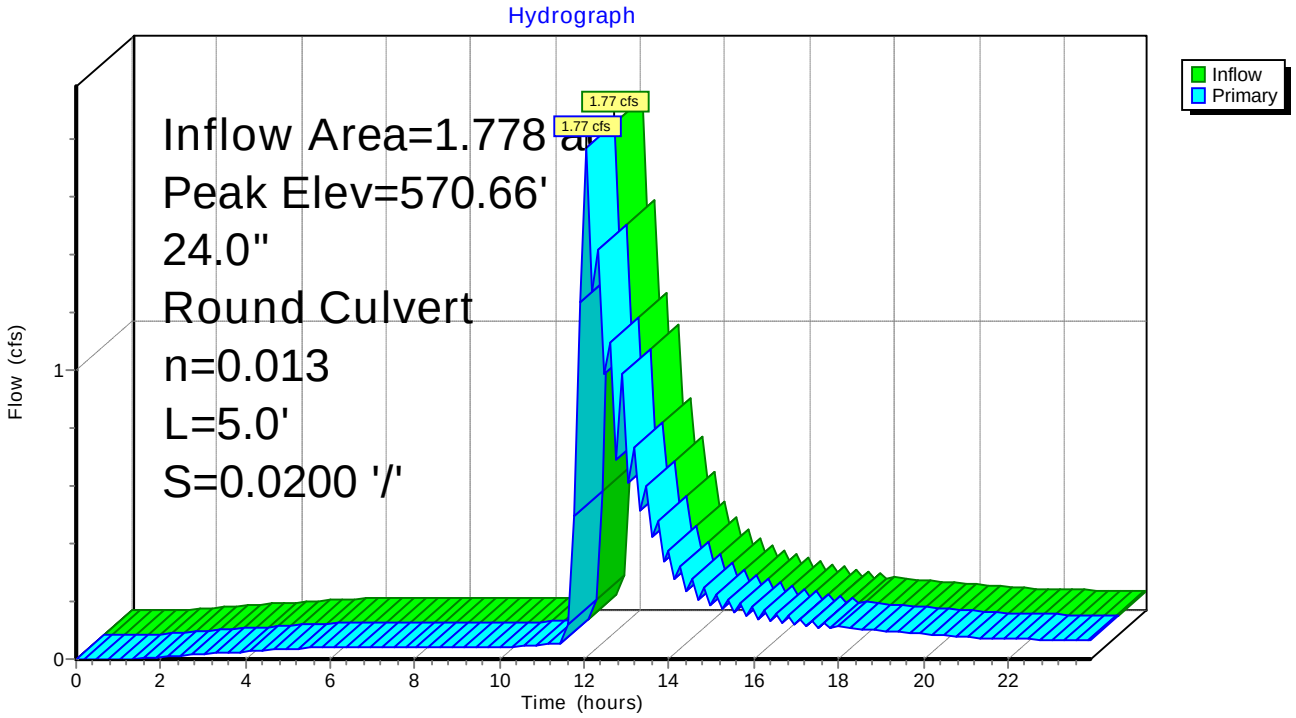
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 1.96" for 10-yr event
Inflow = 1.77 cfs @ 12.04 hrs, Volume= 0.291 af
Outflow = 1.77 cfs @ 12.04 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.04 hrs, Volume= 0.291 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.66' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	24.0" Round Culvert L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=1.76 cfs @ 12.04 hrs HW=570.66' (Free Discharge)
└1=Culvert (Barrel Controls 1.76 cfs @ 2.90 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 1.49" for 10-yr event
Inflow = 0.24 cfs @ 11.94 hrs, Volume= 0.014 af
Outflow = 0.22 cfs @ 12.01 hrs, Volume= 0.014 af, Atten= 8%, Lag= 4.0 min
Primary = 0.22 cfs @ 12.01 hrs, Volume= 0.014 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.84' @ 12.00 hrs Surf.Area= 530 sf Storage= 33 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.5 min (837.5 - 836.1)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

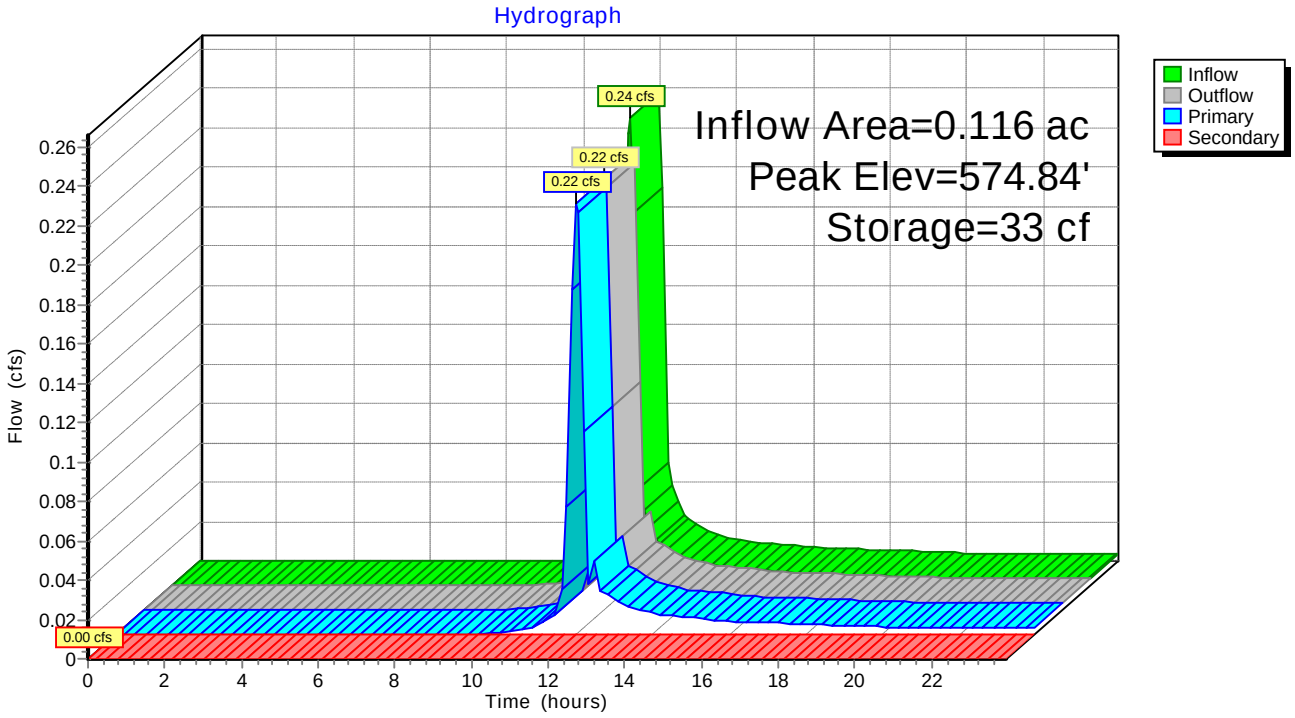
Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	6.0" Horiz. 6" Yard Drain C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	1.7" x 3.2" Horiz. CB Grate X 7.00 columns X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

Primary OutFlow Max=0.20 cfs @ 12.01 hrs HW=574.84' TW=571.14' (Dynamic Tailwater)
└1=6" Yard Drain (Weir Controls 0.20 cfs @ 1.12 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
└2=CB Grate (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.32 cfs 0.086 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=2.61 cfs 0.172 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>2.01"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.38 cfs 0.023 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>2.26"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.21 cfs 0.011 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>2.01"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.61 cfs 0.035 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>2.79"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=0.92 cfs 0.046 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>2.01"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.32 cfs 0.019 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.45 cfs 0.026 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.38 cfs 0.022 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.44 cfs 0.025 af

Reach 4R: East Swale Avg. Flow Depth=0.17' Max Vel=0.81 fps Inflow=0.38 cfs 0.023 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.32 cfs 0.023 af

Pond 5P: Front Vegetated Swale Peak Elev=574.23' Storage=284 cf Inflow=4.13 cfs 0.269 af
Primary=3.82 cfs 0.255 af Secondary=0.01 cfs 0.012 af Outflow=3.84 cfs 0.266 af

Pond 6P: CB1 Peak Elev=574.32' Inflow=1.32 cfs 0.086 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=1.32 cfs 0.086 af

Pond 7P: CB2 Peak Elev=574.94' Inflow=2.61 cfs 0.172 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=2.61 cfs 0.172 af

Pond 14P: Bio-Retention Area Storage Peak Elev=574.19' Storage=2,765 cf Inflow=4.44 cfs 0.301 af
Primary=0.04 cfs 0.068 af Secondary=3.77 cfs 0.194 af Outflow=3.81 cfs 0.263 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=571.79' Storage=4,376 cf Inflow=3.81 cfs 0.263 af
Outflow=0.97 cfs 0.231 af

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=571.36' Inflow=1.81 cfs 0.148 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=1.81 cfs 0.148 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.46' Storage=461 cf Inflow=2.35 cfs 0.142 af
Primary=0.01 cfs 0.018 af Secondary=1.90 cfs 0.118 af Outflow=1.91 cfs 0.136 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=571.40' Storage=1,142 cf Inflow=1.91 cfs 0.136 af
Outflow=1.52 cfs 0.129 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=570.90' Inflow=0.97 cfs 0.231 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=0.97 cfs 0.231 af

Pond 41P: Level Spreader Peak Elev=574.19' Inflow=2.20 cfs 0.119 af
Primary=2.20 cfs 0.119 af Secondary=0.00 cfs 0.000 af Outflow=2.20 cfs 0.119 af

Pond 42P: CB3 Peak Elev=574.38' Inflow=0.45 cfs 0.026 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.45 cfs 0.026 af

Pond 44P: CB4 Peak Elev=574.27' Inflow=0.38 cfs 0.022 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.38 cfs 0.022 af

Pond 45P: CB5 Peak Elev=574.36' Inflow=0.44 cfs 0.025 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.44 cfs 0.025 af

Pond 46P: STM MH Peak Elev=570.82' Inflow=2.58 cfs 0.379 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=2.58 cfs 0.379 af

Pond 47P: West Area to CB + YD Peak Elev=574.87' Storage=48 cf Inflow=0.32 cfs 0.019 af
Primary=0.29 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.29 cfs 0.019 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.465 af Average Runoff Depth = 3.14"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

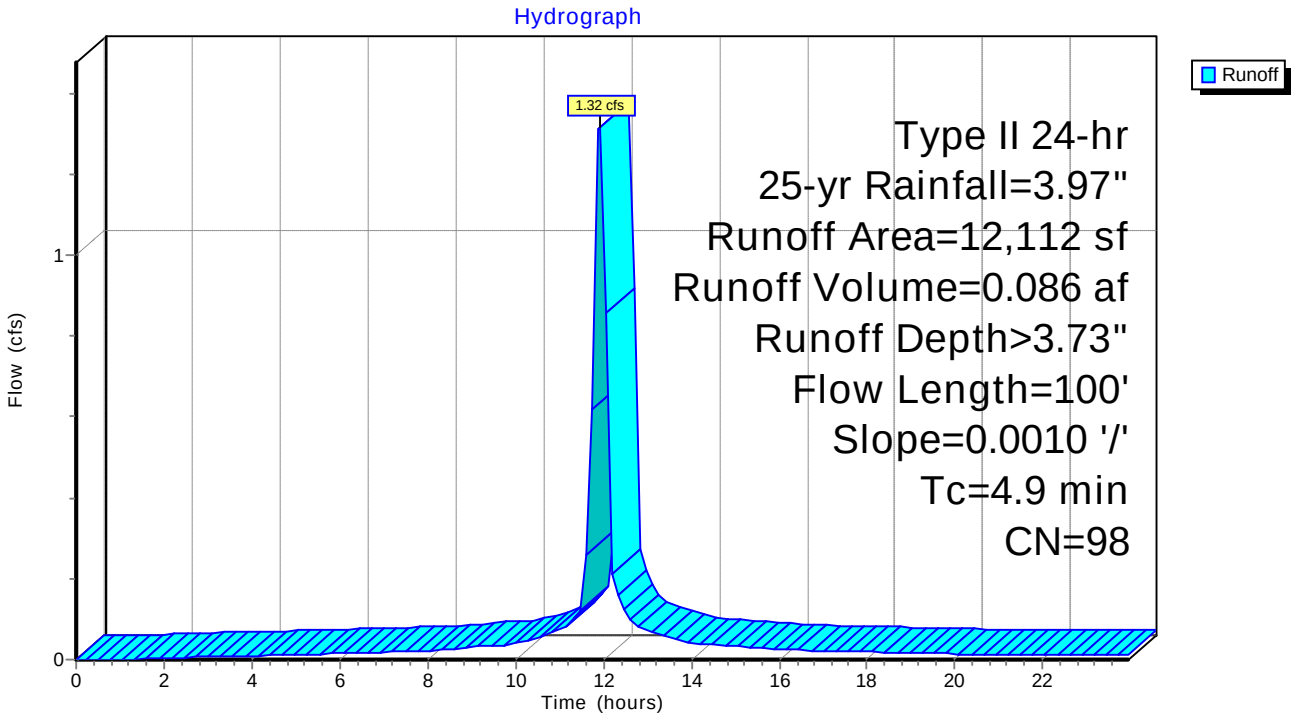
Runoff = 1.32 cfs @ 11.91 hrs, Volume= 0.086 af, Depth> 3.73"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

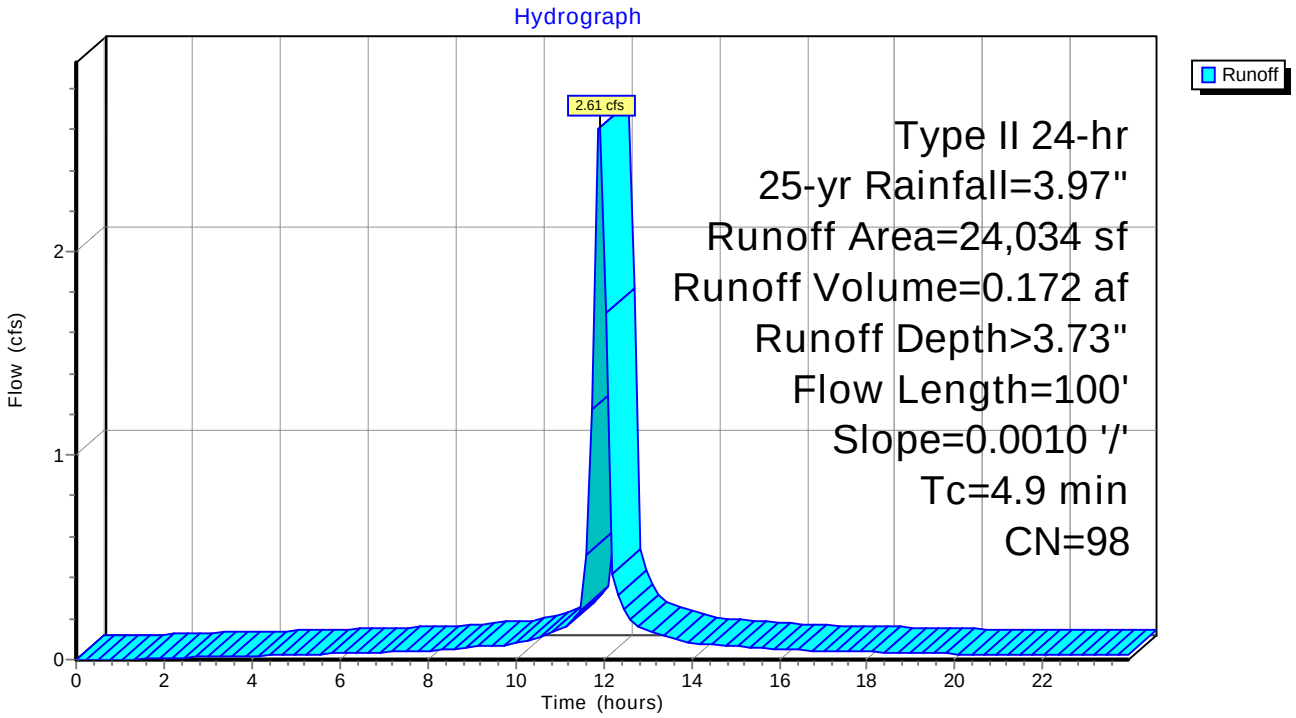
Runoff = 2.61 cfs @ 11.91 hrs, Volume= 0.172 af, Depth> 3.73"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

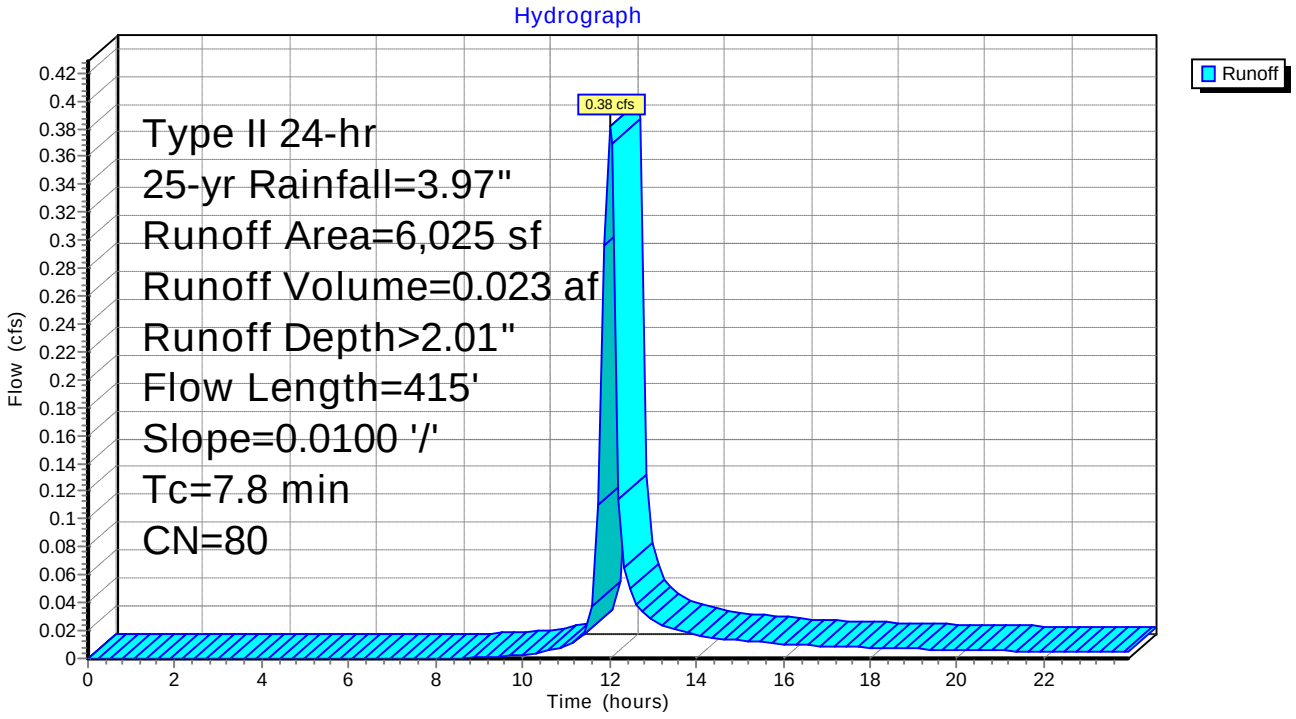
Runoff = 0.38 cfs @ 12.00 hrs, Volume= 0.023 af, Depth> 2.01"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

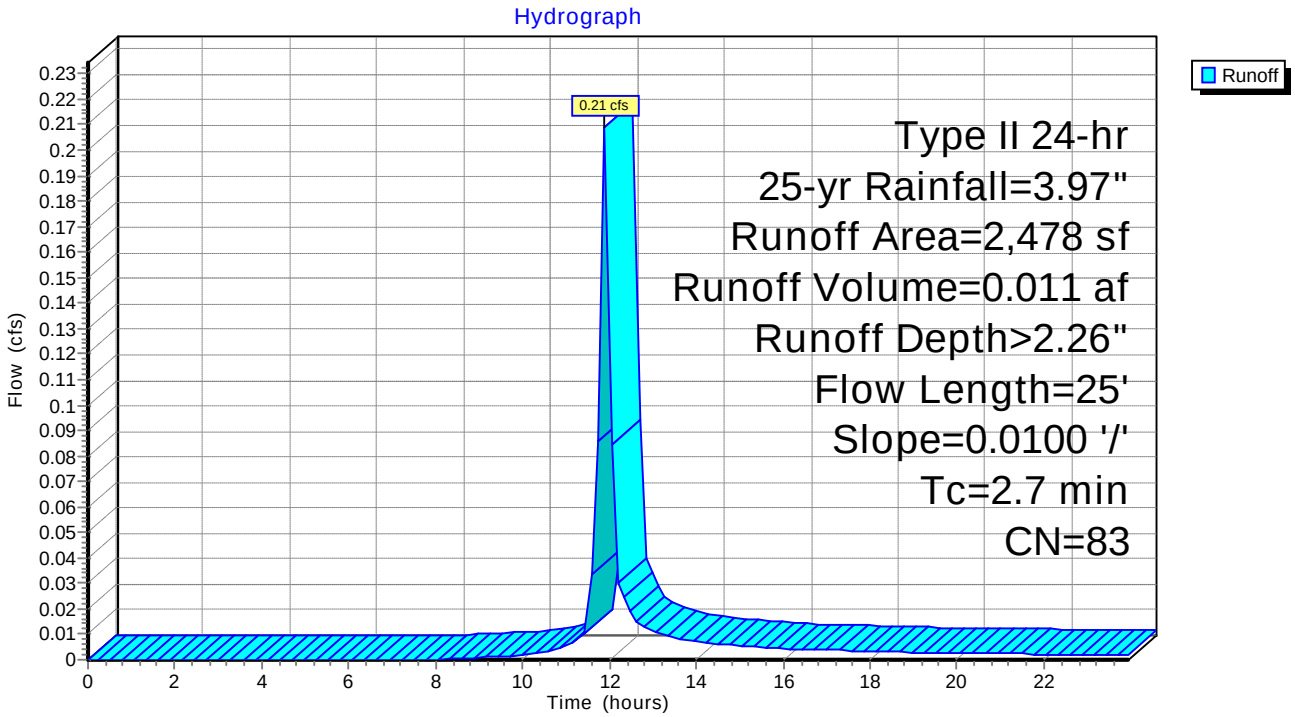
Runoff = 0.21 cfs @ 11.90 hrs, Volume= 0.011 af, Depth> 2.26"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

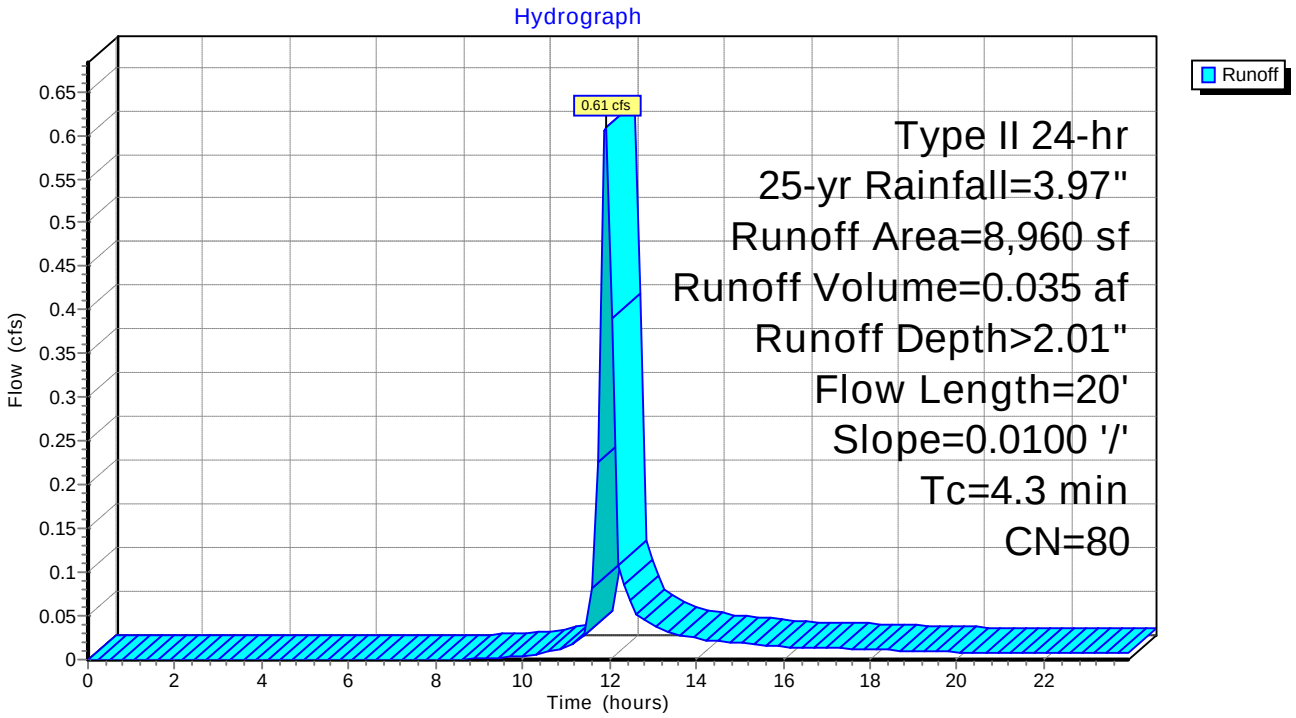
Runoff = 0.61 cfs @ 11.92 hrs, Volume= 0.035 af, Depth> 2.01"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

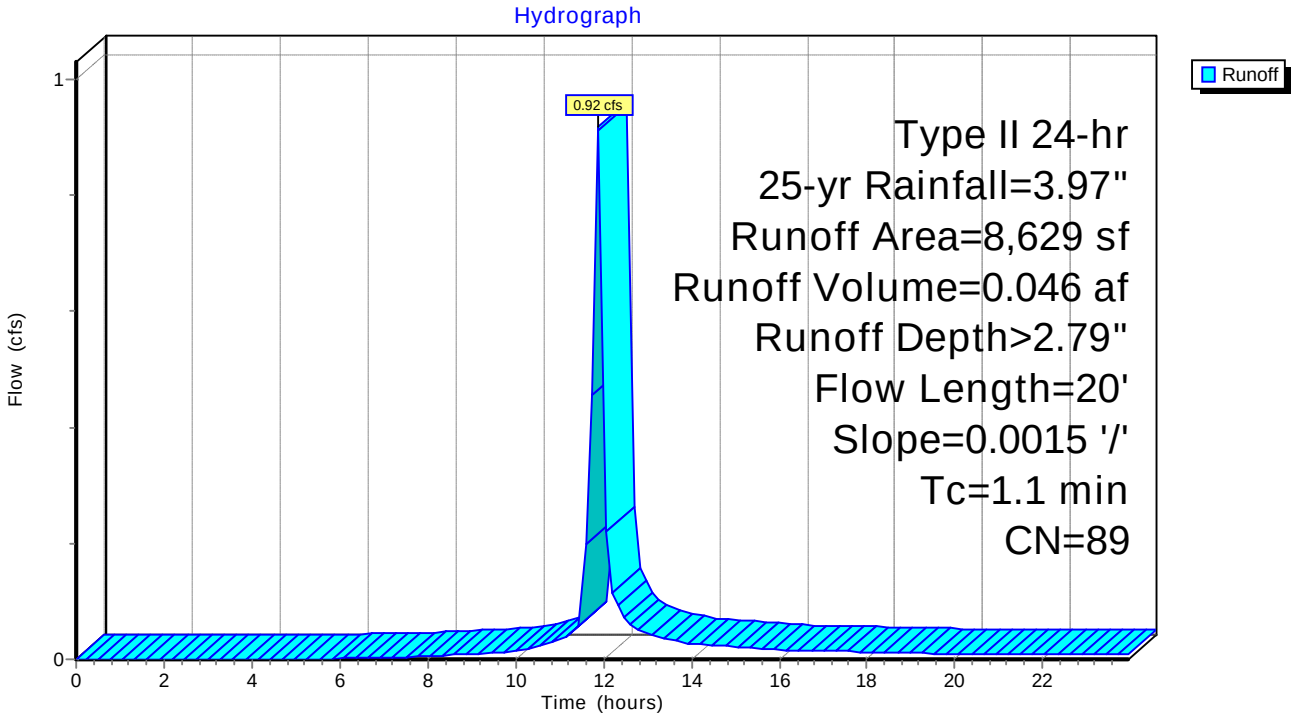
Runoff = 0.92 cfs @ 11.89 hrs, Volume= 0.046 af, Depth> 2.79"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

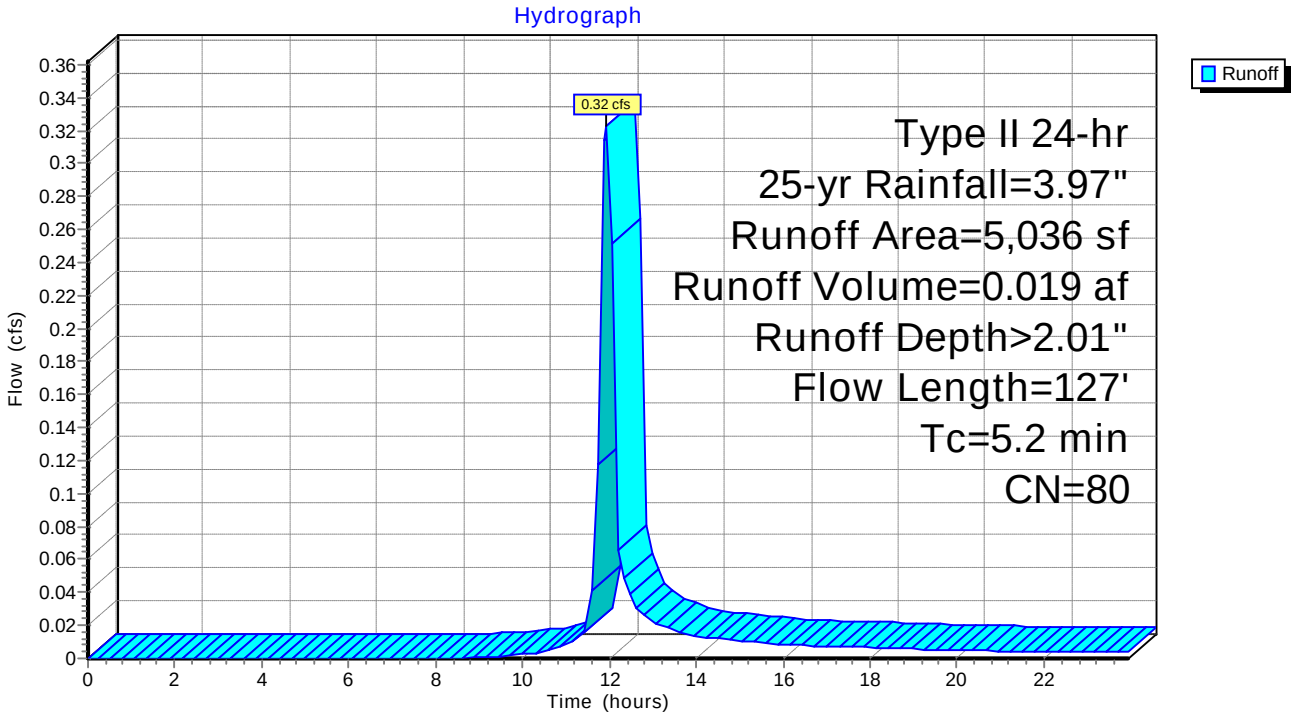
Runoff = 0.32 cfs @ 11.94 hrs, Volume= 0.019 af, Depth> 2.01"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

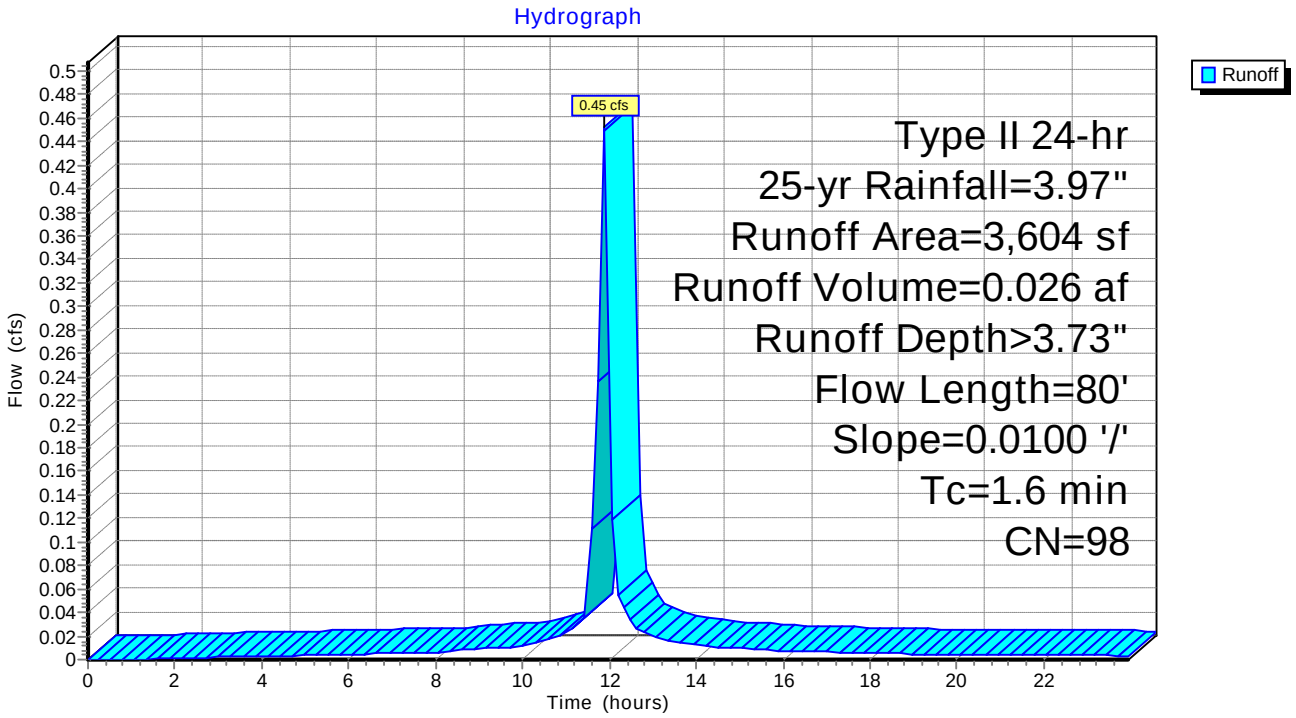
Runoff = 0.45 cfs @ 11.88 hrs, Volume= 0.026 af, Depth> 3.73"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

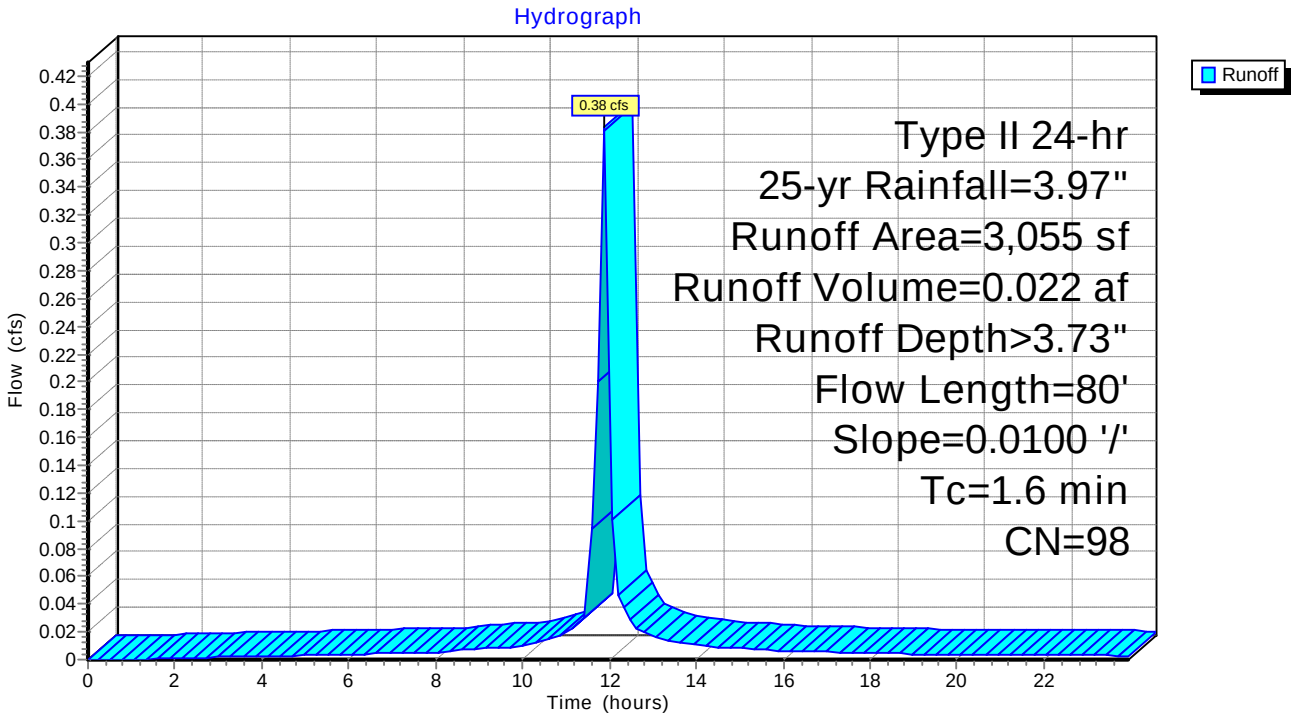
Runoff = 0.38 cfs @ 11.88 hrs, Volume= 0.022 af, Depth> 3.73"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

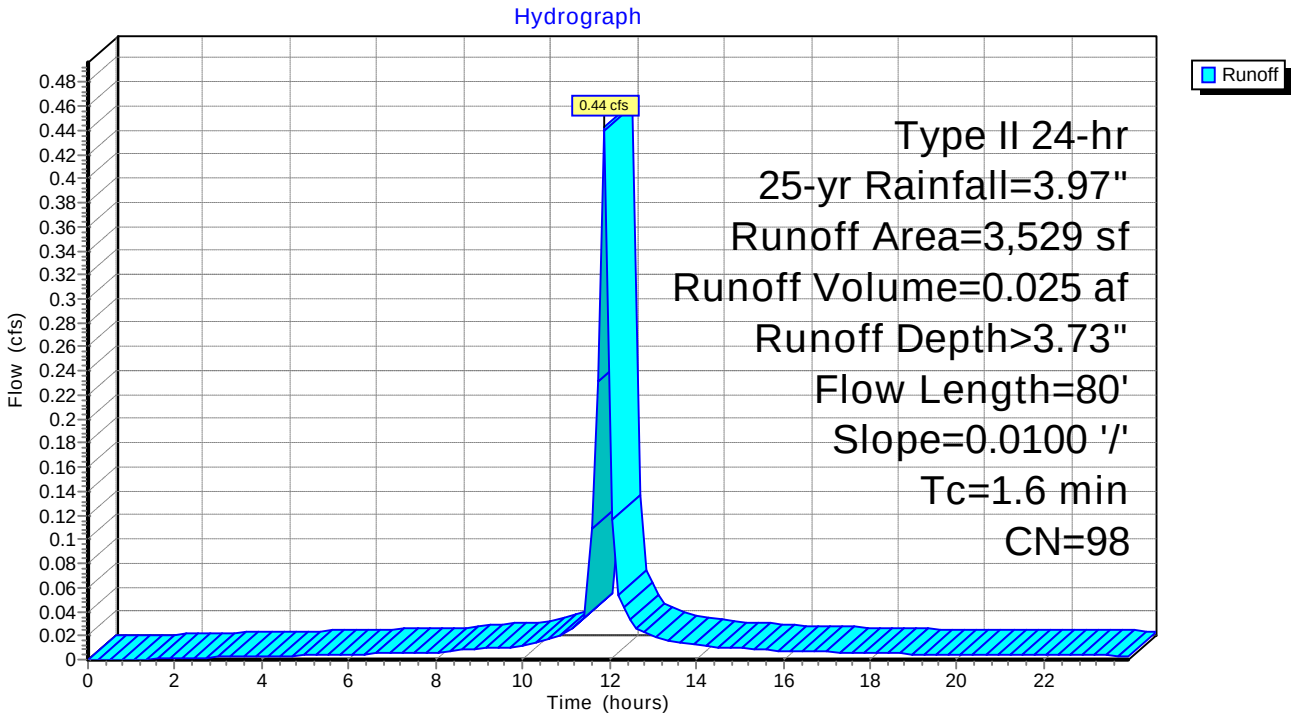
Runoff = 0.44 cfs @ 11.88 hrs, Volume= 0.025 af, Depth> 3.73"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 2.01" for 25-yr event
Inflow = 0.38 cfs @ 12.00 hrs, Volume= 0.023 af
Outflow = 0.32 cfs @ 12.07 hrs, Volume= 0.023 af, Atten= 17%, Lag= 4.0 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

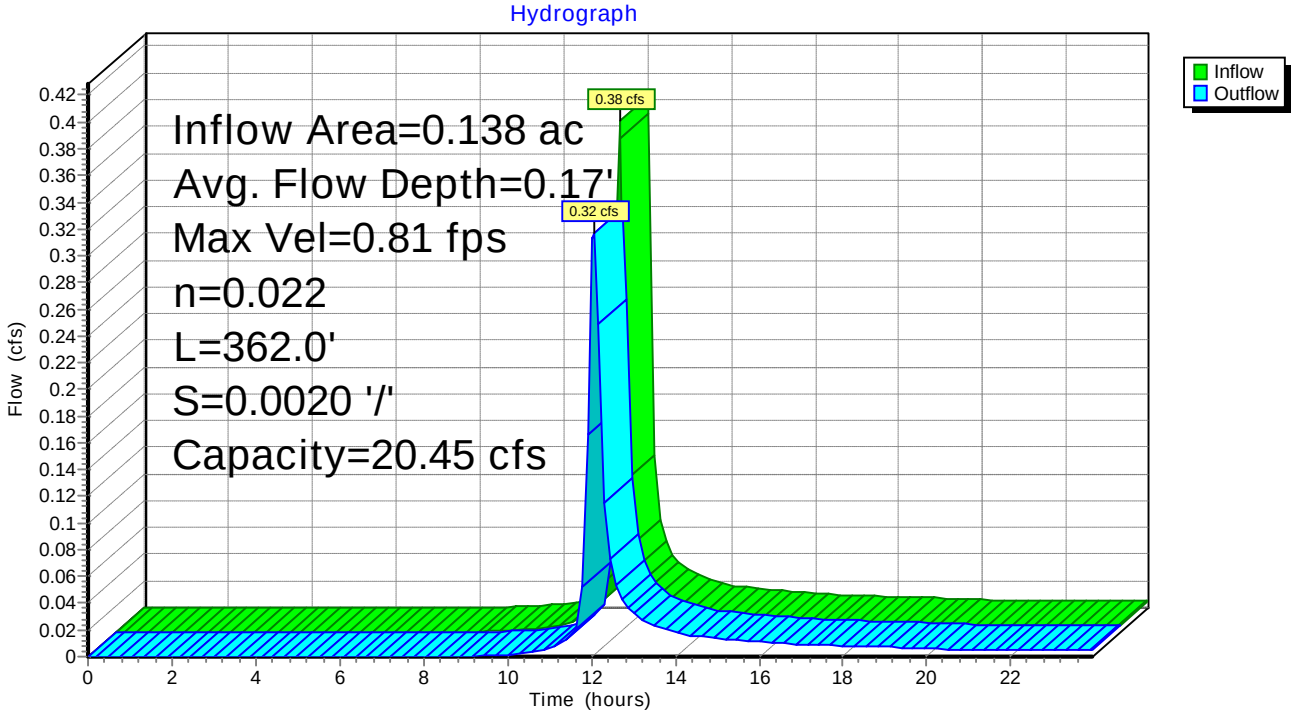
Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.81 fps, Min. Travel Time= 7.4 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 24.6 min

Peak Storage= 141 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.17' , Surface Width= 2.67'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



Reach 4R: East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 3.64" for 25-yr event
Inflow = 4.13 cfs @ 11.91 hrs, Volume= 0.269 af
Outflow = 3.84 cfs @ 11.93 hrs, Volume= 0.266 af, Atten= 7%, Lag= 0.9 min
Primary = 3.82 cfs @ 11.93 hrs, Volume= 0.255 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.01 cfs @ 12.01 hrs, Volume= 0.012 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.23' @ 12.01 hrs Surf.Area= 617 sf Storage= 284 cf

Plug-Flow detention time= 7.5 min calculated for 0.266 af (99% of inflow)
Center-of-Mass det. time= 1.2 min (750.5 - 749.3)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

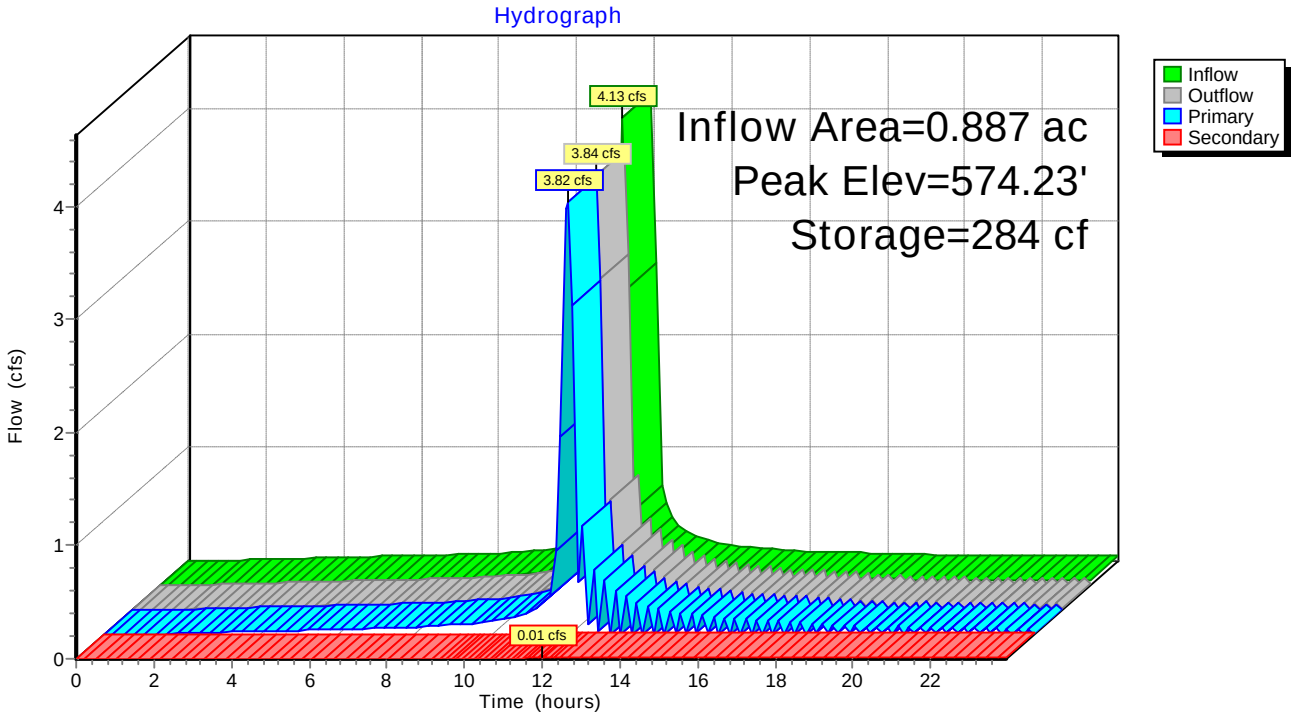
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	3.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	1.000 in/hr Exfiltration over Surface area

Primary OutFlow Max=2.50 cfs @ 11.93 hrs HW=574.22' TW=574.15' (Dynamic Tailwater)
└1=Broad-Crested Rectangular Weir (Weir Controls 2.50 cfs @ 1.02 fps)

Secondary OutFlow Max=0.01 cfs @ 12.01 hrs HW=574.23' TW=574.18' (Dynamic Tailwater)
└2=Exfiltration (Exfiltration Controls 0.01 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

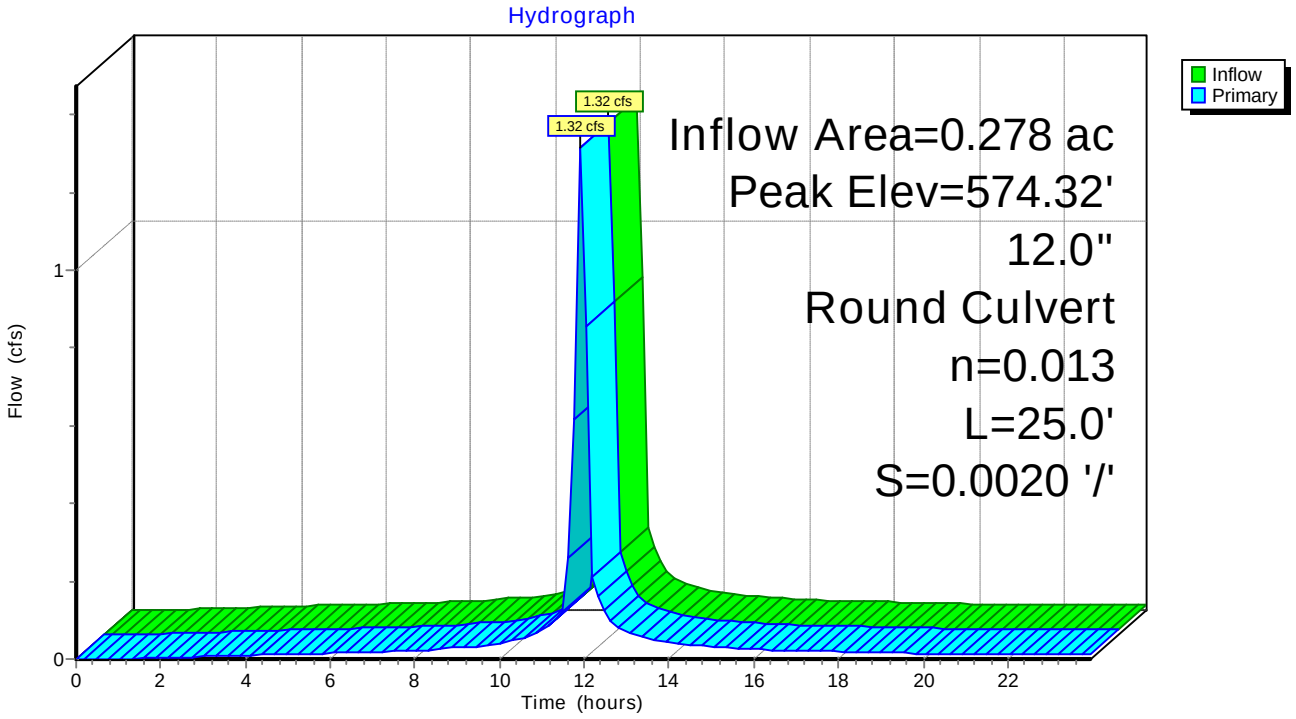
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 1.32 cfs @ 11.91 hrs, Volume= 0.086 af
Outflow = 1.32 cfs @ 11.91 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min
Primary = 1.32 cfs @ 11.91 hrs, Volume= 0.086 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.32' @ 11.99 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	12.0" Round 12" CULVERT L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 11.91 hrs HW=574.30' TW=574.21' (Dynamic Tailwater)
└1=12" CULVERT (Outlet Controls 0.78 cfs @ 1.61 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

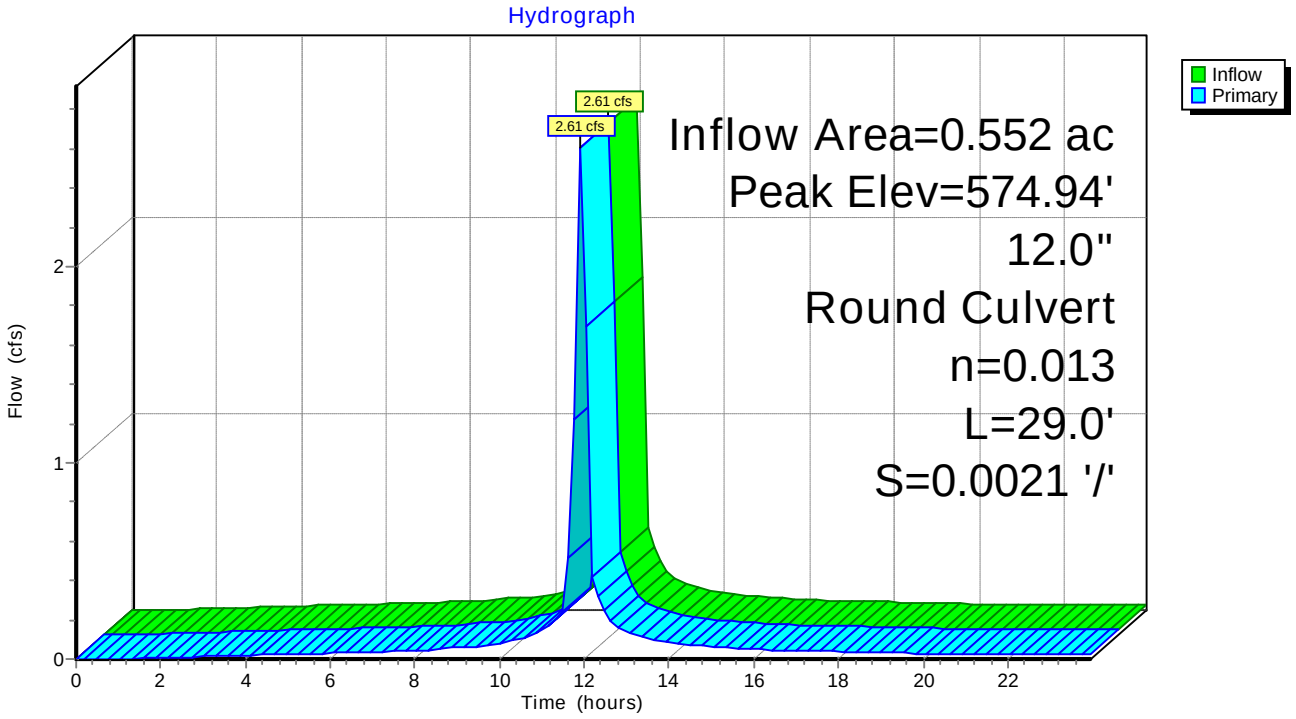
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 2.61 cfs @ 11.91 hrs, Volume= 0.172 af
Outflow = 2.61 cfs @ 11.91 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min
Primary = 2.61 cfs @ 11.91 hrs, Volume= 0.172 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.94' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	12.0" Round 12" CULVERT L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.57 cfs @ 11.91 hrs HW=574.90' TW=574.21' (Dynamic Tailwater)
└1=12" CULVERT (Barrel Controls 2.57 cfs @ 3.28 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 3.30" for 25-yr event
Inflow = 4.44 cfs @ 11.93 hrs, Volume= 0.301 af
Outflow = 3.81 cfs @ 12.00 hrs, Volume= 0.263 af, Atten= 14%, Lag= 4.1 min
Primary = 0.04 cfs @ 12.00 hrs, Volume= 0.068 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 3.77 cfs @ 12.00 hrs, Volume= 0.194 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.19' @ 12.00 hrs Surf.Area= 3,693 sf Storage= 2,765 cf

Plug-Flow detention time= 87.9 min calculated for 0.261 af (87% of inflow)
Center-of-Mass det. time= 28.0 min (787.3 - 759.3)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

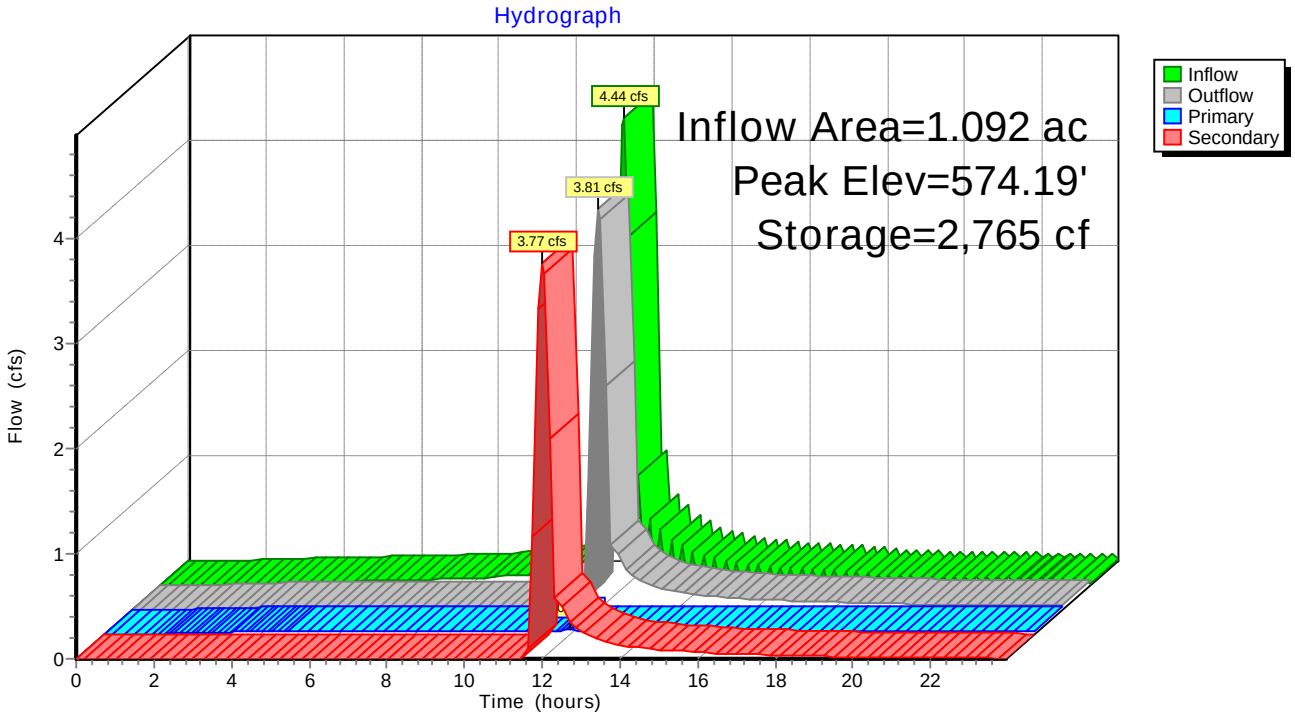
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	6.0" Horiz. Orifice/Grate X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	0.500 in/hr Exfiltration of Soil Media over Surface area

Primary OutFlow Max=0.04 cfs @ 12.00 hrs HW=574.18' TW=570.92' (Dynamic Tailwater)
└3=Exfiltration of Soil Media (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=3.56 cfs @ 12.00 hrs HW=574.17' TW=570.87' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Orifice Controls 1.51 cfs @ 2.00 fps)
└2=Orifice/Grate (Orifice Controls 2.05 cfs @ 2.61 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 2.88" for 25-yr event
Inflow = 3.81 cfs @ 12.00 hrs, Volume= 0.263 af
Outflow = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af, Atten= 74%, Lag= 26.2 min
Primary = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.79' @ 12.33 hrs Surf.Area= 3,232 sf Storage= 4,376 cf

Plug-Flow detention time= 103.8 min calculated for 0.230 af (87% of inflow)
Center-of-Mass det. time= 45.3 min (832.5 - 787.3)

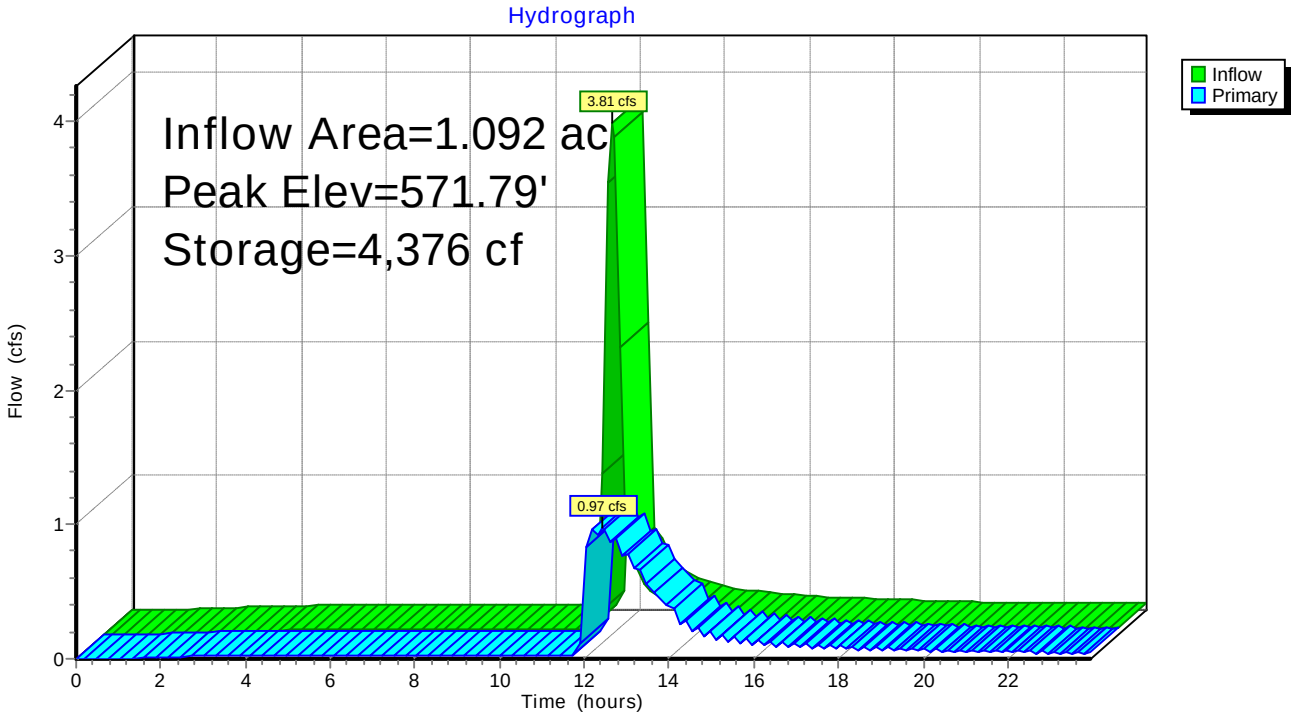
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	6.0" Round 6" Perforated HDPE Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	6.0" Round Culvert after elbow assembly L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.95 cfs @ 12.43 hrs HW=571.72' TW=570.79' (Dynamic Tailwater)
1=Culvert after elbow assembly (Inlet Controls 0.91 cfs @ 4.64 fps)
2=Exfiltration (Exfiltration Controls 0.04 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

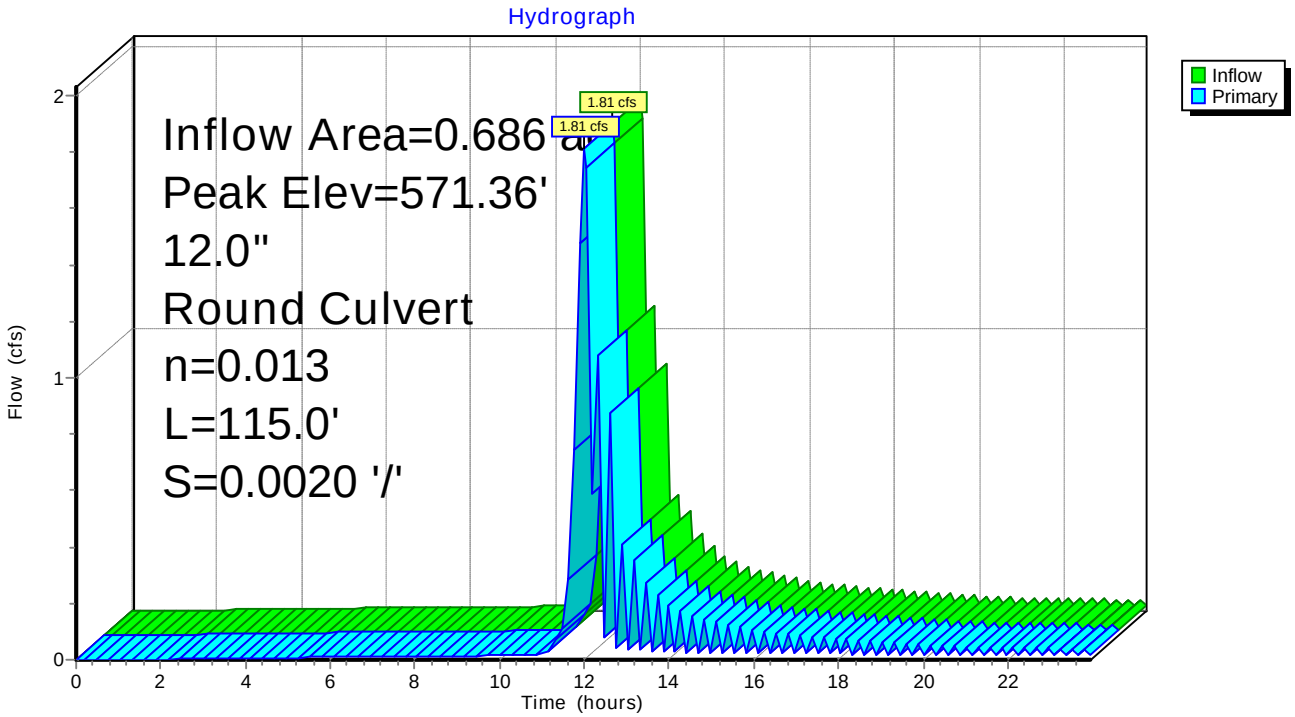
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 2.59" for 25-yr event
Inflow = 1.81 cfs @ 12.00 hrs, Volume= 0.148 af
Outflow = 1.81 cfs @ 12.00 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min
Primary = 1.81 cfs @ 12.00 hrs, Volume= 0.148 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.36' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	12.0" Round Culvert L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.66 cfs @ 12.00 hrs HW=571.31' TW=570.76' (Dynamic Tailwater)
└1=Culvert (Barrel Controls 1.66 cfs @ 2.67 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 2.99" for 25-yr event
Inflow = 2.35 cfs @ 11.89 hrs, Volume= 0.142 af
Outflow = 1.91 cfs @ 11.93 hrs, Volume= 0.136 af, Atten= 19%, Lag= 2.3 min
Primary = 0.01 cfs @ 11.93 hrs, Volume= 0.018 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 1.90 cfs @ 11.93 hrs, Volume= 0.118 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.46' @ 11.93 hrs Surf.Area= 989 sf Storage= 461 cf

Plug-Flow detention time= 38.9 min calculated for 0.135 af (95% of inflow)
Center-of-Mass det. time= 15.1 min (791.1 - 776.0)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

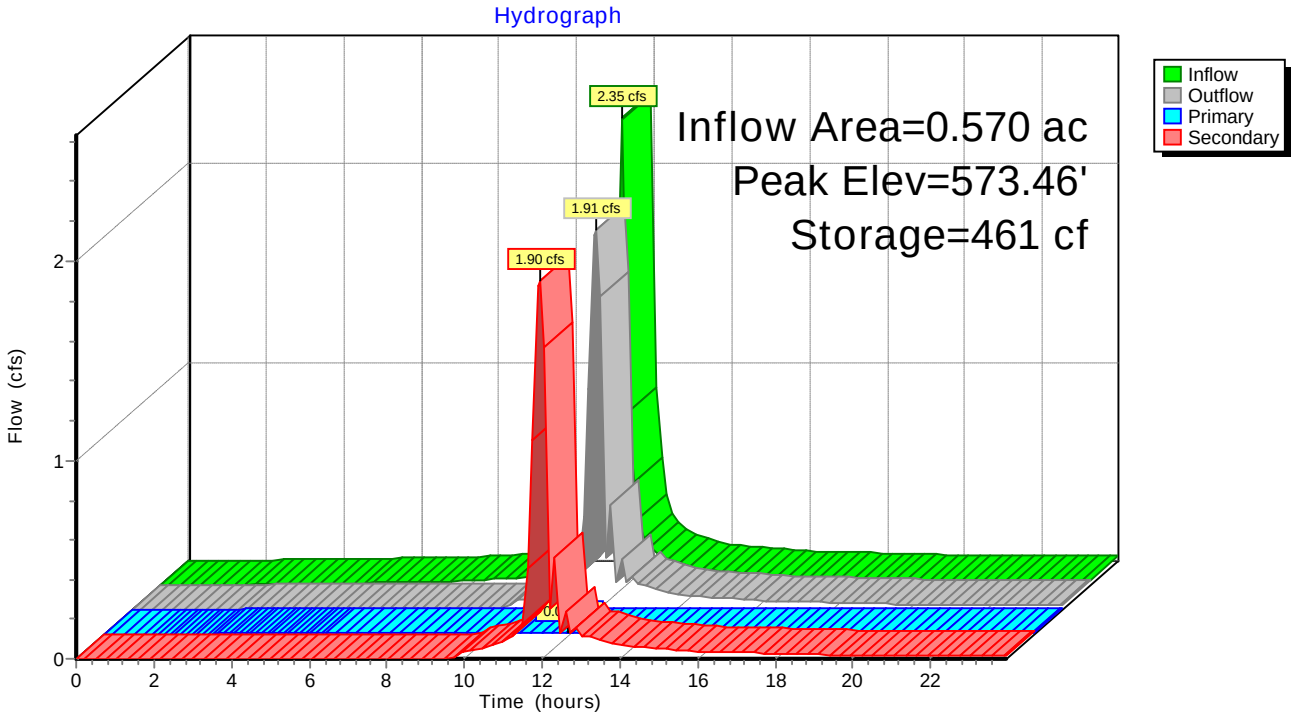
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	4.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	0.500 in/hr Exfiltration through soil media over Surface area

Primary OutFlow Max=0.01 cfs @ 11.93 hrs HW=573.45' TW=571.17' (Dynamic Tailwater)
└3=Exfiltration through soil media (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=1.82 cfs @ 11.93 hrs HW=573.45' TW=571.17' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Orifice Controls 1.61 cfs @ 2.14 fps)
└2=Orifice/Grate (Orifice Controls 0.20 cfs @ 2.29 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 2.86" for 25-yr event
Inflow = 1.91 cfs @ 11.93 hrs, Volume= 0.136 af
Outflow = 1.52 cfs @ 11.99 hrs, Volume= 0.129 af, Atten= 21%, Lag= 3.9 min
Primary = 1.52 cfs @ 11.99 hrs, Volume= 0.129 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.40' @ 12.10 hrs Surf.Area= 2,701 sf Storage= 1,142 cf

Plug-Flow detention time= 51.8 min calculated for 0.129 af (95% of inflow)
Center-of-Mass det. time= 21.1 min (812.2 - 791.1)

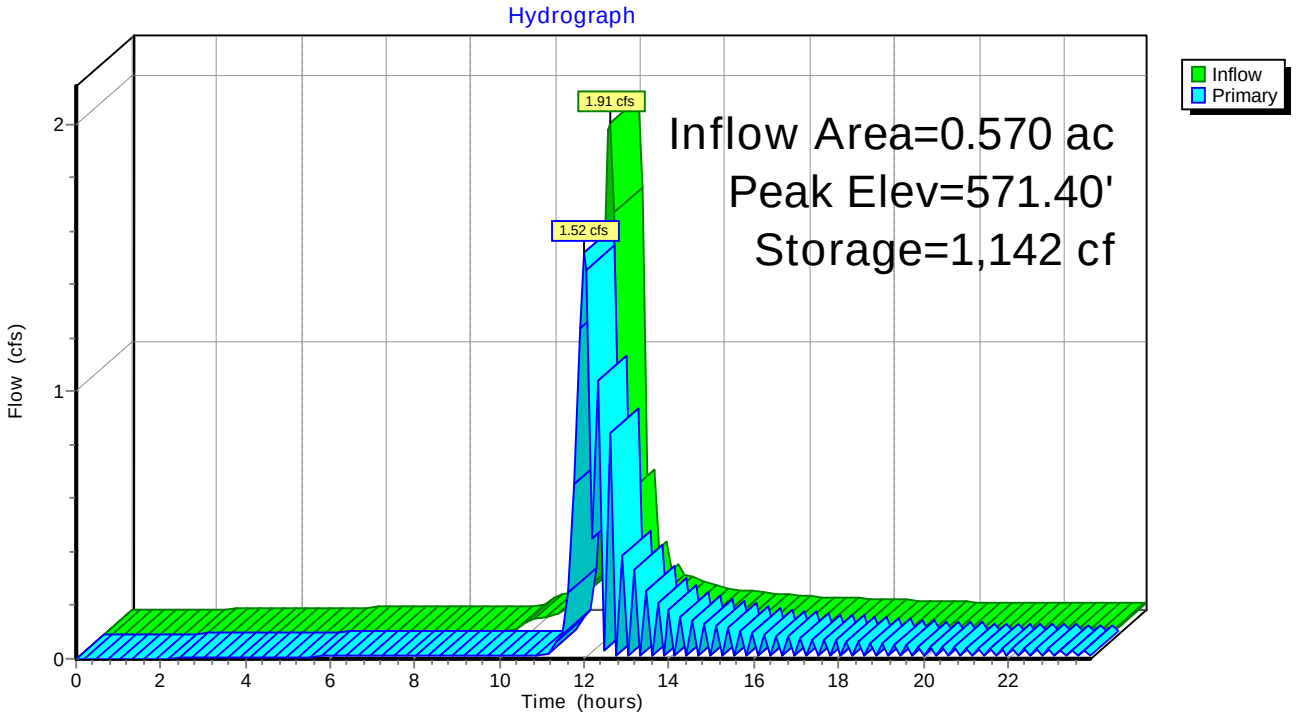
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	4.0" Round 4" Perforated HDPE Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	12.0" Round 12" Culvert L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.03 cfs @ 11.99 hrs HW=571.29' TW=571.31' (Dynamic Tailwater)
1=12" Culvert (Controls 0.00 cfs)
2=Exfiltration (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

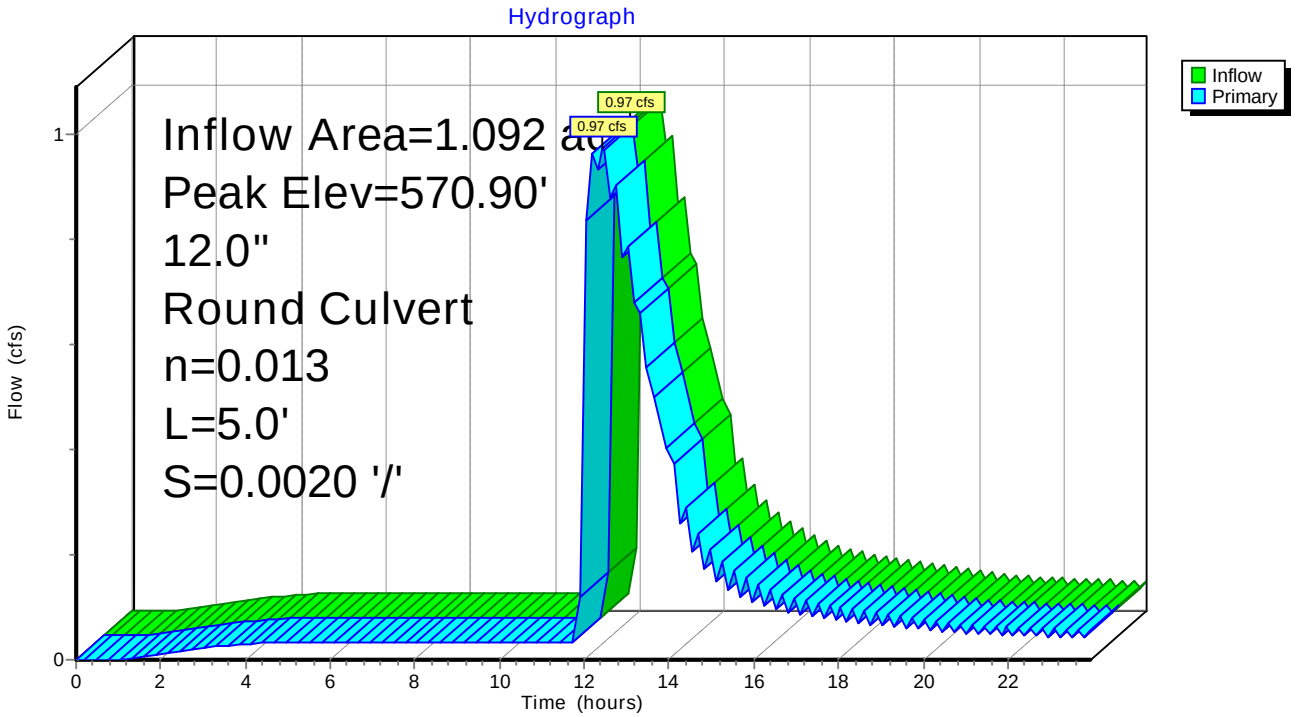
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 2.54" for 25-yr event
Inflow = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af
Outflow = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.90' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	12.0" Round 12 " Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.37 cfs @ 12.43 hrs HW=570.79' TW=570.54' (Dynamic Tailwater)
└1=12 " Culvert (Barrel Controls 1.37 cfs @ 2.85 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 3.30" for 25-yr event
Inflow = 2.20 cfs @ 11.89 hrs, Volume= 0.119 af
Outflow = 2.20 cfs @ 11.89 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 2.20 cfs @ 11.89 hrs, Volume= 0.119 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.19' @ 11.89 hrs
Flood Elev= 576.20'

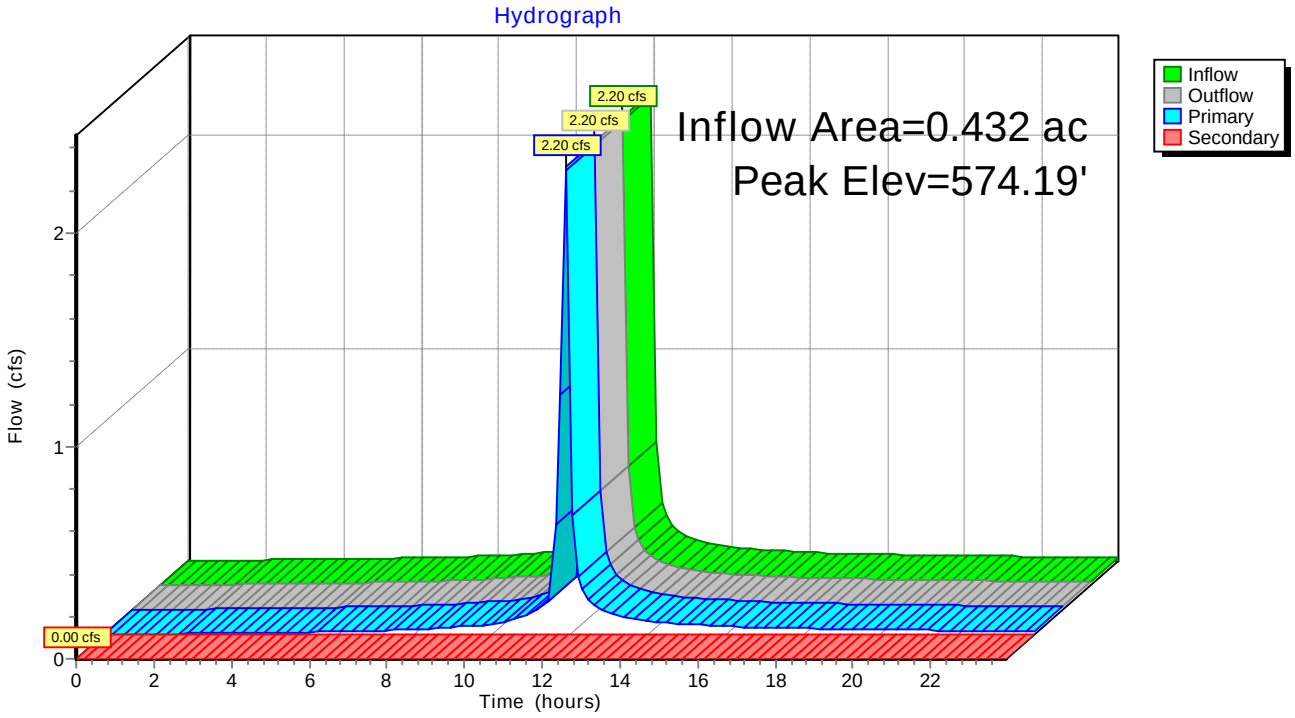
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	6.0" Horiz. Orifice/Grate X 5.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.07 cfs @ 11.89 hrs HW=574.14' TW=573.45' (Dynamic Tailwater)
- 1=Orifice/Grate (Orifice Controls 0.38 cfs @ 4.01 fps)
- 2=Orifice/Grate (Orifice Controls 0.75 cfs @ 3.96 fps)
- 3=Orifice/Grate (Orifice Controls 0.65 cfs @ 3.44 fps)
- 4=Orifice/Grate (Orifice Controls 0.29 cfs @ 3.00 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- 5=Orifice/Grate (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

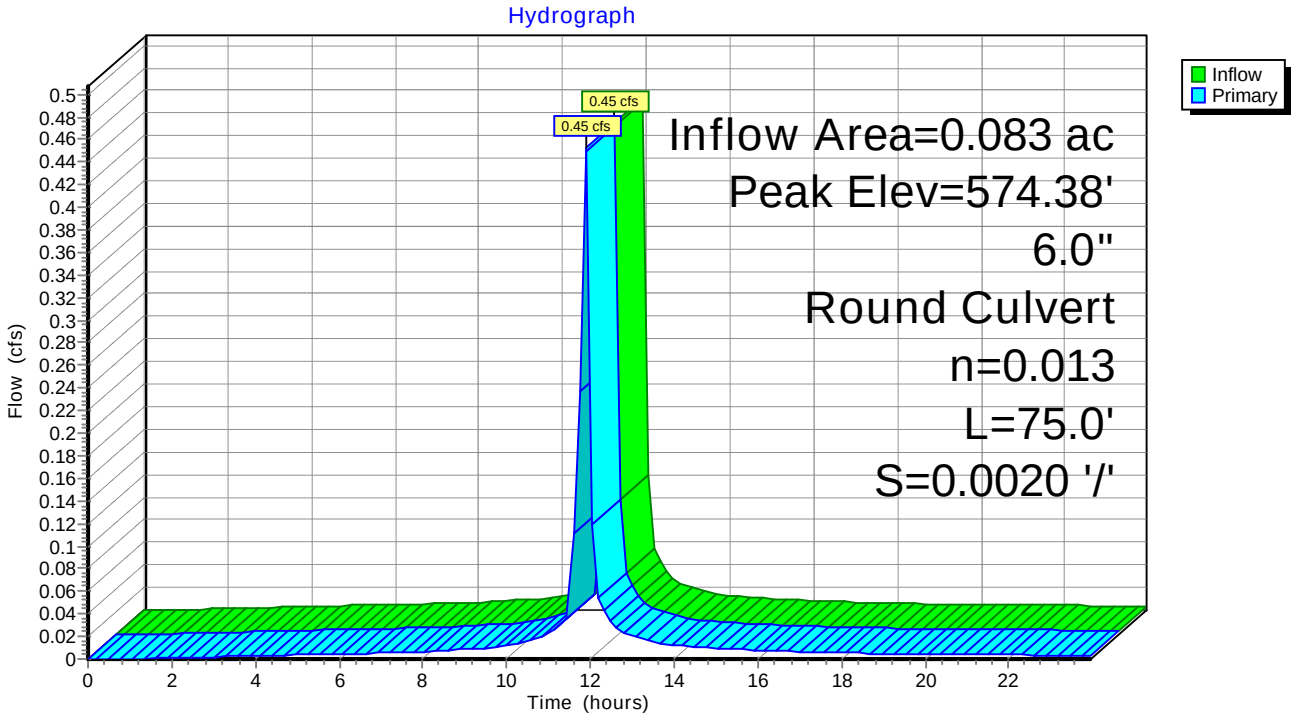
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 0.45 cfs @ 11.88 hrs, Volume= 0.026 af
Outflow = 0.45 cfs @ 11.88 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 11.88 hrs, Volume= 0.026 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.38' @ 11.94 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.23 cfs @ 11.88 hrs HW=574.30' TW=574.14' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.23 cfs @ 1.19 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

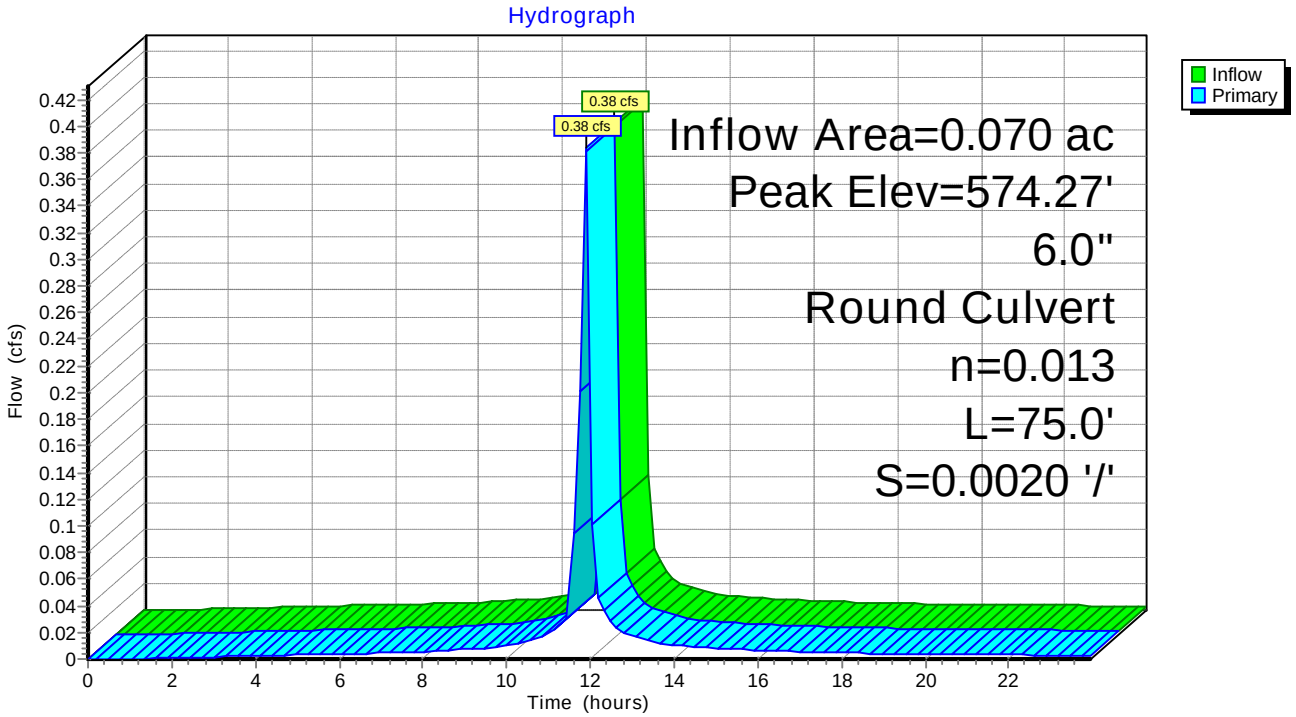
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 0.38 cfs @ 11.88 hrs, Volume= 0.022 af
Outflow = 0.38 cfs @ 11.88 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 11.88 hrs, Volume= 0.022 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.27' @ 11.98 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.05 cfs @ 11.88 hrs HW=574.15' TW=574.14' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.05 cfs @ 0.25 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

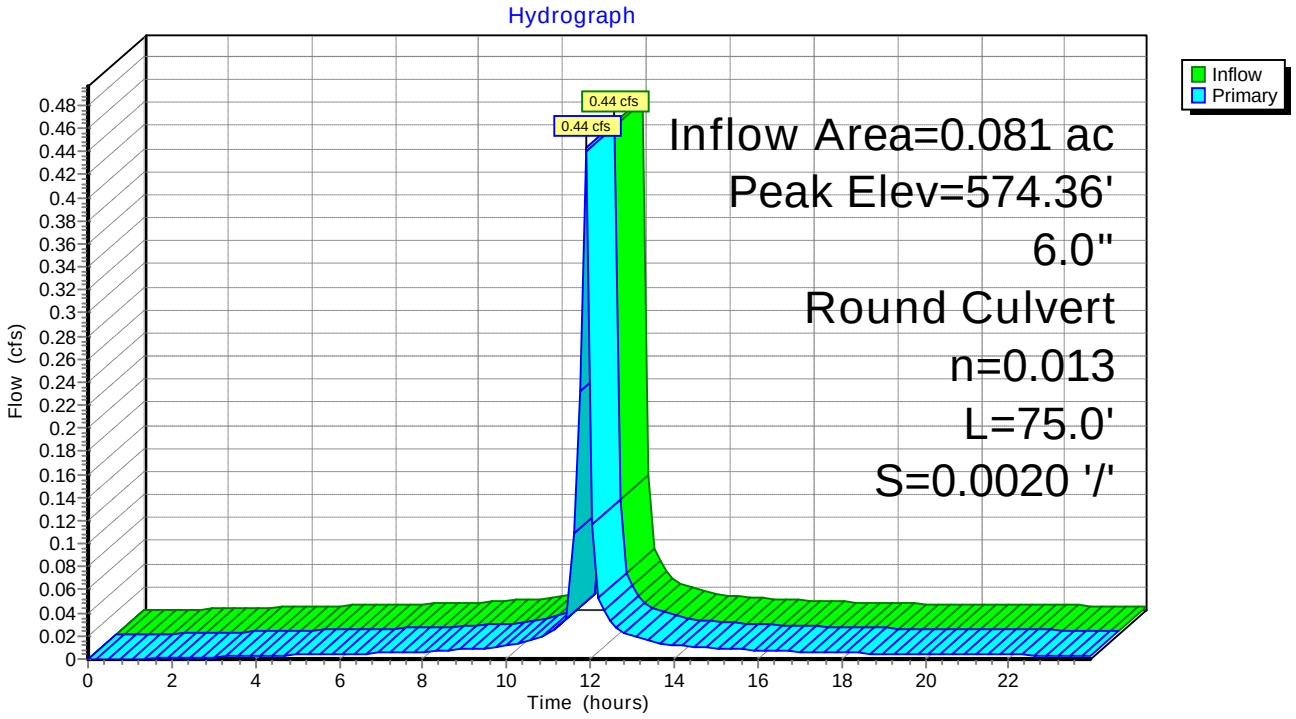
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 0.44 cfs @ 11.88 hrs, Volume= 0.025 af
Outflow = 0.44 cfs @ 11.88 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.44 cfs @ 11.88 hrs, Volume= 0.025 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.36' @ 11.94 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.22 cfs @ 11.88 hrs HW=574.28' TW=574.14' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.22 cfs @ 1.11 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

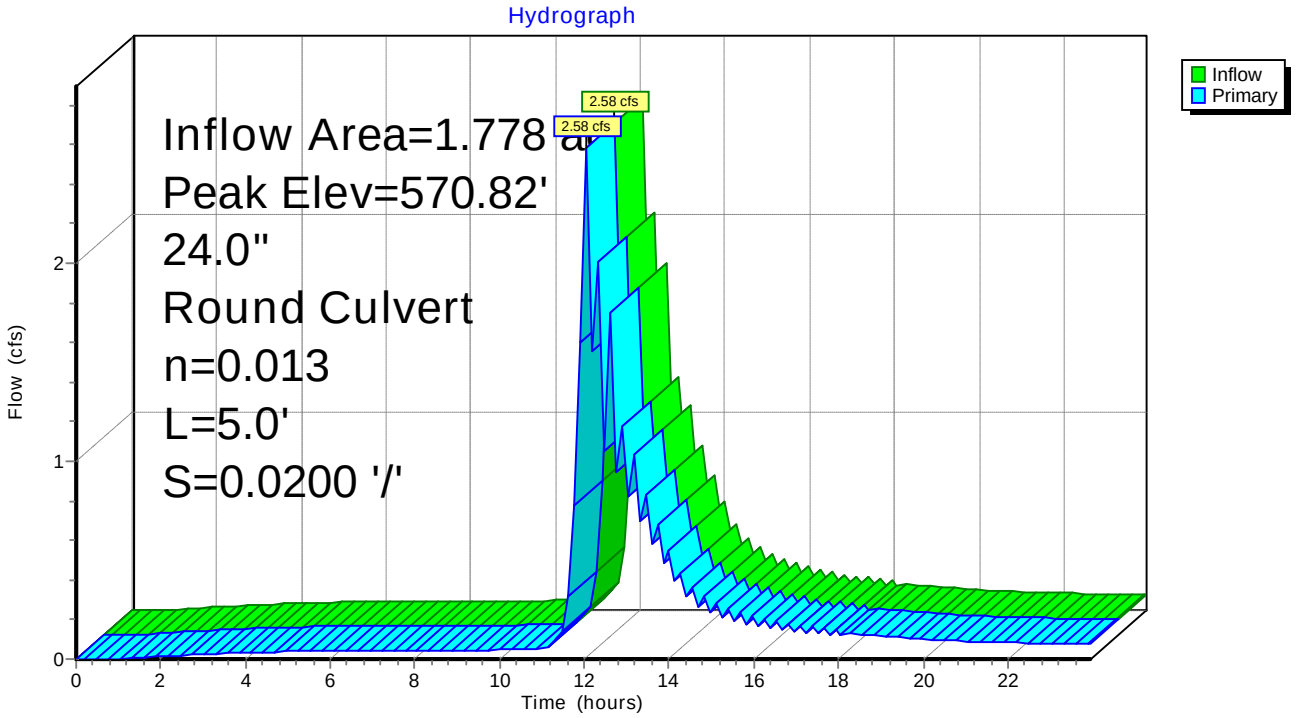
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 2.56" for 25-yr event
Inflow = 2.58 cfs @ 12.04 hrs, Volume= 0.379 af
Outflow = 2.58 cfs @ 12.04 hrs, Volume= 0.379 af, Atten= 0%, Lag= 0.0 min
Primary = 2.58 cfs @ 12.04 hrs, Volume= 0.379 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.82' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	24.0" Round Culvert L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=2.57 cfs @ 12.04 hrs HW=570.82' (Free Discharge)
└1=Culvert (Barrel Controls 2.57 cfs @ 3.13 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 2.01" for 25-yr event
Inflow = 0.32 cfs @ 11.94 hrs, Volume= 0.019 af
Outflow = 0.29 cfs @ 12.01 hrs, Volume= 0.019 af, Atten= 9%, Lag= 4.2 min
Primary = 0.29 cfs @ 12.01 hrs, Volume= 0.019 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.87' @ 12.00 hrs Surf.Area= 642 sf Storage= 48 cf

Plug-Flow detention time= 1.8 min calculated for 0.019 af (99% of inflow)
Center-of-Mass det. time= 1.6 min (829.1 - 827.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	6.0" Horiz. 6" Yard Drain C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	1.7" x 3.2" Horiz. CB Grate X 7.00 columns X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

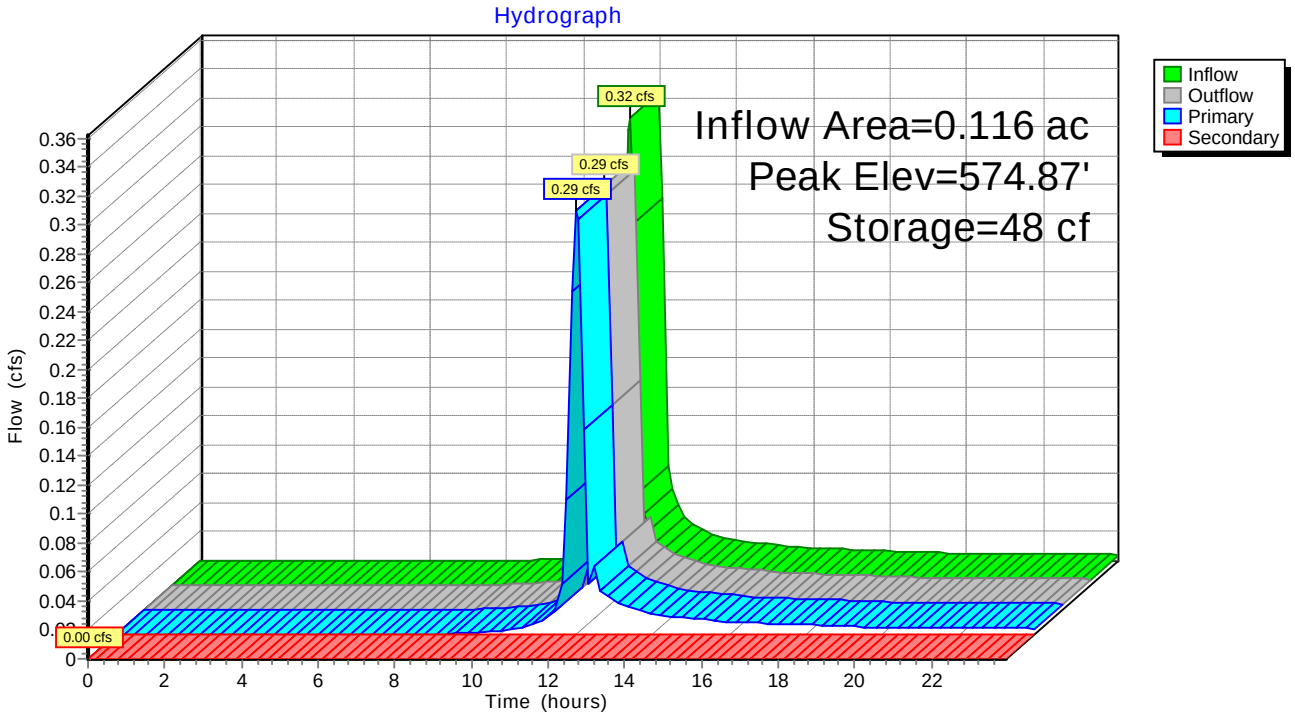
Primary OutFlow Max=0.27 cfs @ 12.01 hrs HW=574.86' TW=571.32' (Dynamic Tailwater)
└1=6" Yard Drain (Weir Controls 0.27 cfs @ 1.23 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
└2=CB Grate (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD

Hydrograph



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.66 cfs 0.110 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=3.29 cfs 0.218 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>2.88"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.54 cfs 0.033 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>3.16"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.29 cfs 0.015 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>2.88"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.87 cfs 0.049 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>3.76"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=1.22 cfs 0.062 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>2.88"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.46 cfs 0.028 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.57 cfs 0.033 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.48 cfs 0.028 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.56 cfs 0.032 af

Reach 4R: East Swale Avg. Flow Depth=0.21' Max Vel=0.93 fps Inflow=0.54 cfs 0.033 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.47 cfs 0.033 af

Pond 5P: Front Vegetated Swale Peak Elev=574.33' Storage=344 cf Inflow=5.24 cfs 0.343 af
Primary=4.88 cfs 0.328 af Secondary=0.02 cfs 0.013 af Outflow=4.90 cfs 0.341 af

Pond 6P: CB1 Peak Elev=574.44' Inflow=1.66 cfs 0.110 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=1.66 cfs 0.110 af

Pond 7P: CB2 Peak Elev=575.19' Inflow=3.29 cfs 0.218 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=3.29 cfs 0.218 af

Pond 14P: Bio-Retention Area Storage Peak Elev=574.31' Storage=3,221 cf Inflow=5.77 cfs 0.390 af
Primary=0.04 cfs 0.071 af Secondary=4.54 cfs 0.281 af Outflow=4.59 cfs 0.352 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=572.71' Storage=6,195 cf Inflow=4.59 cfs 0.352 af
Outflow=1.27 cfs 0.319 af

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=571.54' Inflow=2.15 cfs 0.202 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=2.15 cfs 0.202 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.59' Storage=595 cf Inflow=3.08 cfs 0.188 af
Primary=0.01 cfs 0.019 af Secondary=2.41 cfs 0.163 af Outflow=2.42 cfs 0.182 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=571.69' Storage=1,372 cf Inflow=2.42 cfs 0.182 af
Outflow=1.76 cfs 0.174 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=571.02' Inflow=1.27 cfs 0.319 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=1.27 cfs 0.319 af

Pond 41P: Level Spreader Peak Elev=574.32' Inflow=2.83 cfs 0.155 af
Primary=2.42 cfs 0.150 af Secondary=0.42 cfs 0.005 af Outflow=2.83 cfs 0.155 af

Pond 42P: CB3 Peak Elev=574.82' Inflow=0.57 cfs 0.033 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.57 cfs 0.033 af

Pond 44P: CB4 Peak Elev=574.57' Inflow=0.48 cfs 0.028 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.48 cfs 0.028 af

Pond 45P: CB5 Peak Elev=574.79' Inflow=0.56 cfs 0.032 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.56 cfs 0.032 af

Pond 46P: STM MH Peak Elev=570.91' Inflow=3.10 cfs 0.521 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=3.10 cfs 0.521 af

Pond 47P: West Area to CB + YD Peak Elev=574.91' Storage=76 cf Inflow=0.46 cfs 0.028 af
Primary=0.41 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.41 cfs 0.028 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.608 af Average Runoff Depth = 4.11"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

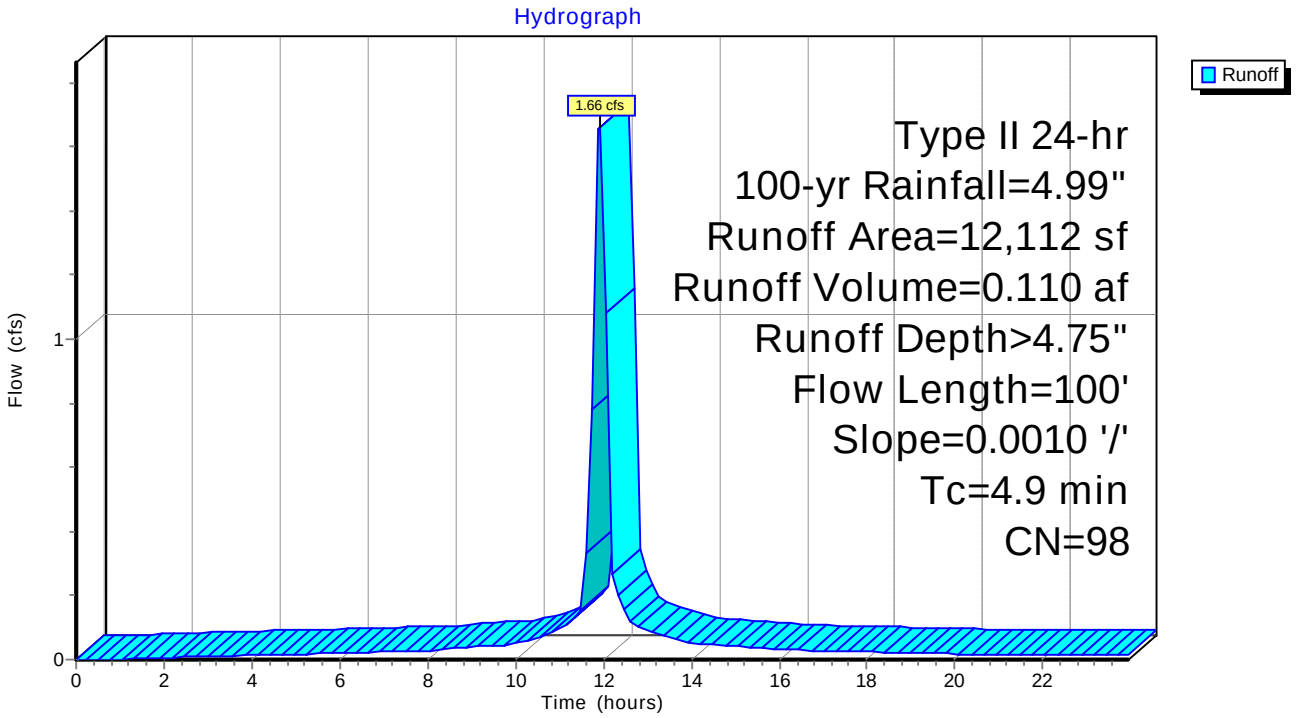
Runoff = 1.66 cfs @ 11.91 hrs, Volume= 0.110 af, Depth> 4.75"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

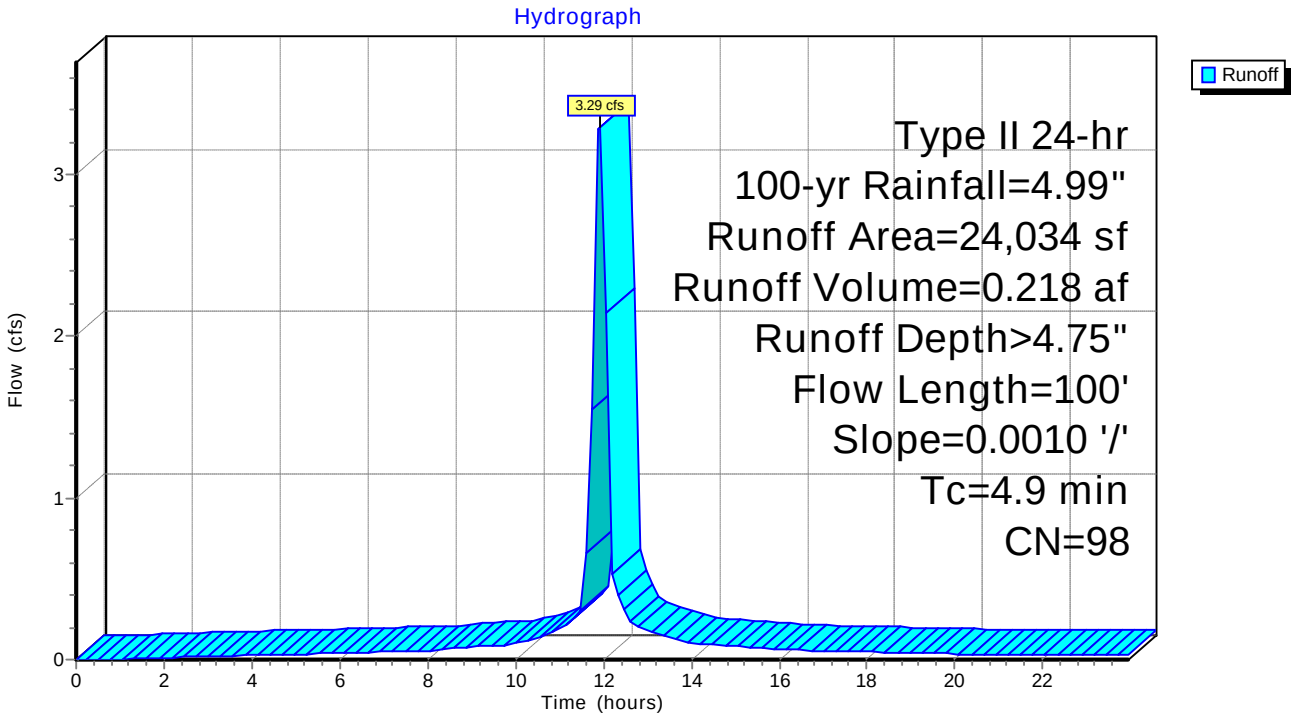
Runoff = 3.29 cfs @ 11.91 hrs, Volume= 0.218 af, Depth> 4.75"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

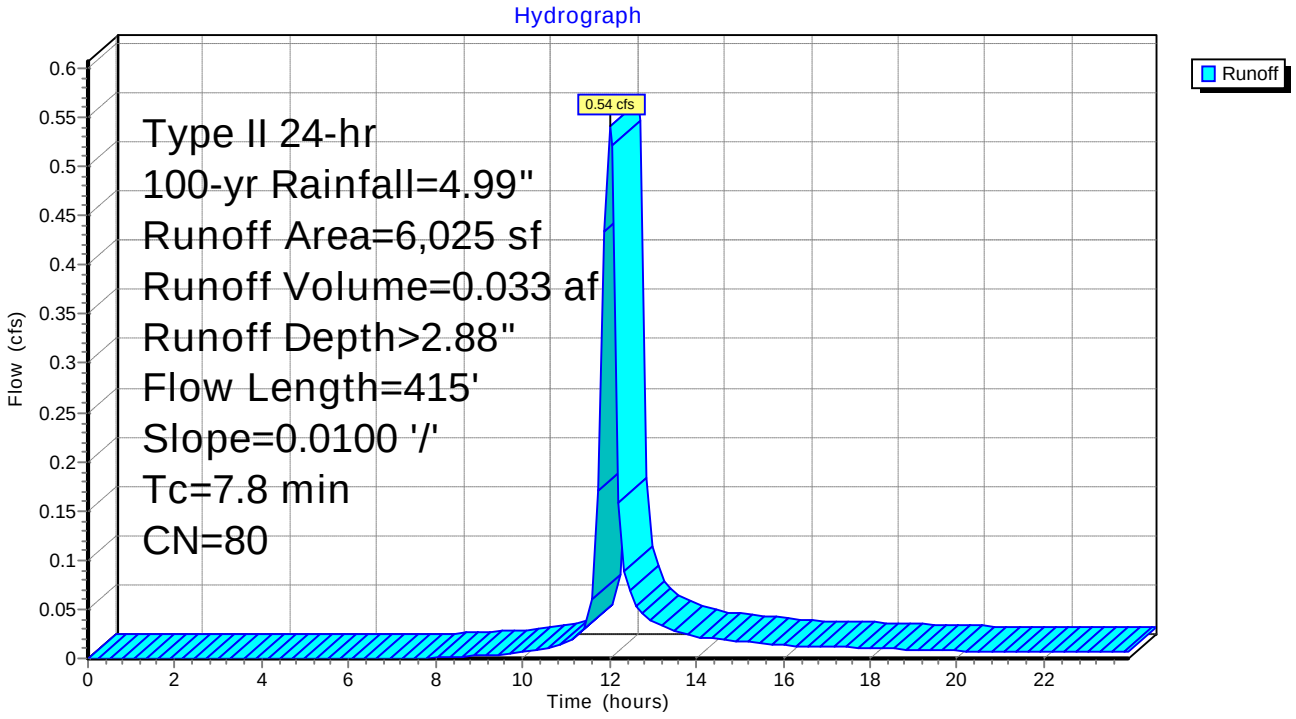
Runoff = 0.54 cfs @ 12.00 hrs, Volume= 0.033 af, Depth> 2.88"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

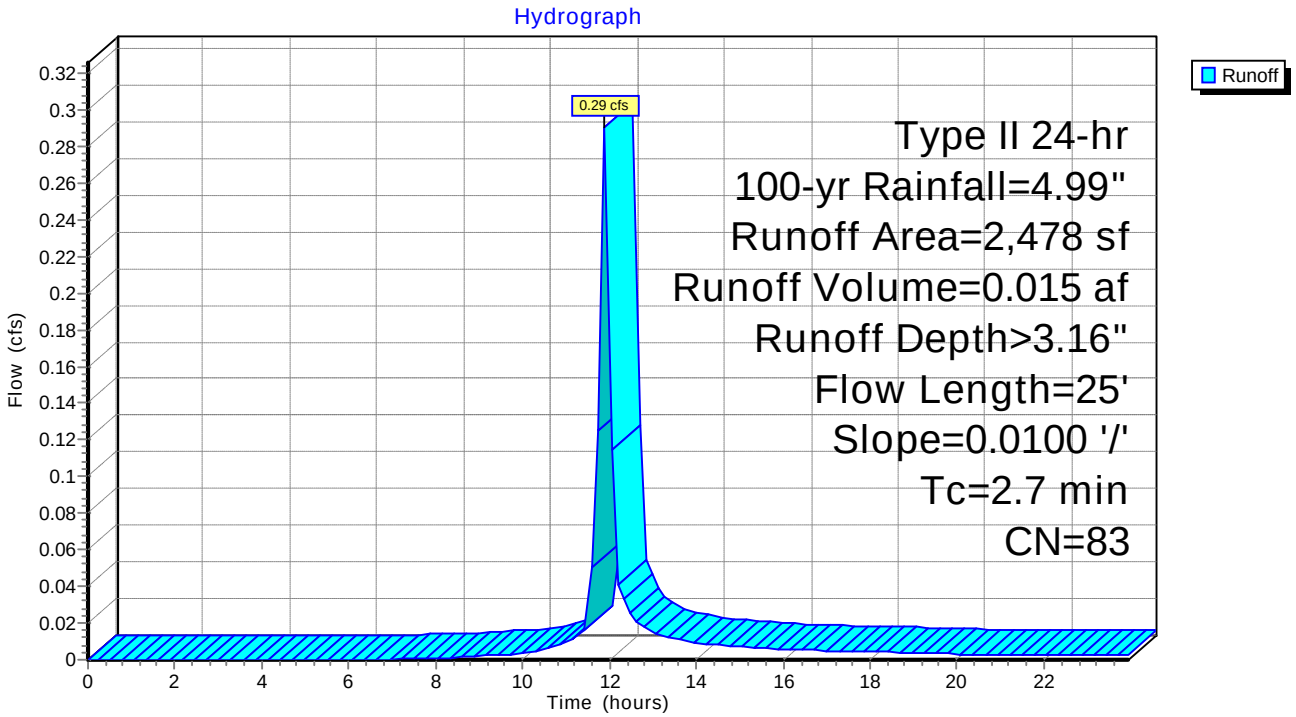
Runoff = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af, Depth> 3.16"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

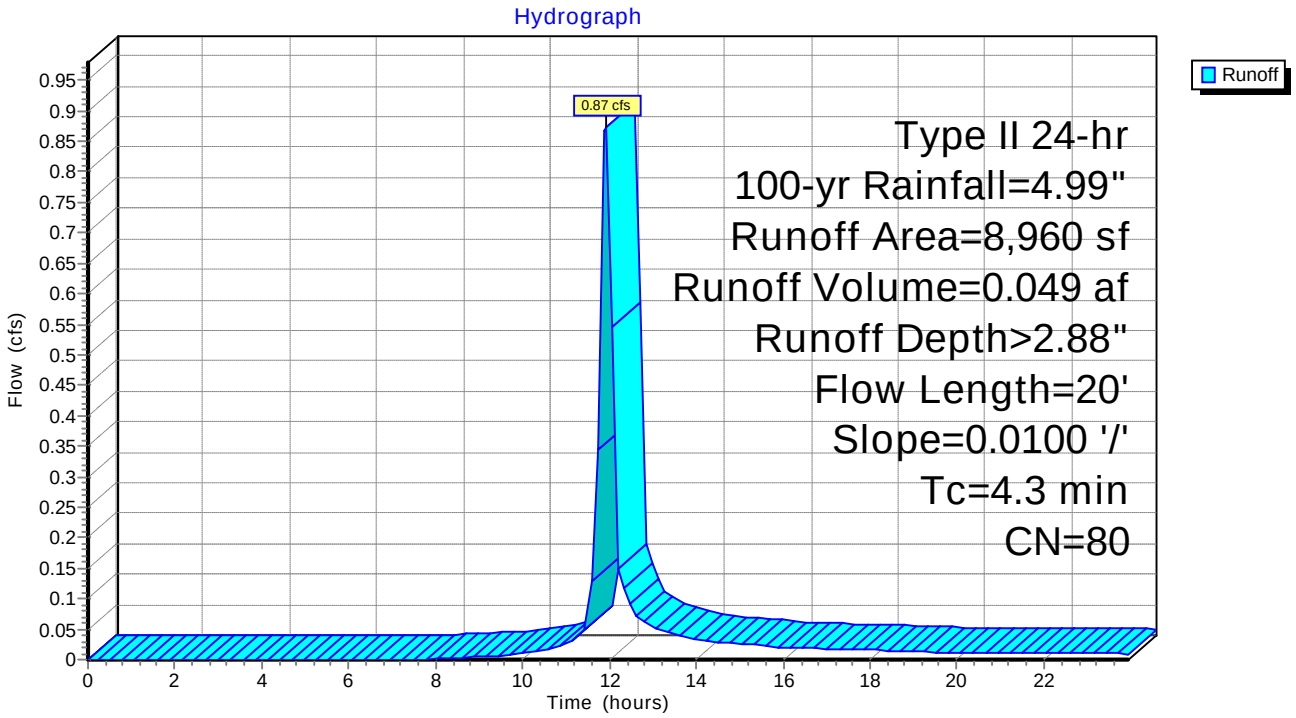
Runoff = 0.87 cfs @ 11.92 hrs, Volume= 0.049 af, Depth> 2.88"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

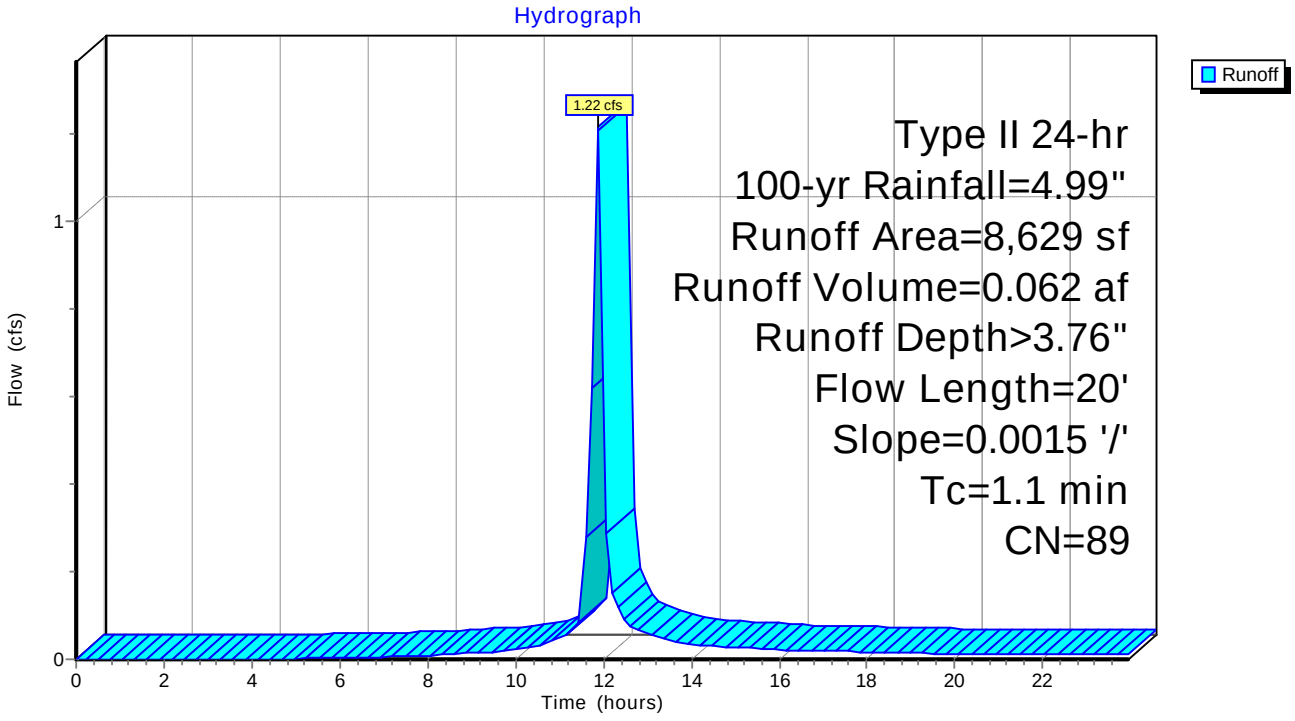
Runoff = 1.22 cfs @ 11.88 hrs, Volume= 0.062 af, Depth> 3.76"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

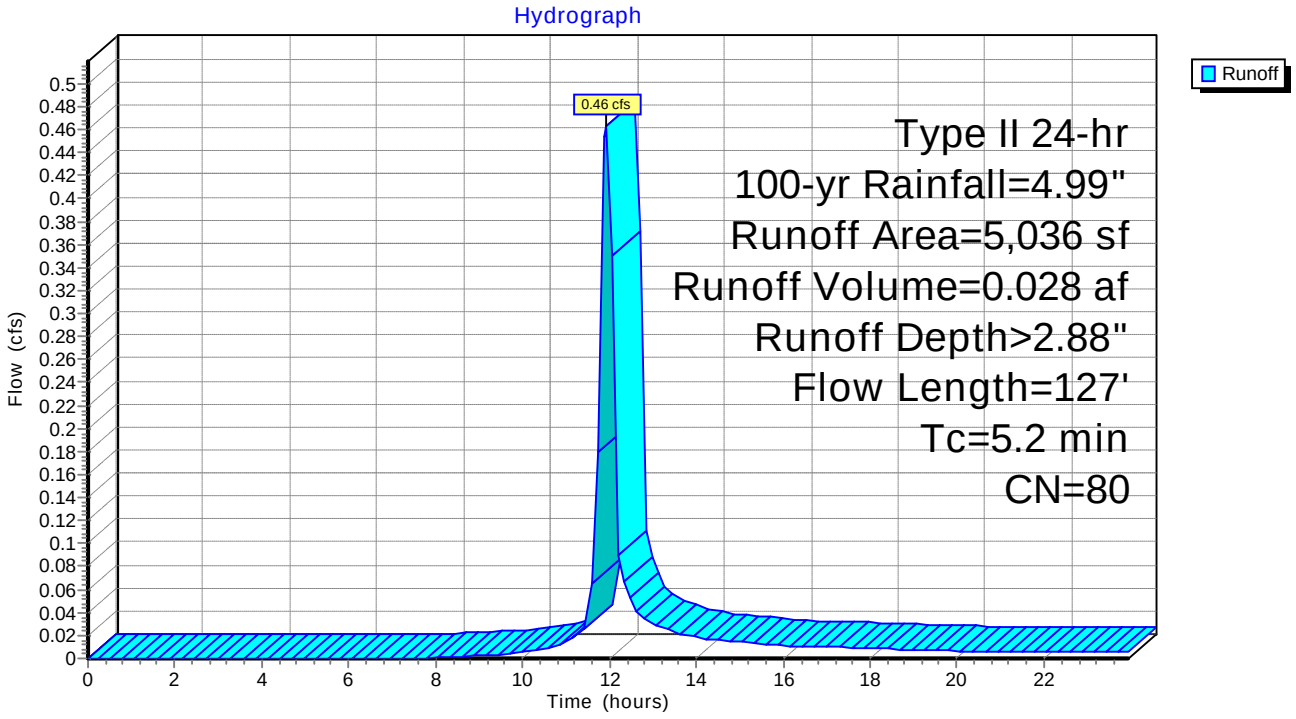
Runoff = 0.46 cfs @ 11.93 hrs, Volume= 0.028 af, Depth> 2.88"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		Sheet Flow, Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

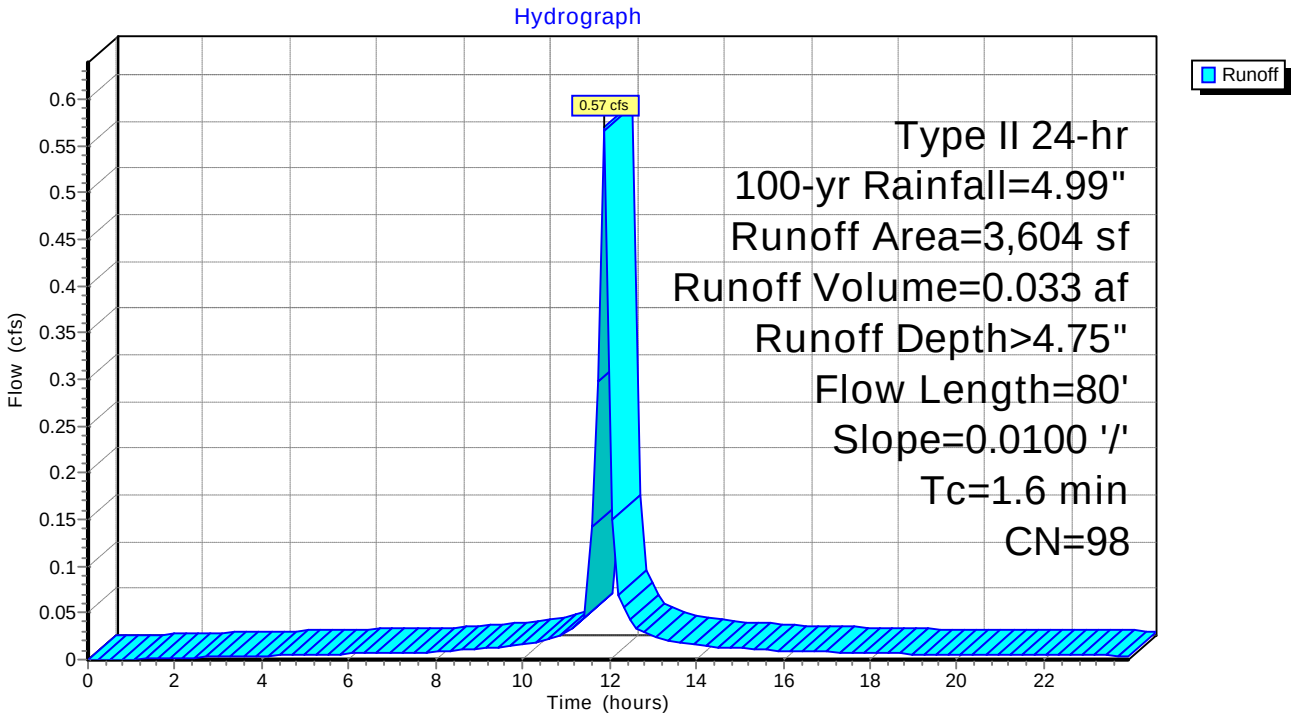
Runoff = 0.57 cfs @ 11.88 hrs, Volume= 0.033 af, Depth> 4.75"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

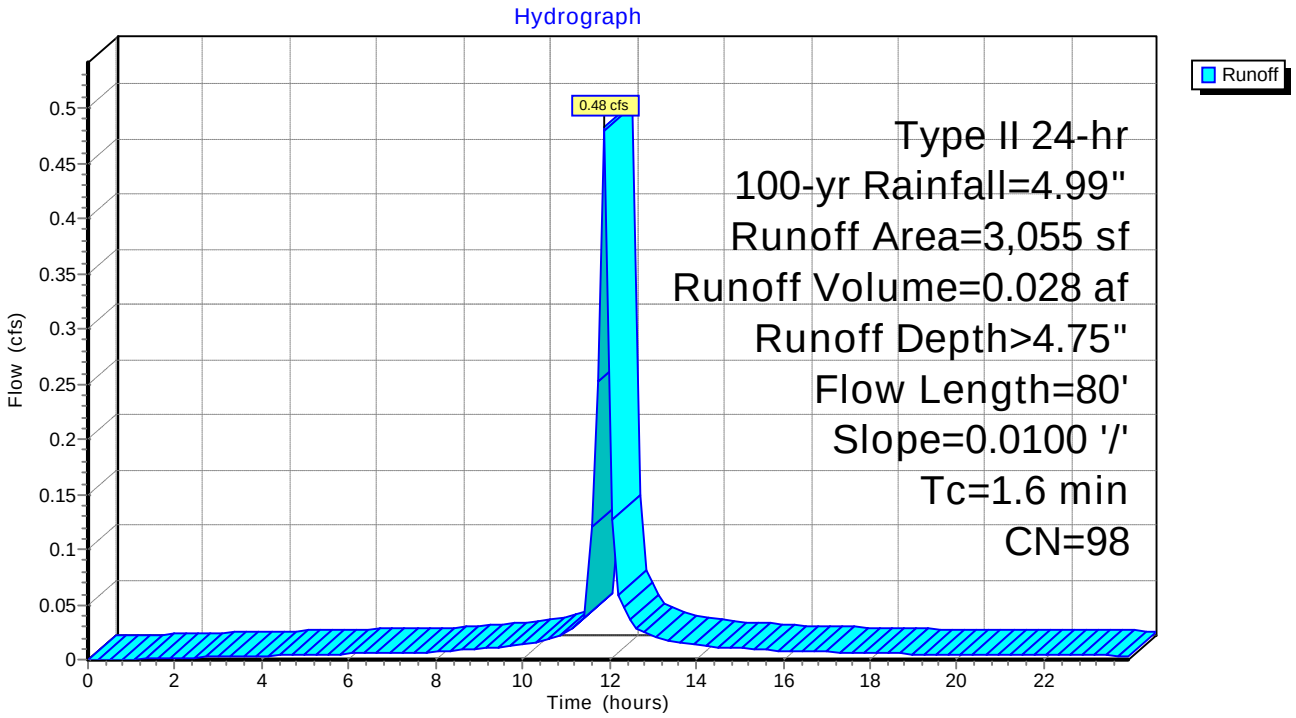
Runoff = 0.48 cfs @ 11.88 hrs, Volume= 0.028 af, Depth> 4.75"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

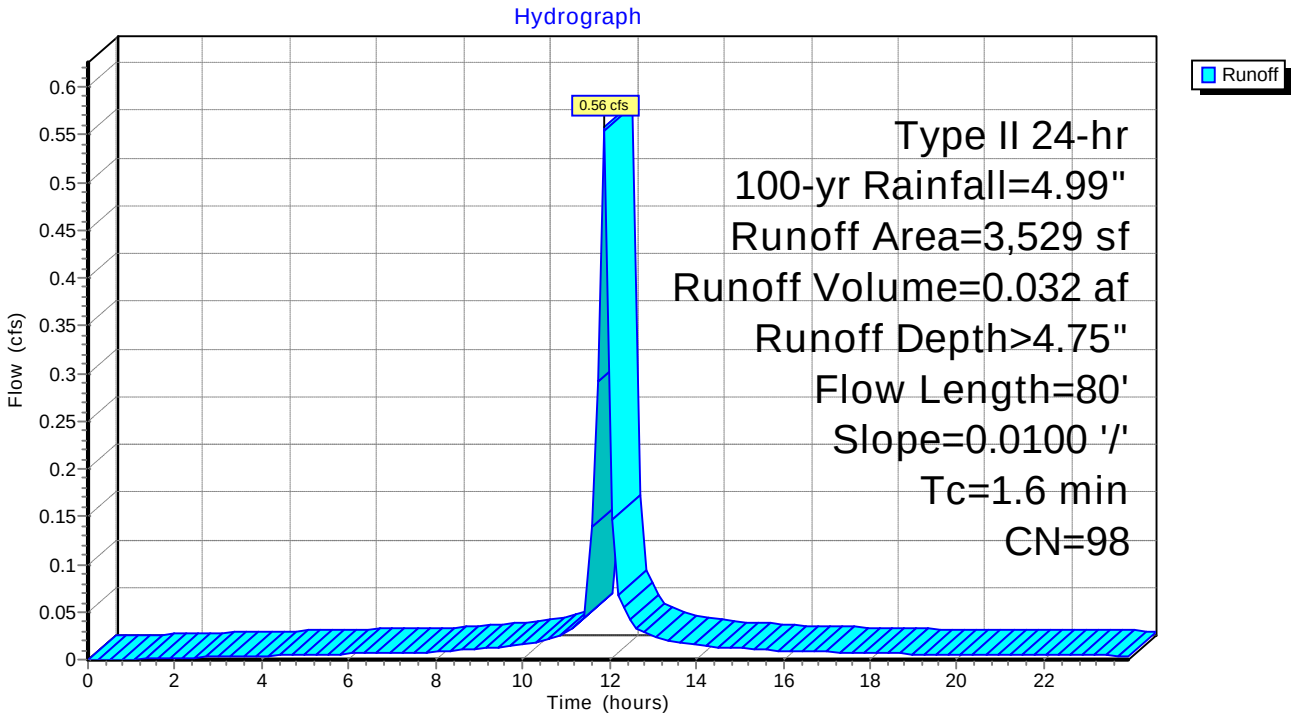
Runoff = 0.56 cfs @ 11.88 hrs, Volume= 0.032 af, Depth> 4.75"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 2.88" for 100-yr event
Inflow = 0.54 cfs @ 12.00 hrs, Volume= 0.033 af
Outflow = 0.47 cfs @ 12.06 hrs, Volume= 0.033 af, Atten= 14%, Lag= 3.6 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

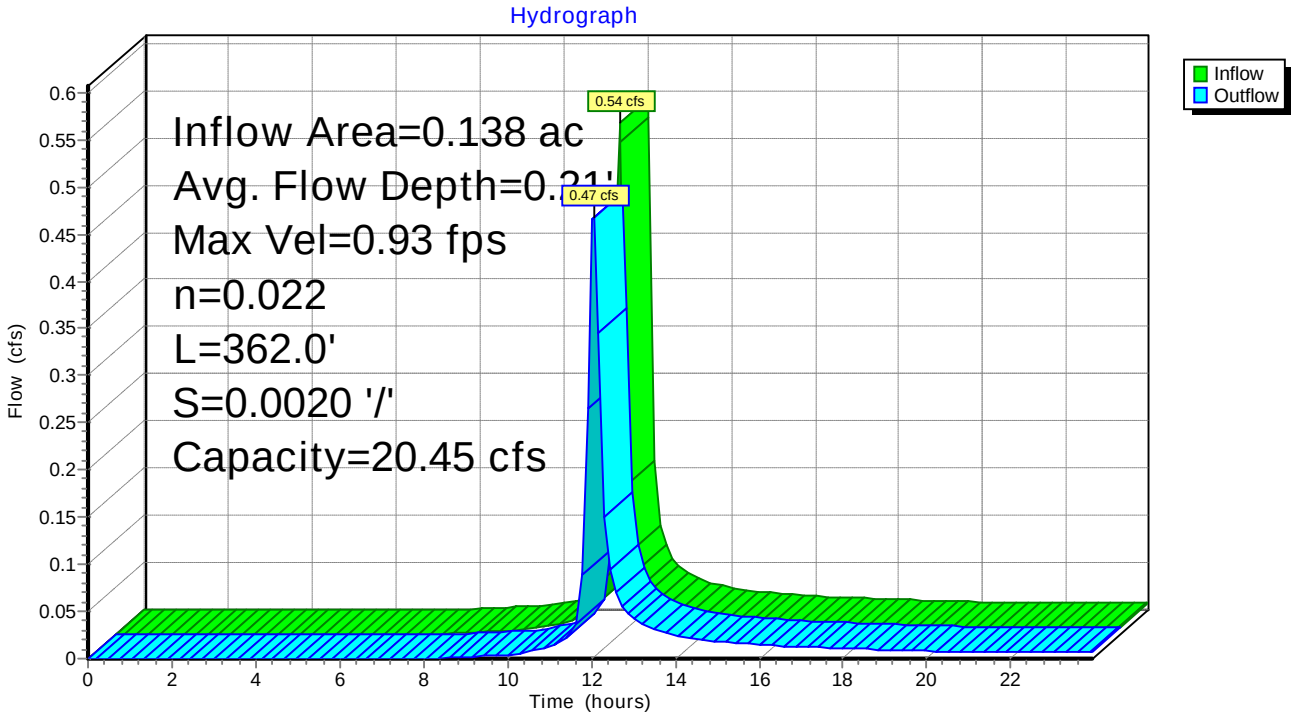
Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.93 fps, Min. Travel Time= 6.5 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 22.4 min

Peak Storage= 182 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 2.83'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



Reach 4R: East Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 4.65" for 100-yr event
Inflow = 5.24 cfs @ 11.91 hrs, Volume= 0.343 af
Outflow = 4.90 cfs @ 11.93 hrs, Volume= 0.341 af, Atten= 7%, Lag= 0.8 min
Primary = 4.88 cfs @ 11.93 hrs, Volume= 0.328 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.02 cfs @ 12.04 hrs, Volume= 0.013 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.33' @ 12.04 hrs Surf.Area= 664 sf Storage= 344 cf

Plug-Flow detention time= 6.3 min calculated for 0.339 af (99% of inflow)
Center-of-Mass det. time= 1.6 min (746.8 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

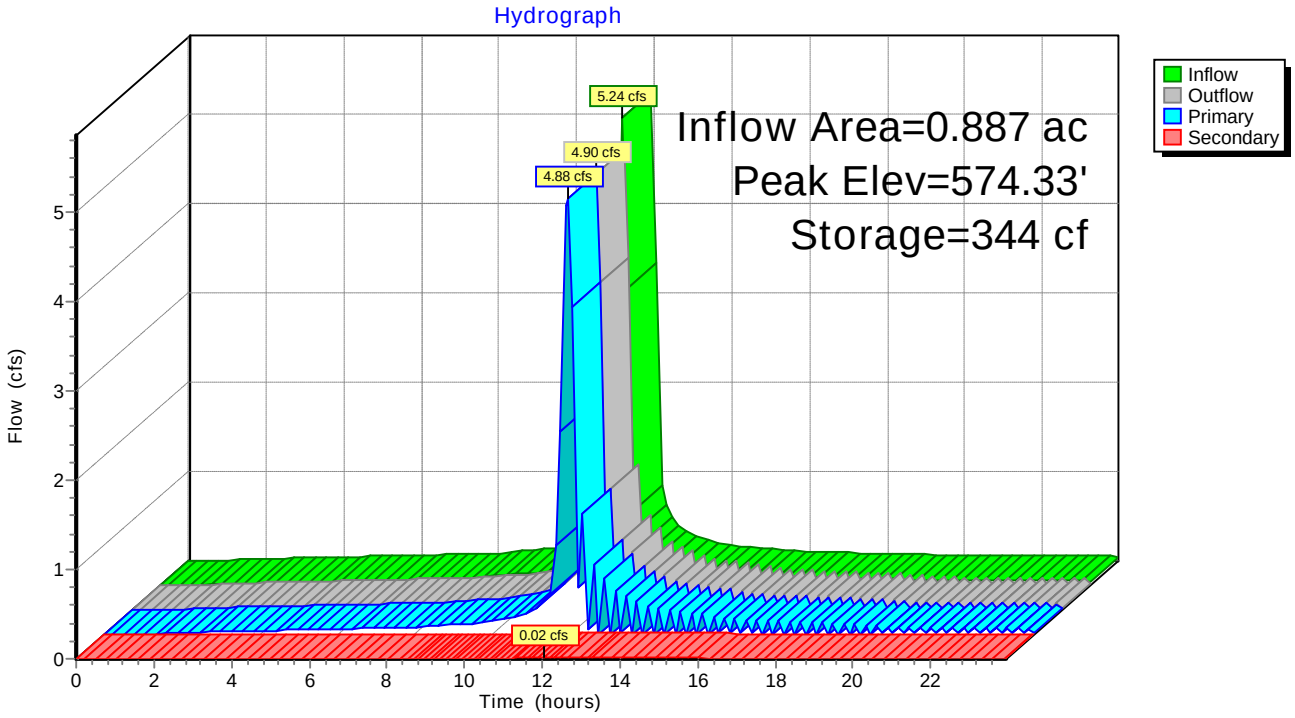
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	3.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	1.000 in/hr Exfiltration over Surface area

Primary OutFlow Max=3.19 cfs @ 11.93 hrs HW=574.31' TW=574.23' (Dynamic Tailwater)
└1=Broad-Crested Rectangular Weir (Weir Controls 3.19 cfs @ 1.16 fps)

Secondary OutFlow Max=0.02 cfs @ 12.04 hrs HW=574.33' TW=574.31' (Dynamic Tailwater)
└2=Exfiltration (Exfiltration Controls 0.02 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

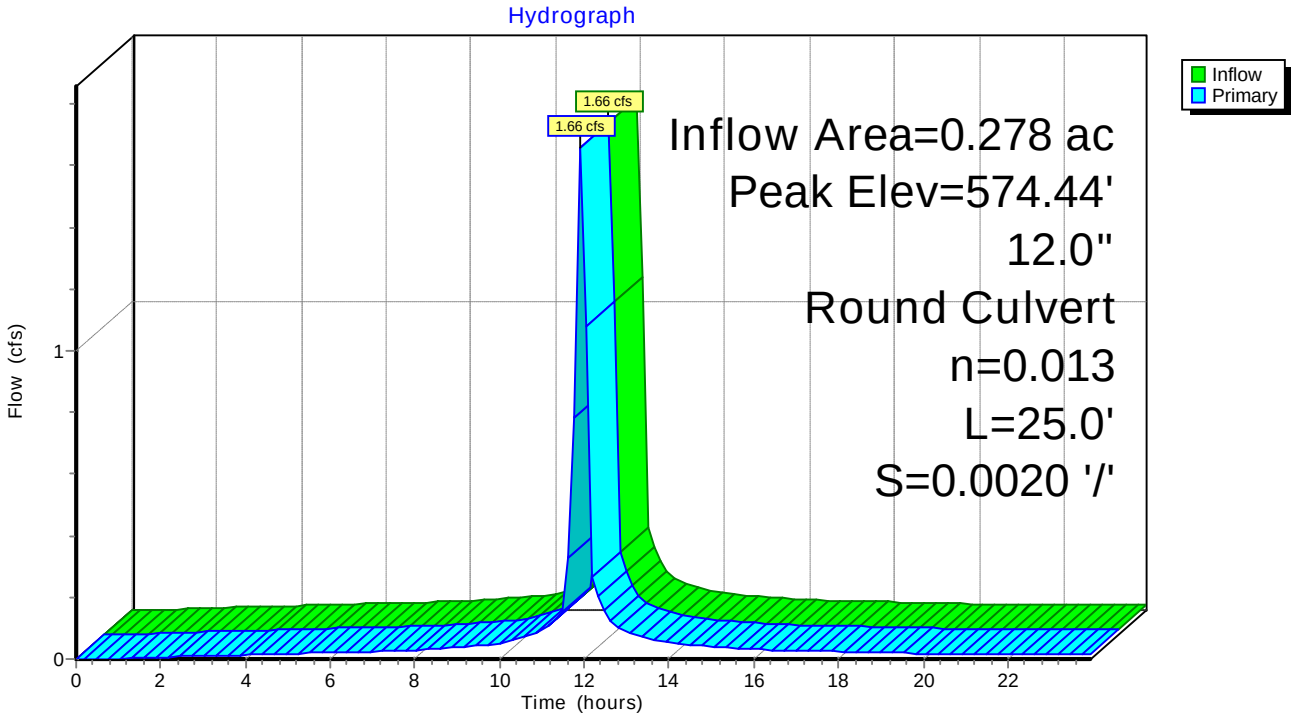
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 1.66 cfs @ 11.91 hrs, Volume= 0.110 af
Outflow = 1.66 cfs @ 11.91 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
Primary = 1.66 cfs @ 11.91 hrs, Volume= 0.110 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.44' @ 11.98 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	12.0" Round 12" CULVERT L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.03 cfs @ 11.91 hrs HW=574.42' TW=574.31' (Dynamic Tailwater)
└1=12" CULVERT (Outlet Controls 1.03 cfs @ 1.80 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

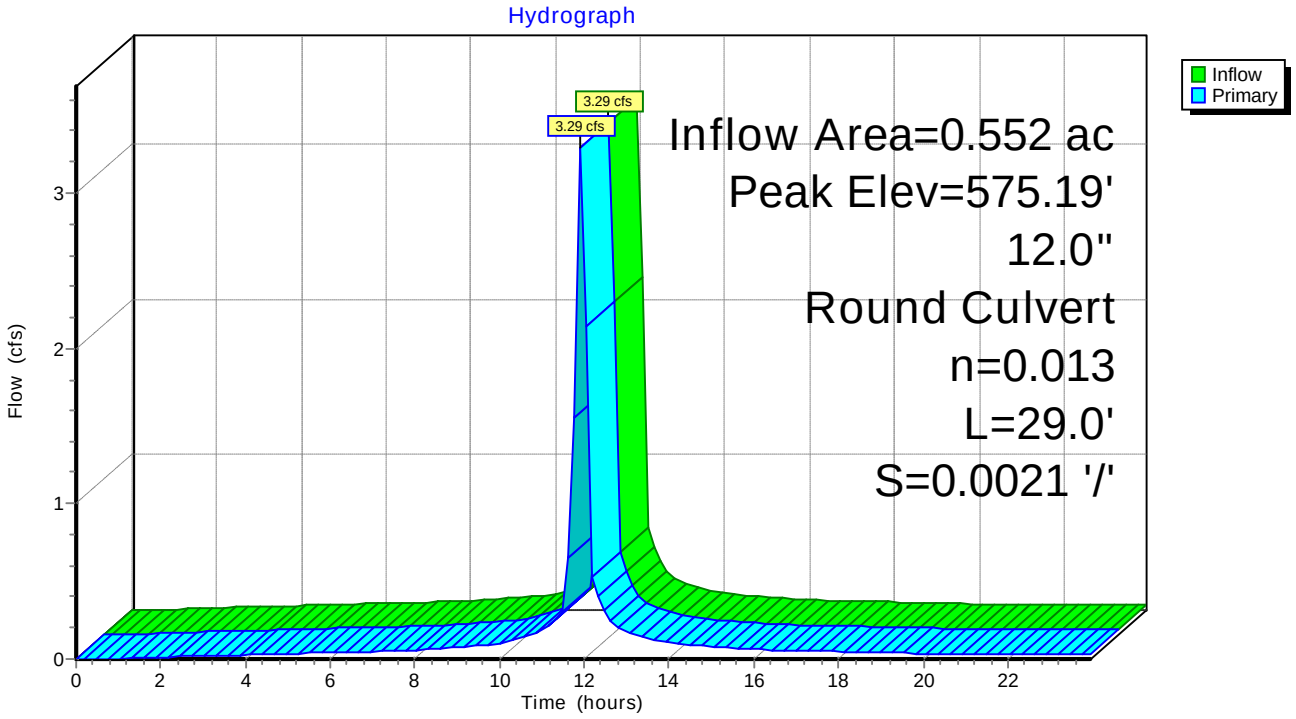
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 3.29 cfs @ 11.91 hrs, Volume= 0.218 af
Outflow = 3.29 cfs @ 11.91 hrs, Volume= 0.218 af, Atten= 0%, Lag= 0.0 min
Primary = 3.29 cfs @ 11.91 hrs, Volume= 0.218 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.19' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	12.0" Round 12" CULVERT L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=3.15 cfs @ 11.91 hrs HW=575.13' TW=574.31' (Dynamic Tailwater)
└1=12" CULVERT (Barrel Controls 3.15 cfs @ 4.00 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 4.29" for 100-yr event
Inflow = 5.77 cfs @ 11.92 hrs, Volume= 0.390 af
Outflow = 4.59 cfs @ 12.01 hrs, Volume= 0.352 af, Atten= 21%, Lag= 5.4 min
Primary = 0.04 cfs @ 12.02 hrs, Volume= 0.071 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 4.54 cfs @ 12.01 hrs, Volume= 0.281 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.31' @ 12.02 hrs Surf.Area= 3,814 sf Storage= 3,221 cf

Plug-Flow detention time= 80.7 min calculated for 0.352 af (90% of inflow)
Center-of-Mass det. time= 28.8 min (784.5 - 755.6)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

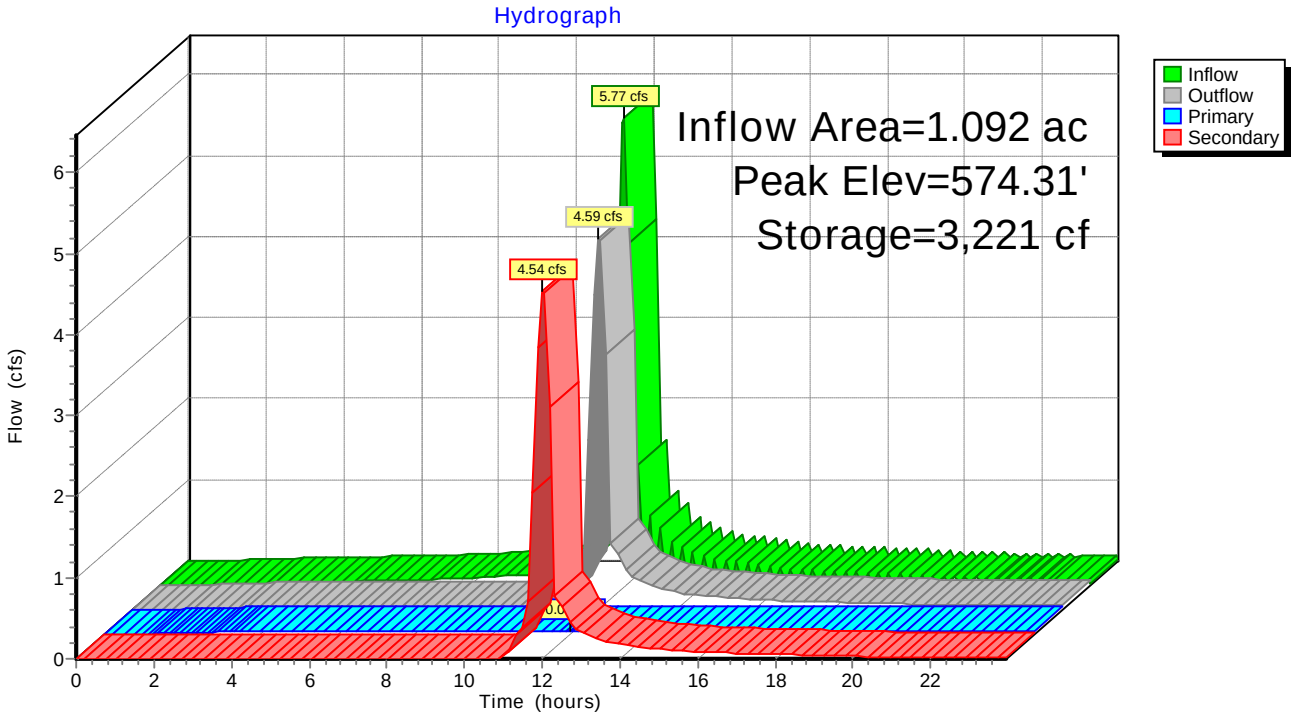
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	6.0" Horiz. Orifice/Grate X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	0.500 in/hr Exfiltration of Soil Media over Surface area

Primary OutFlow Max=0.04 cfs @ 12.02 hrs HW=574.30' TW=571.69' (Dynamic Tailwater)
└3=Exfiltration of Soil Media (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=4.40 cfs @ 12.01 hrs HW=574.29' TW=571.68' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Orifice Controls 1.97 cfs @ 2.61 fps)
└2=Orifice/Grate (Orifice Controls 2.43 cfs @ 3.09 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 3.86" for 100-yr event
Inflow = 4.59 cfs @ 12.01 hrs, Volume= 0.352 af
Outflow = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af, Atten= 72%, Lag= 19.6 min
Primary = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 572.71' @ 12.34 hrs Surf.Area= 3,410 sf Storage= 6,195 cf

Plug-Flow detention time= 95.9 min calculated for 0.317 af (90% of inflow)
Center-of-Mass det. time= 48.4 min (832.9 - 784.5)

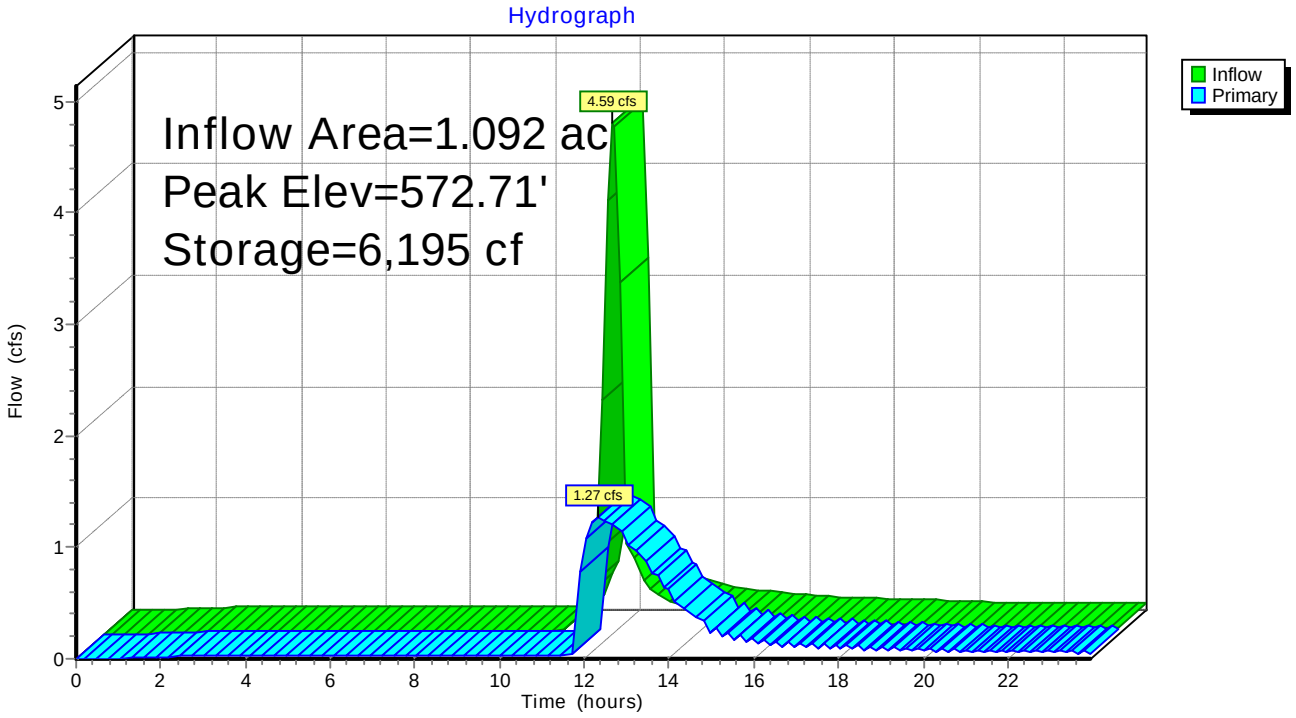
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	6.0" Round 6" Perforated HDPE Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	6.0" Round Culvert after elbow assembly L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=1.29 cfs @ 12.34 hrs HW=572.69' TW=570.95' (Dynamic Tailwater)
1=Culvert after elbow assembly (Inlet Controls 1.25 cfs @ 6.35 fps)
2=Exfiltration (Exfiltration Controls 0.04 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

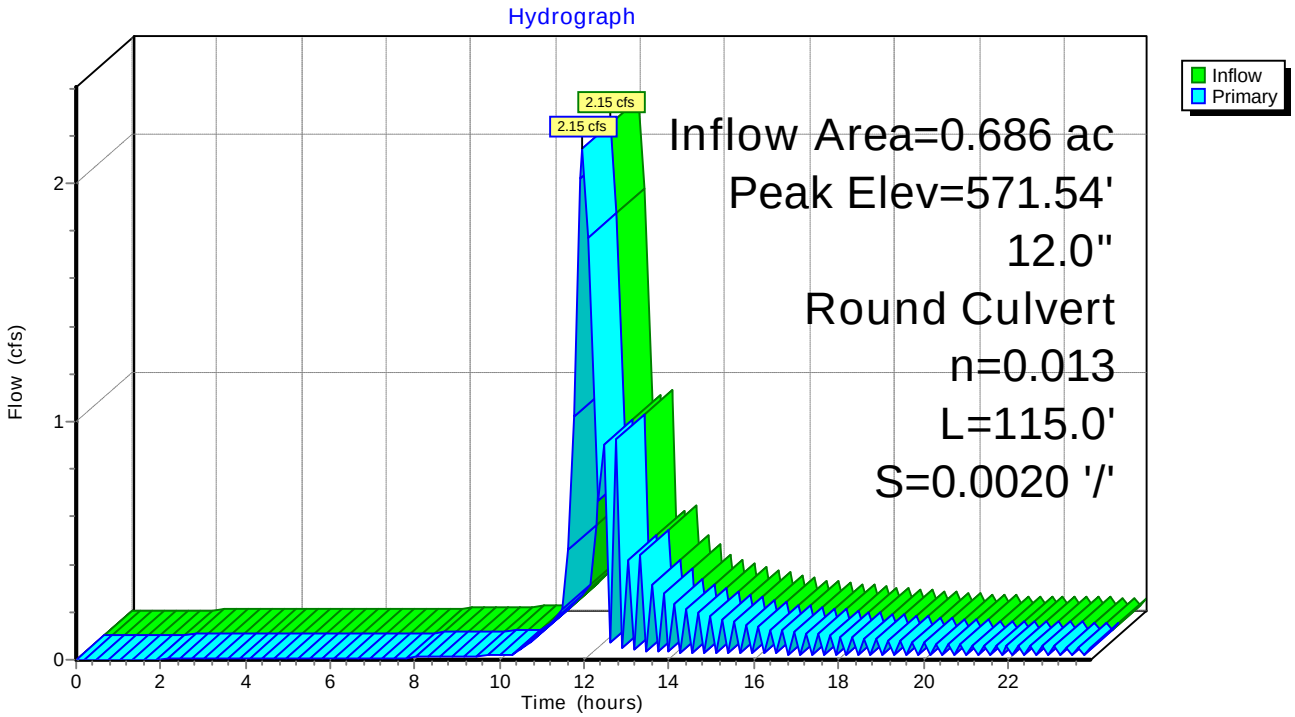
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 3.53" for 100-yr event
Inflow = 2.15 cfs @ 11.97 hrs, Volume= 0.202 af
Outflow = 2.15 cfs @ 11.97 hrs, Volume= 0.202 af, Atten= 0%, Lag= 0.0 min
Primary = 2.15 cfs @ 11.97 hrs, Volume= 0.202 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.54' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	12.0" Round Culvert L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.02 cfs @ 11.97 hrs HW=571.48' TW=570.89' (Dynamic Tailwater)
└1=Culvert (Barrel Controls 2.02 cfs @ 2.79 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 3.95" for 100-yr event
Inflow = 3.08 cfs @ 11.89 hrs, Volume= 0.188 af
Outflow = 2.42 cfs @ 11.94 hrs, Volume= 0.182 af, Atten= 21%, Lag= 3.1 min
Primary = 0.01 cfs @ 11.92 hrs, Volume= 0.019 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 2.41 cfs @ 11.94 hrs, Volume= 0.163 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.59' @ 11.94 hrs Surf.Area= 1,094 sf Storage= 595 cf

Plug-Flow detention time= 33.3 min calculated for 0.182 af (97% of inflow)
Center-of-Mass det. time= 13.8 min (784.7 - 770.9)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

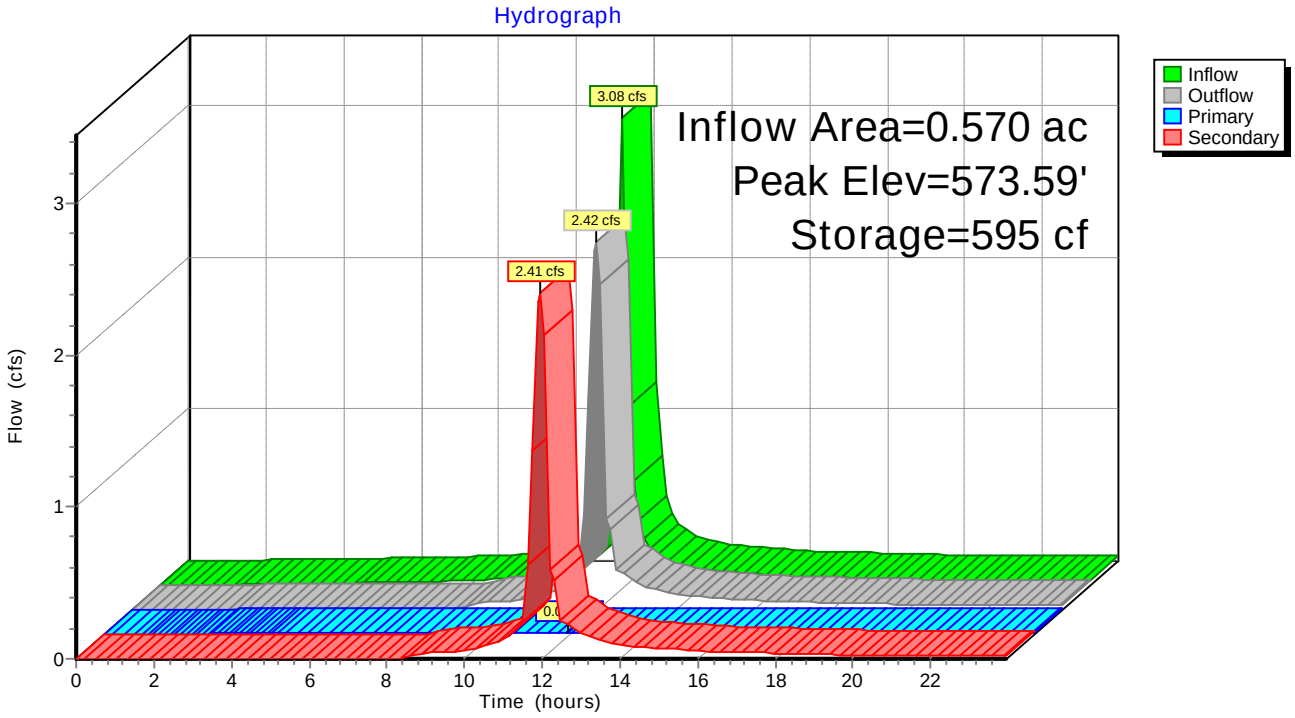
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	4.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	0.500 in/hr Exfiltration through soil media over Surface area

Primary OutFlow Max=0.01 cfs @ 11.92 hrs HW=573.57' TW=571.34' (Dynamic Tailwater)
└3=Exfiltration through soil media (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=2.28 cfs @ 11.94 hrs HW=573.56' TW=571.39' (Dynamic Tailwater)
├1=Emergency Overflow (Catch Basin) (Orifice Controls 2.04 cfs @ 2.70 fps)
└2=Orifice/Grate (Orifice Controls 0.25 cfs @ 2.82 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 3.82" for 100-yr event
Inflow = 2.42 cfs @ 11.94 hrs, Volume= 0.182 af
Outflow = 1.76 cfs @ 11.96 hrs, Volume= 0.174 af, Atten= 27%, Lag= 0.9 min
Primary = 1.76 cfs @ 11.96 hrs, Volume= 0.174 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.69' @ 12.09 hrs Surf.Area= 2,748 sf Storage= 1,372 cf

Plug-Flow detention time= 44.8 min calculated for 0.173 af (95% of inflow)
Center-of-Mass det. time= 21.1 min (805.8 - 784.7)

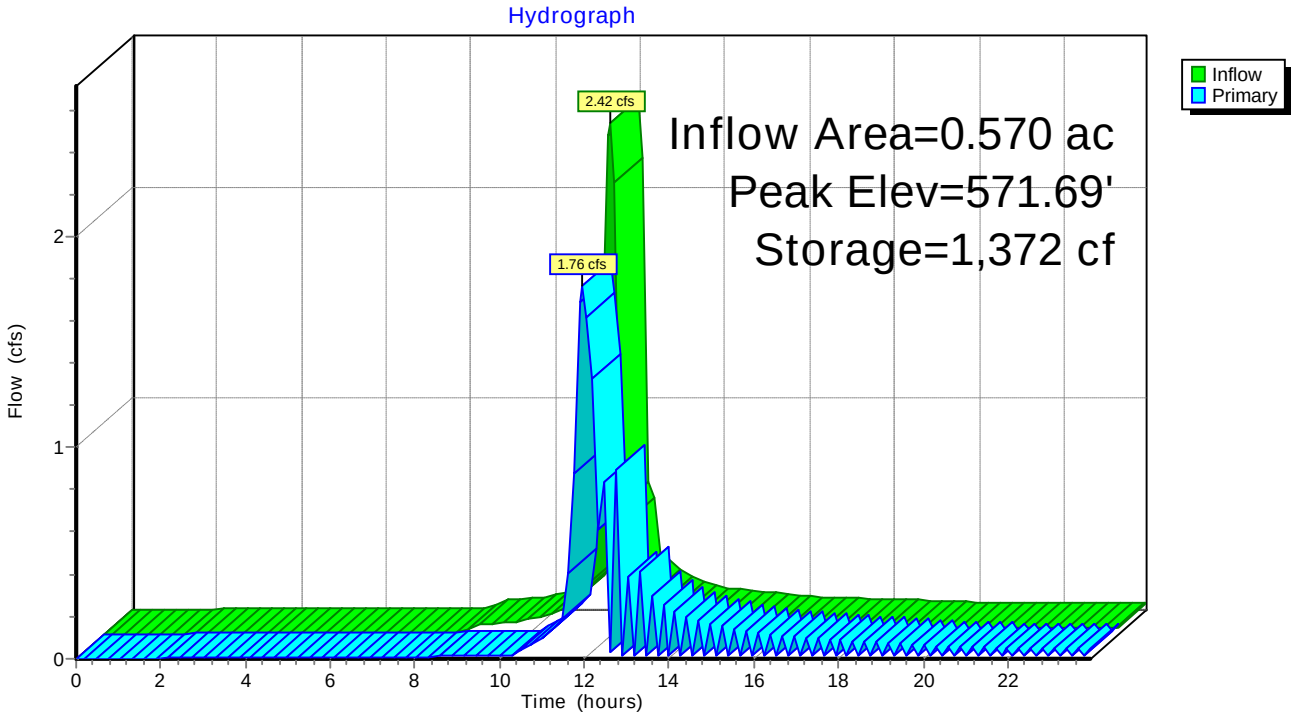
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	4.0" Round 4" Perforated HDPE Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	12.0" Round 12" Culvert L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	0.500 in/hr Exfiltration over Surface area

Primary OutFlow Max=0.03 cfs @ 11.96 hrs HW=571.43' TW=571.48' (Dynamic Tailwater)
1=12" Culvert (Controls 0.00 cfs)
2=Exfiltration (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

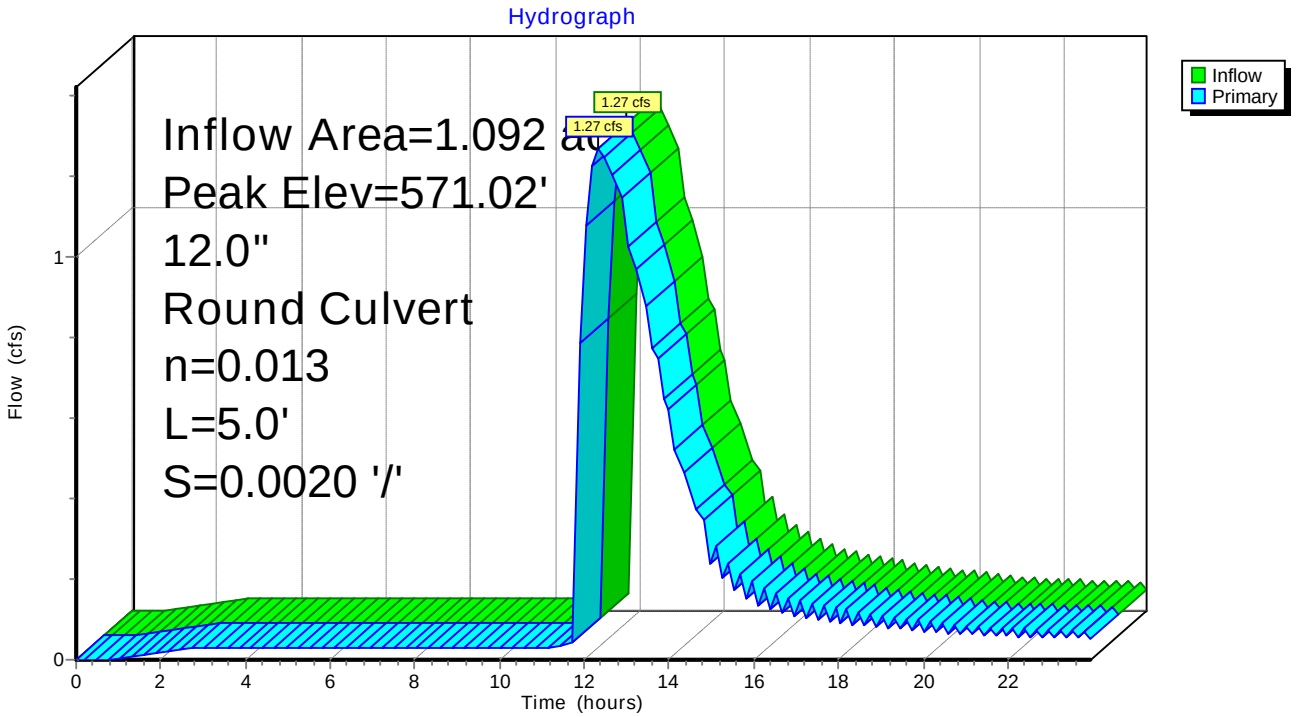
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 3.50" for 100-yr event
Inflow = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af
Outflow = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.0 min
Primary = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.02' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	12.0" Round 12 " Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.83 cfs @ 12.34 hrs HW=570.95' TW=570.70' (Dynamic Tailwater)
└1=12 " Culvert (Inlet Controls 1.83 cfs @ 2.39 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 4.30" for 100-yr event
Inflow = 2.83 cfs @ 11.88 hrs, Volume= 0.155 af
Outflow = 2.83 cfs @ 11.88 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min
Primary = 2.42 cfs @ 11.88 hrs, Volume= 0.150 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.42 cfs @ 11.90 hrs, Volume= 0.005 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.32' @ 11.89 hrs
Flood Elev= 576.20'

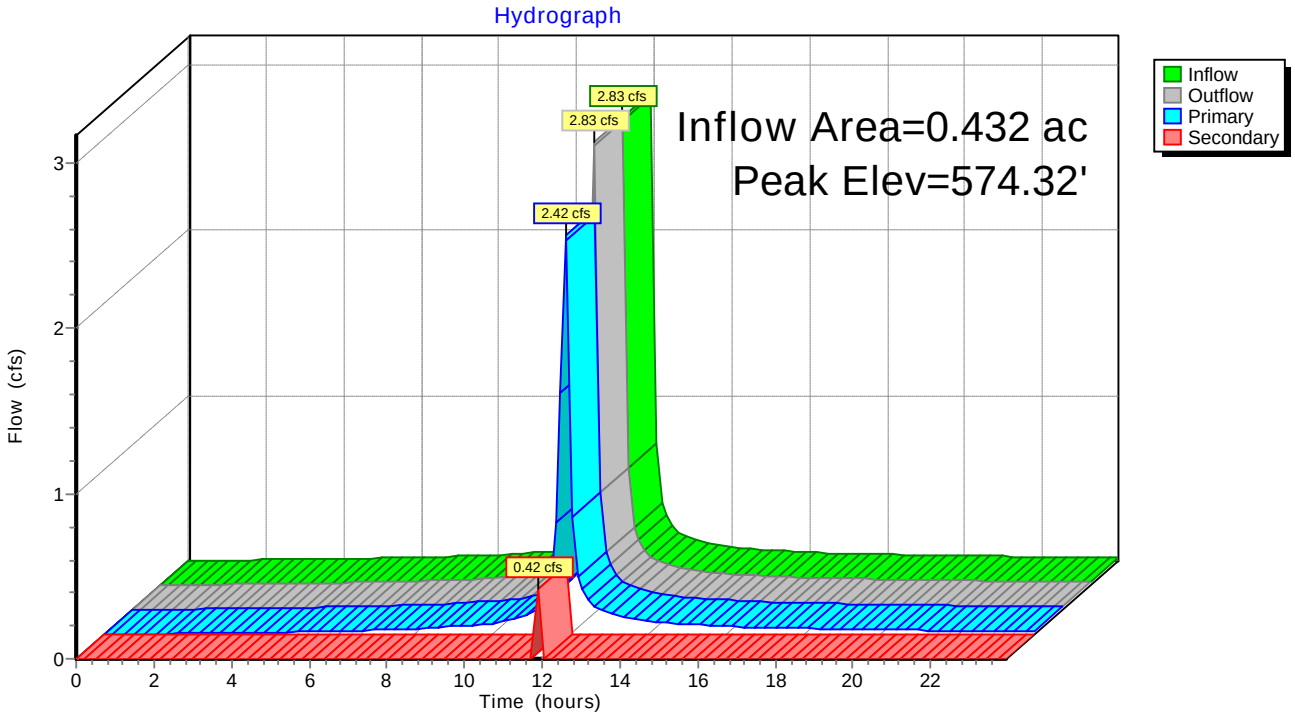
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	0.1" W x 0.9" H Vert. Orifice/Grate X 303.00 C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	0.1" x 0.9" Horiz. Orifice/Grate X 152.00 C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	6.0" Horiz. Orifice/Grate X 5.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.18 cfs @ 11.88 hrs HW=574.25' TW=573.55' (Dynamic Tailwater)
- 1=Orifice/Grate (Orifice Controls 0.38 cfs @ 4.02 fps)
- 2=Orifice/Grate (Orifice Controls 0.76 cfs @ 4.02 fps)
- 3=Orifice/Grate (Orifice Controls 0.72 cfs @ 3.79 fps)
- 4=Orifice/Grate (Orifice Controls 0.32 cfs @ 3.39 fps)

Secondary OutFlow Max=0.42 cfs @ 11.90 hrs HW=574.31' TW=573.58' (Dynamic Tailwater)
- 5=Orifice/Grate (Weir Controls 0.42 cfs @ 0.83 fps)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

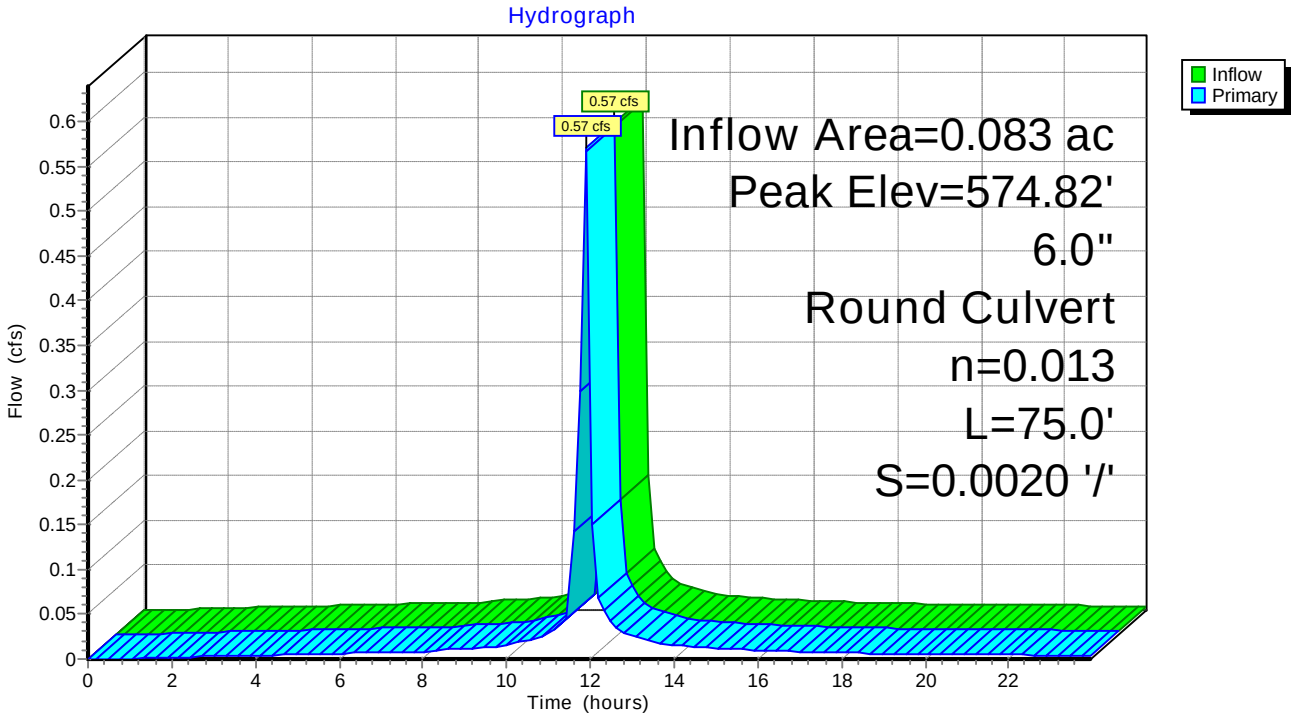
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 0.57 cfs @ 11.88 hrs, Volume= 0.033 af
Outflow = 0.57 cfs @ 11.88 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 11.88 hrs, Volume= 0.033 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.82' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.39 cfs @ 11.88 hrs HW=574.71' TW=574.26' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.39 cfs @ 1.97 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

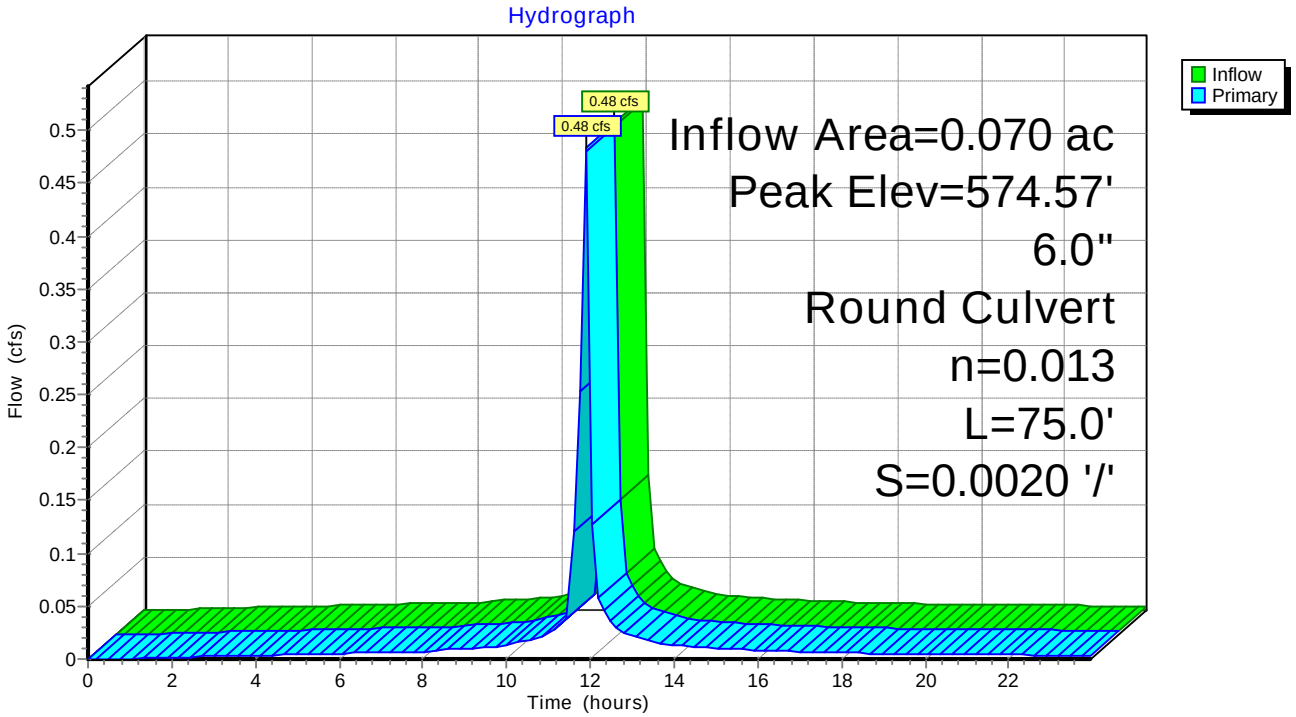
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 0.48 cfs @ 11.88 hrs, Volume= 0.028 af
Outflow = 0.48 cfs @ 11.88 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 11.88 hrs, Volume= 0.028 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.57' @ 11.94 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.26 cfs @ 11.88 hrs HW=574.46' TW=574.26' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.26 cfs @ 1.32 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

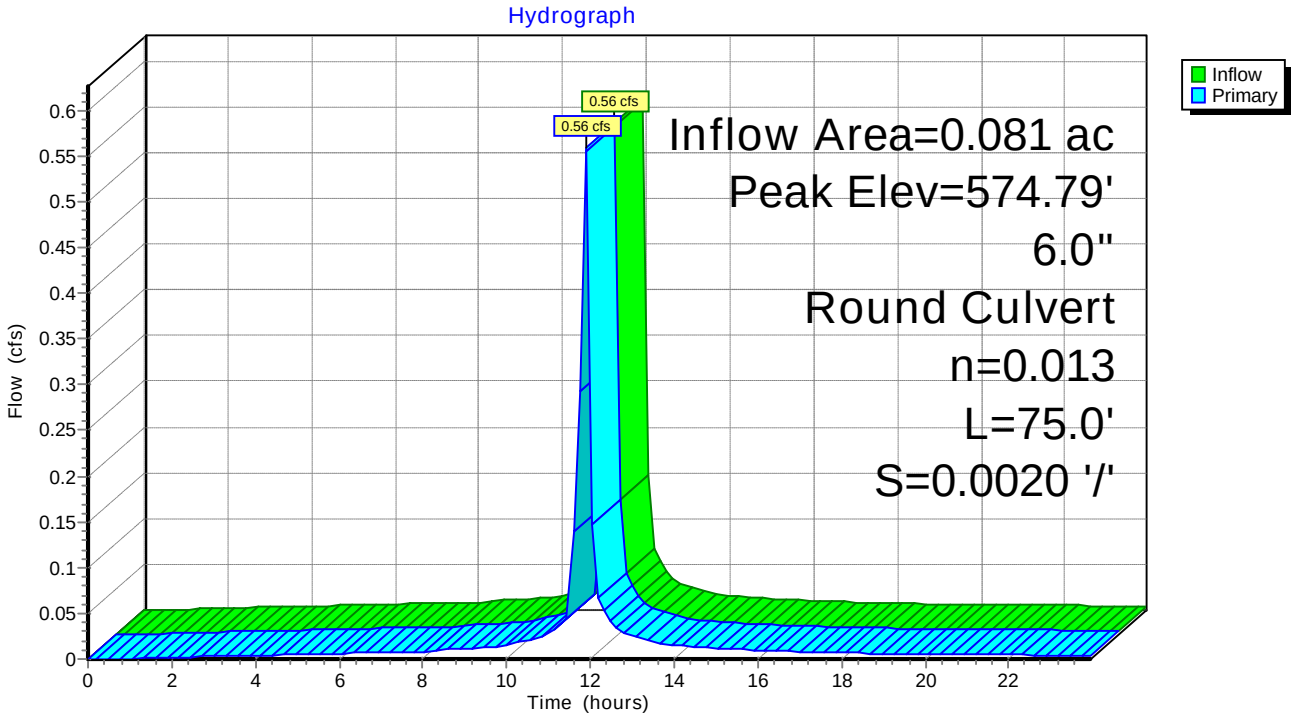
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 0.56 cfs @ 11.88 hrs, Volume= 0.032 af
Outflow = 0.56 cfs @ 11.88 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 11.88 hrs, Volume= 0.032 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.79' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	6.0" Round 6" CULVERT L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.37 cfs @ 11.88 hrs HW=574.67' TW=574.26' (Dynamic Tailwater)
└1=6" CULVERT (Outlet Controls 0.37 cfs @ 1.89 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

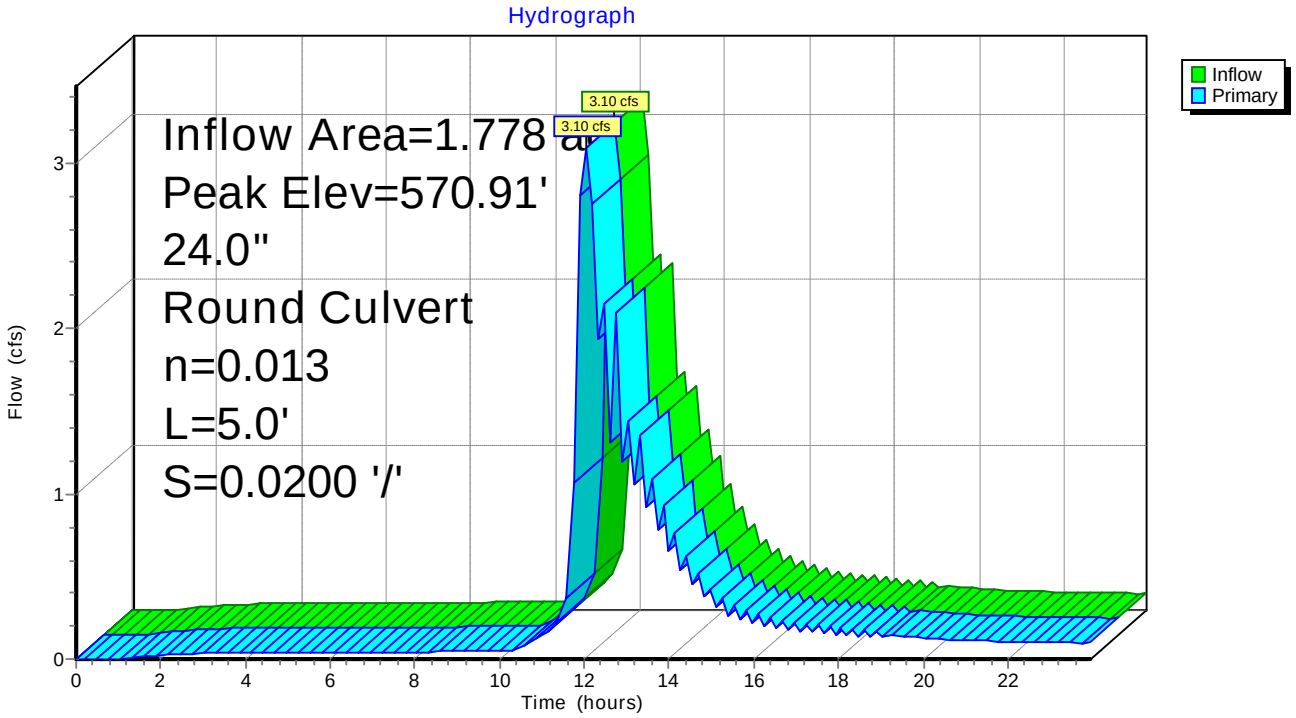
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 3.52" for 100-yr event
Inflow = 3.10 cfs @ 12.03 hrs, Volume= 0.521 af
Outflow = 3.10 cfs @ 12.03 hrs, Volume= 0.521 af, Atten= 0%, Lag= 0.0 min
Primary = 3.10 cfs @ 12.03 hrs, Volume= 0.521 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.91' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	24.0" Round Culvert L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=3.08 cfs @ 12.03 hrs HW=570.91' (Free Discharge)
└1=Culvert (Barrel Controls 3.08 cfs @ 3.26 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 2.88" for 100-yr event
Inflow = 0.46 cfs @ 11.93 hrs, Volume= 0.028 af
Outflow = 0.41 cfs @ 12.01 hrs, Volume= 0.028 af, Atten= 11%, Lag= 4.4 min
Primary = 0.41 cfs @ 12.01 hrs, Volume= 0.028 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.91' @ 12.00 hrs Surf.Area= 804 sf Storage= 76 cf

Plug-Flow detention time= 1.9 min calculated for 0.028 af (99% of inflow)
Center-of-Mass det. time= 1.8 min (819.1 - 817.3)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

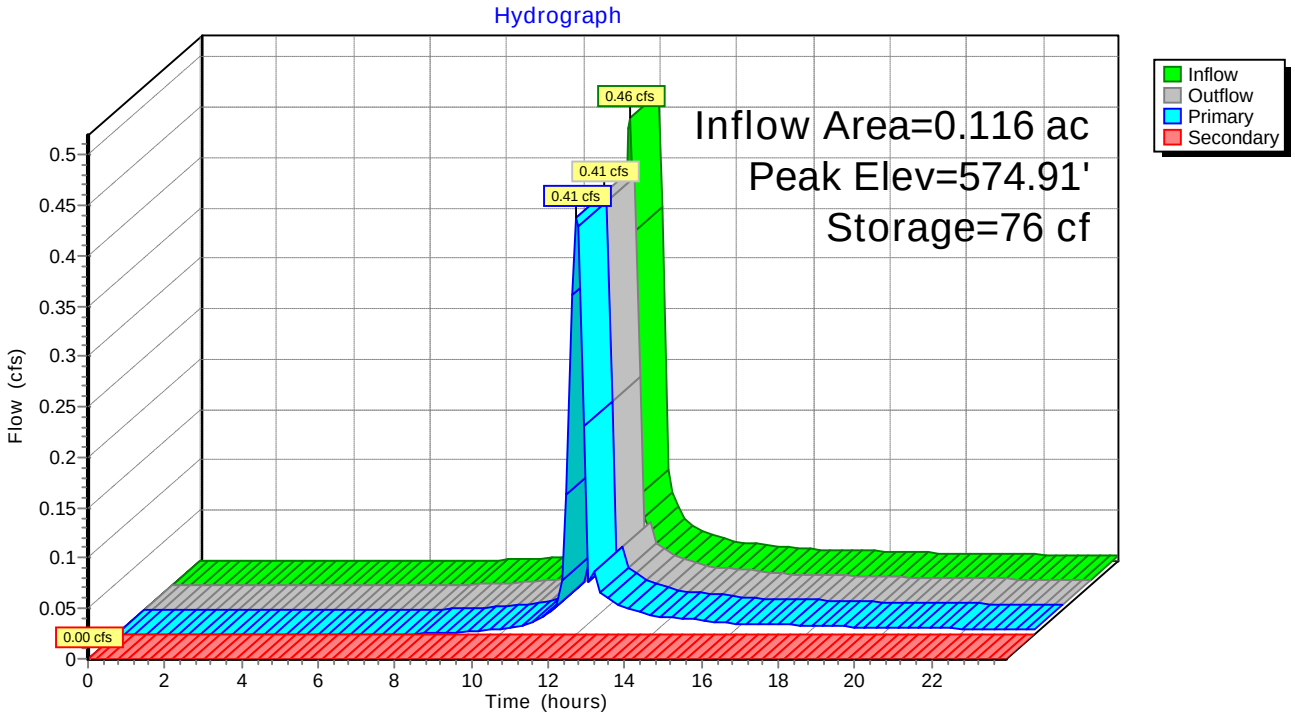
Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	6.0" Horiz. 6" Yard Drain C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	1.7" x 3.2" Horiz. CB Grate X 7.00 columns X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

Primary OutFlow Max=0.39 cfs @ 12.01 hrs HW=574.90' TW=571.48' (Dynamic Tailwater)
└1=6" Yard Drain (Weir Controls 0.39 cfs @ 1.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
└2=CB Grate (Controls 0.00 cfs)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix A-
Drainage Calculation
WQv, RRv, Q_{WQv} & CPv Calculation

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Advanced Design Group
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Project #: 21-4768 Calc. By: JRJ Date: 1-17-2
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Commerce Drive

Total Site Area = 1.78 ac

Water Quality Volume (WQ_v)

$$WQ_v = \frac{(P)(R_v)(A)}{12}$$

$$WQ_v = \frac{(1.0)(0.652)(1.78ac)}{12}$$

$WQ_v = 0.097$ ac. ft required

P = 90% Annual Rainfall Event = 1.00

$R_v = 0.05 + 0.009(I)$ I = % Impervious

Proposed Impervious = 51,850 sq. ft
= 1.19 ac

$I = 1.19ac / 1.78ac = 0.67 = 67\%$

$R_v = 0.05 + 0.009(67) = 0.652$

Run-off Reduction Volume (RR_v)

$$RR_v = \frac{(P)(R_v^*)(A_i)}{12}$$

$$RR_v = \frac{(1.0)(0.95)(0.238ac)}{12}$$

$RR_v = 0.019$ ac.ft required

P = 1.00 $R_v^* = 0.05 + 0.009(I)$ I = 10

$R_v^* = 0.95$

$A_i = (S)(A_{ic}) = (0.2)(1.19ac) = 0.238ac$

S = specific reduction factor
= 0.2 for "D" soils

A_{ic} = Area of new impervious
= 1.19 ac

A Bio-Rentention Area and Dry Swale will be utilized to provide the WQ_v and RR_v requirements.

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Commerce Drive (cont.)

WQ_v Treatment:

Bio-Retention Area ⟹ Determine WQ_v + RR_v Provided

$$A_f = \frac{(WQ_v)(d_f)}{[K(h_f + d_f)(t_f)]}$$

where: A_f = Area of Filtration = 3,200

WQ_v = Water Quality Volume

d_f = Depth of Soil Media = 2.5 FT

K = Hydraulic Conductivity = 0.5 FT/

h_f = Avg. height of Ponding = 0.25 f

t_f = Time to Filter = 2 days

$$3{,}200\ FT^2 = \frac{(WQ_v)(2.5\ FT)}{[0.5(0.25+2.5)(2)]}$$

$WQ_v = 3{,}520$ sq ft / 43,560 ft²/ac

$WQ_v = 0.081$ ac.ft provided

According to Table 3.5 in the NYS Stormwater Management Desig Manual, a bio-retention area can utilize 40% of the WQ_v provided by the technique towards the RR_v requirement.

WQ_v Provided = 0.081 ac.ft ∴ RR_v provided = (0.40)(0.081 ac.

= 0.032 ac.ft

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

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Commerce Drive (cont.)

WQ_v Treatment:

Dry Swale ⟹ Determine WQ_v + RR_v provided

$$A_f = \frac{(WQ_v)(d_f)}{[K(h_f + d_f)(t_f)]}$$

where: $A_f = 900\ ft^2$

$d_f = 2.0\ ft$

$K = 0.5\ FT/Day$

$h_f = 0.25\ ft$

$t_f = 1.6\ days$

$$900\ ft^2 = \frac{(WQ_v)(2.0\ ft)}{[0.5\ (0.25 + 2.0)\ 1.6]}$$

$WQ_v = 810\ ft^2 = 0.019$ ac·ft provided

According to Table 3.5 in the NYS Stormwater Management Design Manual, a dry swale can utilize 20% of the WQ_v provided by the technique towards the RR_v requirement.

WQ_v Provided = 0.019 ac.ft ∴ RR_v provided = (0.2)(0.019 ac.ft)

= 0.004 ac.ft

Total WQ_v Provided = 0.081 ac.ft (Bio-Area) + 0.019 ac.ft (Dry Swales) = 0.1 ac.ft

Total RR_v Provided = 0.032 ac.ft (Bio-Area) + 0.004 ac.ft (Dry Swale) = 0.036 ac.ft

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

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Commerce Drive (cont.)

Channel Protection Volume (CPv)

Area = 1.78 ac CN = 92 $I_a = 200/CN - 2$

$I_a = 200/92 - 2 = 0.174$ $P_{1-Yr} = 1.91$ inch

$I_a/P = 0.17/1.91 = 0.09$

T_c = Area to East Vegetated Swale = 12.4 min = 0.21 hr

Using Exhibit 4-11 from TR-55 w/ $I_a/P = 0.09$ and $T_c = 0.21$

$q_u = 800$ csm/in

Using Figure 8.5 from the N.Y.S. Stormwater Management Design Manual for T = 24 hrs

$q_o/q_i = 0.025$

$$V_s/V_r = 0.683 - 1.43(q_o/q_i) + 1.64(q_o/q_i)^2 - 0.804(q_o/q_i)^3$$

$$V_s/V_r = 0.683 - 1.43(0.025) + 1.64(0.025)^2 - 0.804(0.025)^3$$

$V_s/V_r = 0.648 = 0.648 V_r$ $V_r = 0.51''$ (East Swa

$V_s = 0.648(0.51)(1/12) = 0.028$ FT

CP_v req = 0.028 FT x 1.78 ac = 0.049 ac. ft

Required CP_v = 2,135 FT^3

CP_v Provided = 330 ft^3 (front veg.) + 2,082 ft^3 (Bio-Area) + 313 ft^3 (Dry Swale) = 2,725 f

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

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Commerce Drive (cont.)

Level Spreader Sizing Check:

Proposed ⇒ 100 L.F. 6" Perf. Pipe
Must Pass 10-Yr Storm: Flow = 1.80 cfs HW = 573.95

Determine Outflow from Perforation:

$Q_p = C_d A \sqrt{2gh}$ where: Q_p = Free Outfall Rate (FT^3/sec)

$Q_p = (0.6)(0.00076)\sqrt{2(32.2)(0.45)}$ C_d = Coeff. of Discharge = 0.60

$Q_p = 0.0025$ $FT^3/sec/perf$ A = X-sec. Area of one perforation

= 0.875 in x 0.125 in = 0.109375

= 0.00076

Min. inlet area = $1.0\ in^2/FT = 0.00694\ FT^2/FT$

No. Perf/FT = $(0.00694\ FT^2/FT) / 0.00076\ FT^2/perf$ g = Gravitational Constant = 32.2

= 9.1 Perf/FT

h = height of water above perforation

Inv. = 573.25 HW = 573.9

⇒ Determine Flow per Foot:

Use 1/2 Pipe Dia = 0.25' ⇒ 573.25

= 573.50

$(0.0025\ FT^3/sec/perf)(9.1\ perf/ft)$ ∴ h = 573.95 − 573.50 = 0.4

= 0.022 $FT^3/sec/FT$

⇒ Determine length of pipe required:

10-Yr Flow = 1.80 cfs $1.80\ cfs / 0.022\ FT^3/sec/FT$ = 80.58

∴ 100 L.F. Provided

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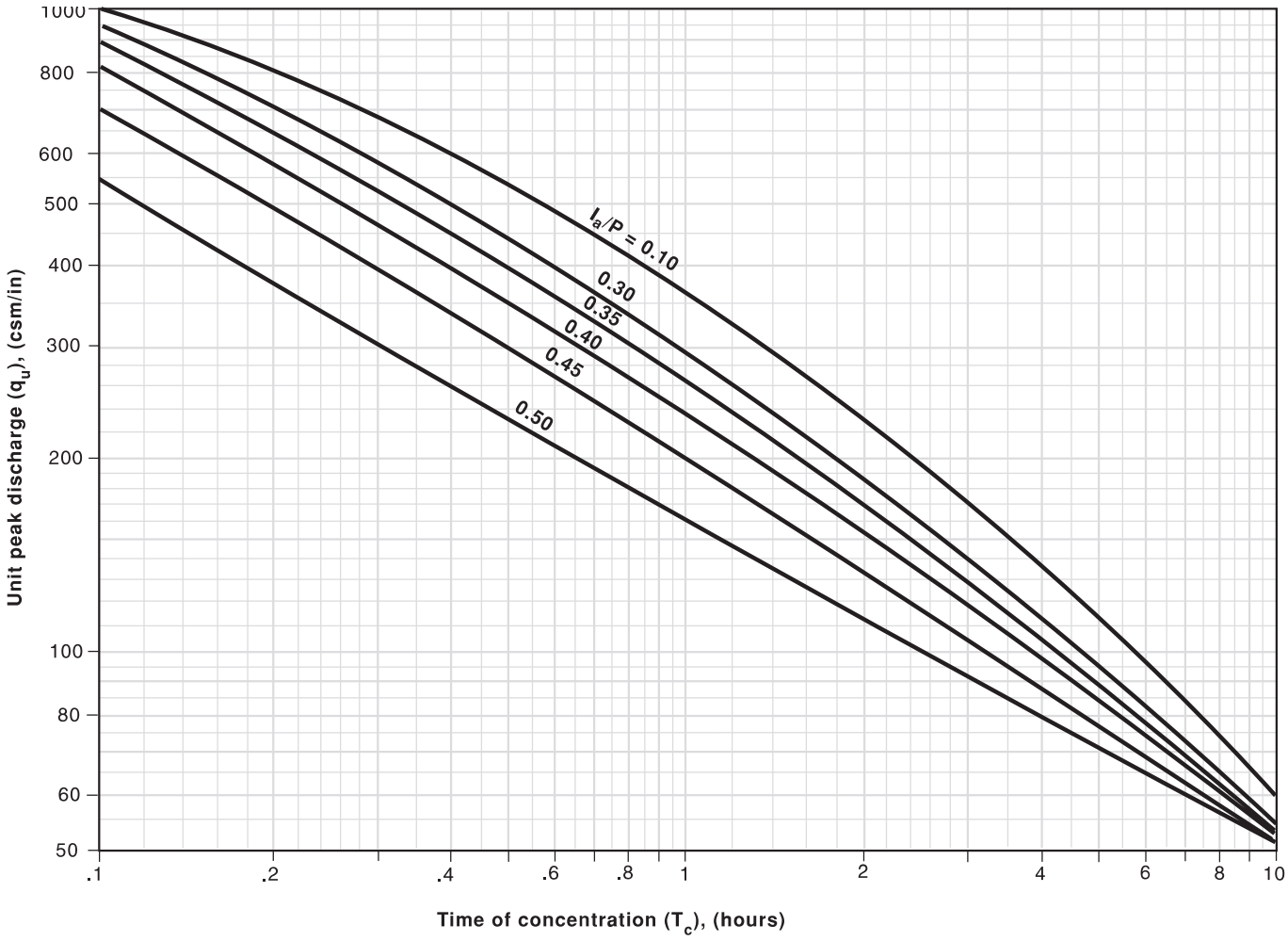
Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Exhibit 4-II Unit peal discharge (q_u) for NRCS (SCS) type II rainfall distribution



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Compute Stream Channel Protection Volume, (Cp_v) (see Section 4.3 and Appendix B)

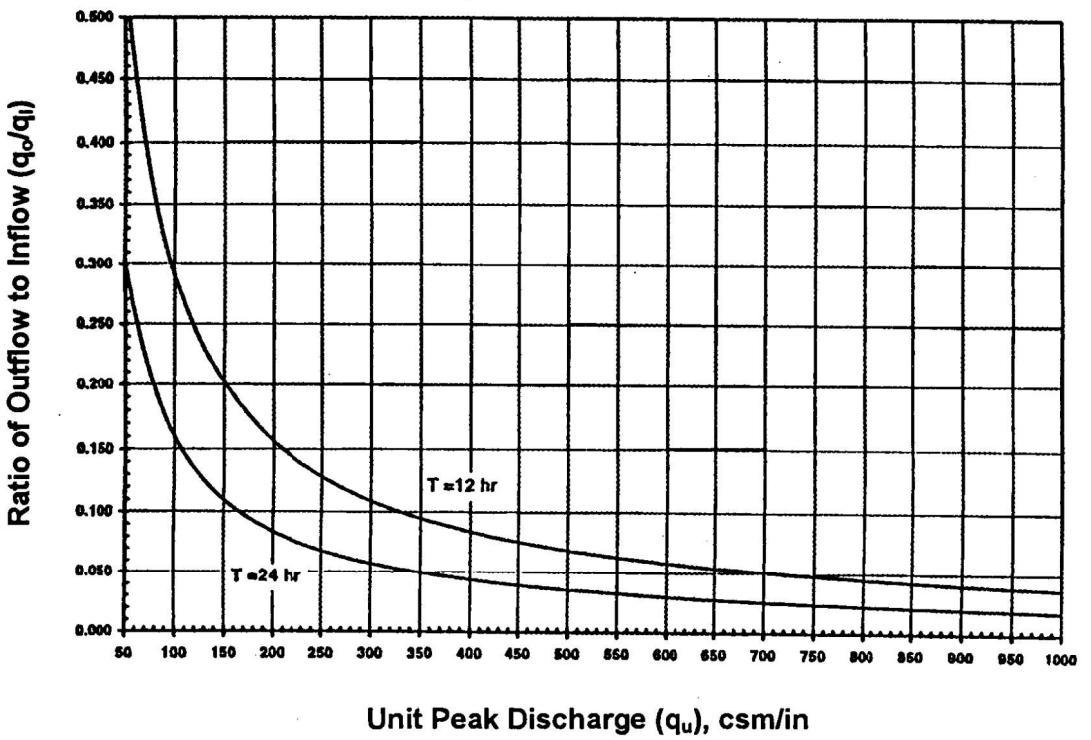
For stream channel protection, provide 24 hours of extended detention (T) for the one-year event.

Compute Channel Protection Storage Volume

First, determine the value of the unit peak discharge (q_u) using TR-55 and Type II Rainfall Distribution

- Initial abstraction (Ia) for CN of 78 is 0.564: [Ia = (200/CN - 2)]
- Ia/P = (0.564)/ 2.3 inches = 0.245
- T_c = 0.35 hours
- Using the above data and Exhibit 4-II from TR-55 (NRCS, 1986), q_u = 570 csm/in (cubic feet per second per square mile per year)
- Knowing q_u and T = 24 hours, find q_o/q_i using Figure 8.5 (also see methodology in Appendix B)
- Peak outflow discharge/peak inflow discharge (q_o/q_i) = 0.035
- $Vs/Vr = 0.683 - 1.43(q_o/q_i) + 1.64(q_o/q_i)^2 - 0.804(q_o/q_i)^3$ (from Appendix B)
  Where Vs equals channel protection storage (Cp_v) and Vr equals the volume of runoff in inches.

Figure 8.5 Detention Time vs. Discharge Ratios (Source: MDE, 2000)



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Summary for Pond 5P: Front Vegetated Swale

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=17)
[80] Warning: Exceeded Pond 6P by 0.09' @ 12.32 hrs (0.37 cfs 0.010 af)
[80] Warning: Exceeded Pond 7P by 0.05' @ 12.32 hrs (0.18 cfs 0.004 af)

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 1.62" for 1-yr event
Inflow = 2.14 cfs @ 11.89 hrs, Volume= 0.119 af
Outflow = 1.82 cfs @ 11.90 hrs, Volume= 0.116 af, Atten= 15%, Lag= 0.5 min
Primary = 1.80 cfs @ 11.90 hrs, Volume= 0.093 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.03 cfs @ 12.35 hrs, Volume= 0.023 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.97' @ 12.35 hrs Surf.Area= 1,144 sf Storage= 330 cf

Plug-Flow detention time= 29.7 min calculated for 0.115 af (96% of inflow)
Center-of-Mass det. time= 10.4 min (774.1 - 763.7)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	1,863 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	1,200	363	363
575.00	1,800	1,500	1,863

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	**1.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.00 cfs @ 11.90 hrs HW=573.82' TW=573.83' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.03 cfs @ 12.35 hrs HW=573.96' TW=573.92' (Dynamic Tailwater)
↑—**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

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Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

[80] Warning: Exceeded Pond 5P by 0.13' @ 12.04 hrs (2.29 cfs 0.159 af)
[78] Warning: Submerged Pond 5P Secondary device # 2 by 0.59'
[80] Warning: Exceeded Pond 5P by 0.13' @ 12.04 hrs (0.03 cfs 0.008 af)

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.37" for 1-yr event
Inflow = 1.96 cfs @ 11.90 hrs, Volume= 0.124 af
Outflow = 0.83 cfs @ 12.08 hrs, Volume= 0.092 af, Atten= 58%, Lag= 10.7 min
Primary = 0.04 cfs @ 12.09 hrs, Volume= 0.057 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 0.79 cfs @ 12.08 hrs, Volume= 0.035 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.00' @ 12.09 hrs Surf.Area= 3,503 sf Storage= 2,082 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 71.9 min (852.6 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	**6.0" Horiz. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	**0.500 in/hr Exfiltration of Soil Media over Surface area**

Primary OutFlow Max=0.04 cfs @ 12.09 hrs HW=573.98' TW=569.71' (Dynamic Tailwater)
└─**3=Exfiltration of Soil Media** (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=0.69 cfs @ 12.08 hrs HW=573.98' TW=569.69' (Dynamic Tailwater)
├─**1=Emergency Overflow (Catch Basin)** (Controls 0.00 cfs)
└─**2=Orifice/Grate** (Weir Controls 0.69 cfs @ 1.05 fps)

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Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.14" for 1-yr event
Inflow = 0.93 cfs @ 11.89 hrs, Volume= 0.054 af
Outflow = 0.90 cfs @ 11.90 hrs, Volume= 0.049 af, Atten= 4%, Lag= 0.8 min
Primary = 0.01 cfs @ 11.90 hrs, Volume= 0.015 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 0.89 cfs @ 11.90 hrs, Volume= 0.034 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.31' @ 11.90 hrs Surf.Area= 943 sf Storage= 313 cf

Plug-Flow detention time= 73.1 min calculated for 0.049 af (90% of inflow)
Center-of-Mass det. time= 22.3 min (815.7 - 793.4)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	**4.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	**0.500 in/hr Exfiltration through soil media over Surface area**

Primary OutFlow Max=0.01 cfs @ 11.90 hrs HW=573.31' TW=570.55' (Dynamic Tailwater)
└**3=Exfiltration through soil media** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.88 cfs @ 11.90 hrs HW=573.31' TW=570.54' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Weir Controls 0.79 cfs @ 0.80 fps)
└**2=Orifice/Grate** (Weir Controls 0.09 cfs @ 0.98 fps)

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Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 2.68" for 10-yr event
Inflow = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af
Outflow = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.98' @ 11.89 hrs
Flood Elev= 576.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	**6.0" Horiz. Orifice/Grate X 5.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.69 cfs @ 11.89 hrs HW=573.95' TW=573.39' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.34 cfs @ 3.60 fps)
- **2=Orifice/Grate** (Orifice Controls 0.64 cfs @ 3.36 fps)
- **3=Orifice/Grate** (Orifice Controls 0.51 cfs @ 2.71 fps)
- **4=Orifice/Grate** (Orifice Controls 0.20 cfs @ 2.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- **5=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 0.51" for 1-yr event
Inflow = 0.09 cfs @ 12.06 hrs, Volume= 0.006 af
Outflow = 0.05 cfs @ 12.21 hrs, Volume= 0.006 af, Atten= 36%, Lag= 9.3 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.44 fps, Min. Travel Time= 13.8 min
Avg. Velocity = 0.20 fps, Avg. Travel Time= 30.5 min

Peak Storage= 45 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 2.24'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



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Appendix
General Permit No. GP-0-20-00

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National* Pollutant Discharge Elimination System ("NPDES") permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

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deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

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listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

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(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

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For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

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calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

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c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

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d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

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E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

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operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

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8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      ! 1-5 acres of disturbance - 20 feet
      ! 5-20 acres of disturbance - 50 feet
      ! 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

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(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

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B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the Department's online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform* Procedures Act ("UPA") (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

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must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

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b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

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use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an owner's or operator's coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

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regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

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operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

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b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the owner's or operator's coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

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the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

   a. Background information about the scope of the project, including the location, type and size of project

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b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

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schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

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b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

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3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

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begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

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in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

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d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

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a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

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l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

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b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

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b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or* operator's deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

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Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

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E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

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(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

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superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

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include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

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3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

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(Part VII.R)

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

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APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

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Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities*" and "*Larger Common Plan of Development or Sale*" *also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

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and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

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Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

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New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

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Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

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SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

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Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

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training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

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APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

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Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

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Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW’s, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

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Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

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APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River **-** Figure 1
- Onondaga Lake Watershed **-** Figure 2
- Greenwood Lake Watershed **-**Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

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Figure 1 - New York City Watershed East of the Hudson

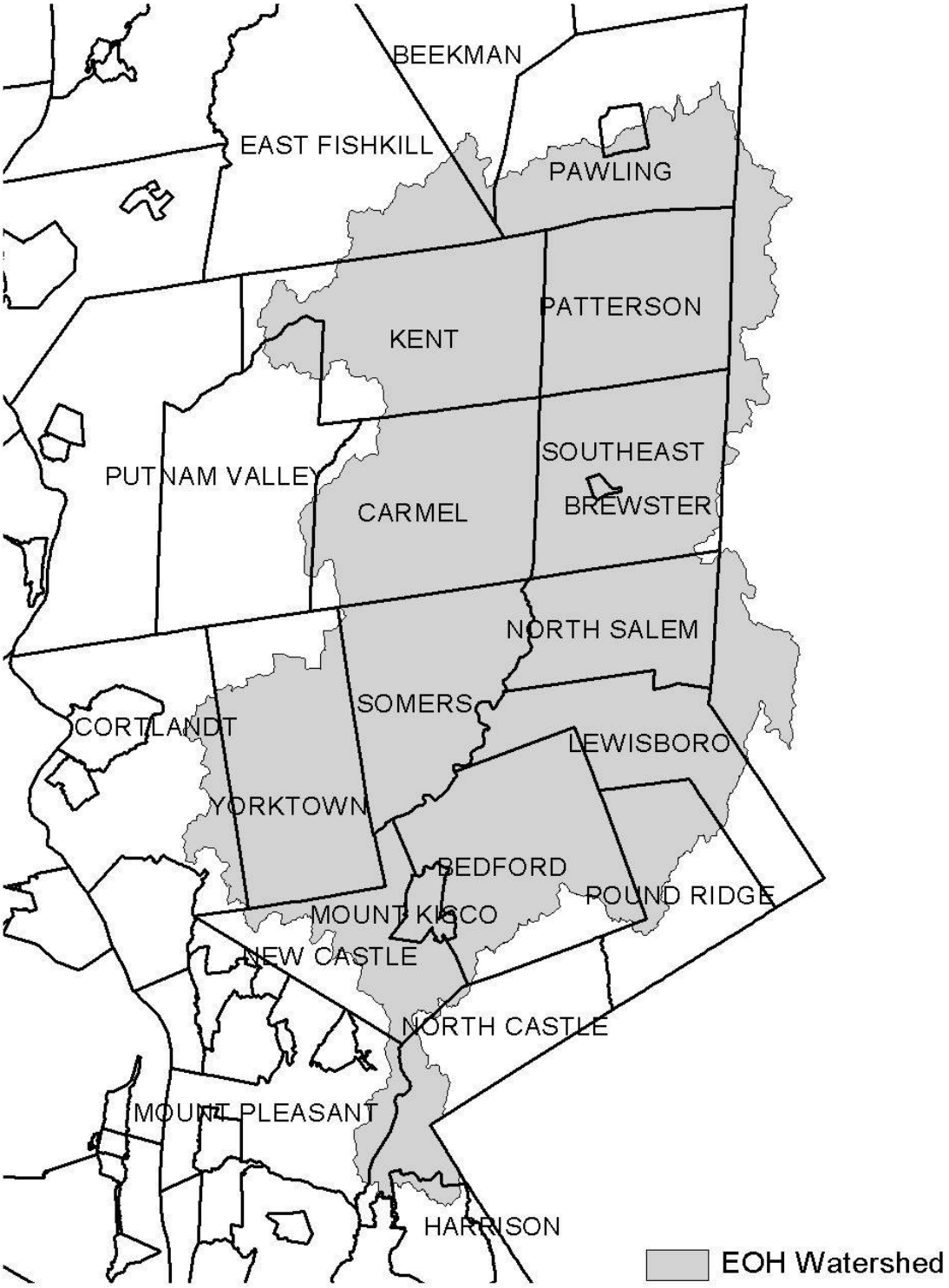

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Figure 2 - Onondaga Lake Watershed



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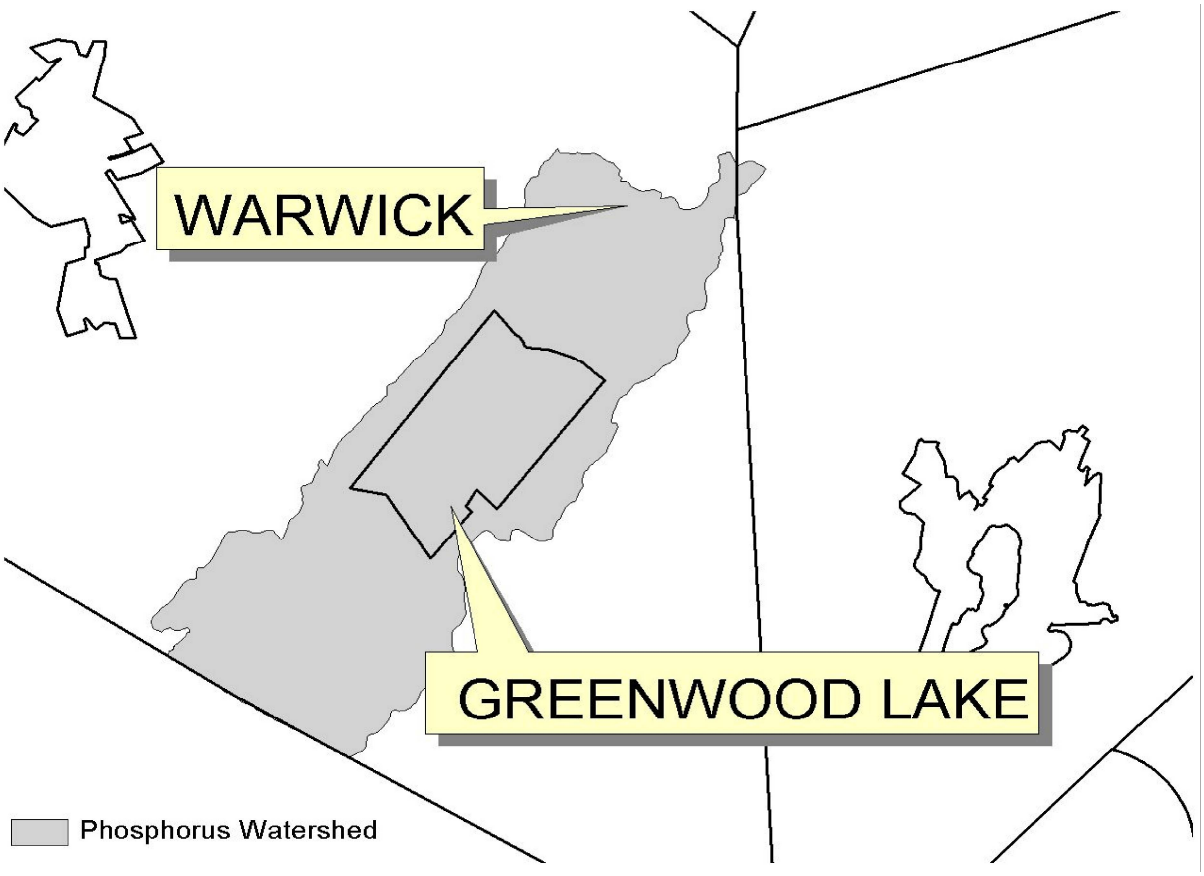
Figure 3 - Greenwood Lake Watershed



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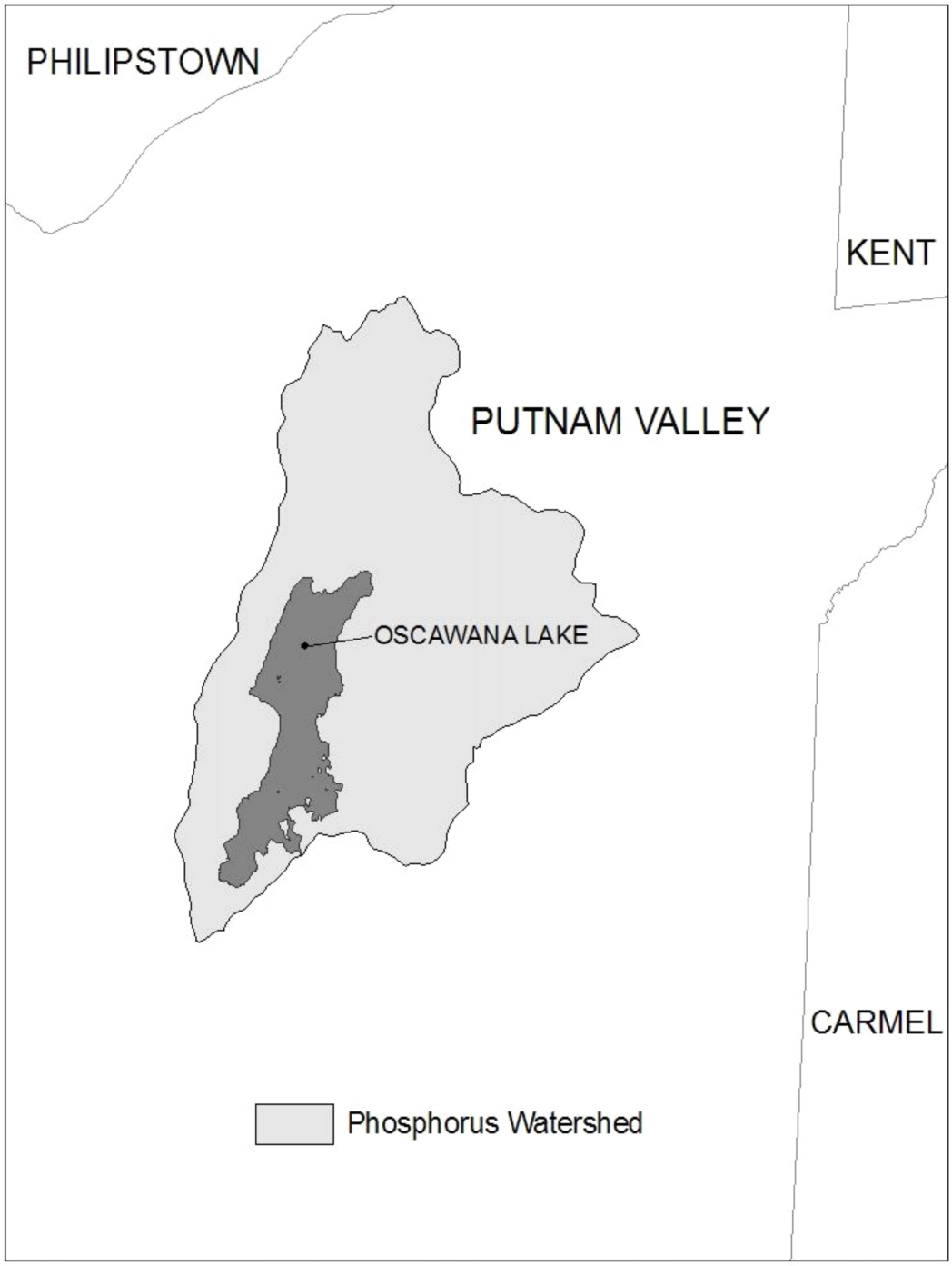
Appendix C

Figure 4 - Oscawana Lake Watershed



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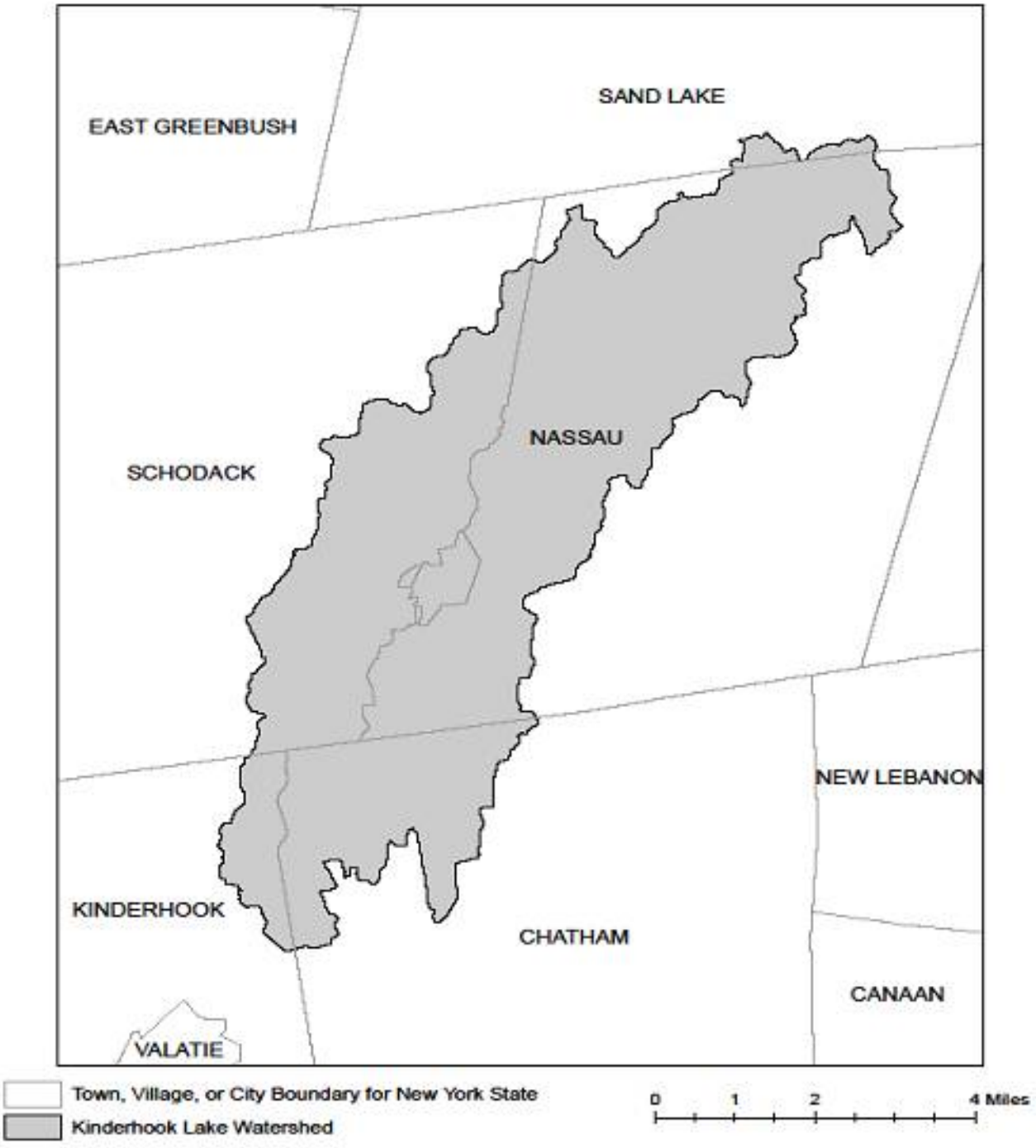
Appendix C

Figure 5 - Kinderhook Lake Watershed



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APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River **-** See Figure 1 in Appendix C

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APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake LincoIndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix
MS4 SWPPP Acceptance Form / Notice of Intent (NO

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix C·
MS4 SWPPP Acceptance Forı

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	321 Commerce, LLC
2. Contact Person:	Eric Bogart
3. Street Address:	321 Commerce Drive
4. City/State/Zip:	Amherst, NY 14228
II. Project Site Information	
5. Project/Site Name:	321 Commerce, LLC
6. Street Address:	321 Commerce Drive
7. City/State/Zip:	Amherst, NY 14228
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix C-
N.O.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.32

(Submission #: HP9-P8ER-D2S0M, version 1)

Details

Originally Started By	Rebecca Romanow
Alternate Identifier	321 Commerce, LLC
Submission ID	HP9-P8ER-D2S0M
Submission Reason	New
Status	Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
321 Commerce, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Bogart

Owner/Operator Contact Person First Name
Eric

Owner/Operator Mailing Address
6885 Campbell Blvd

City
North Tonawanda

State
NY

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Zip
14120

Phone
716-807-2388

Email
bogartlandscape@yahoo.com

Federal Tax ID
NONE PROVIDED

Project Location

Project/Site Name
321 Commerce, LLC

Street Address (Not P.O. Box)
321 Commerce Drive

Side of Street
South

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Town of Amherst

State
NY

Zip
14228

DEC Region
9

County
ERIE

Name of Nearest Cross Street
Hazelwood Drive

Distance to Nearest Cross Street (Feet)
100

Project In Relation to Cross Street
South

Tax Map Numbers Section-Block-Parcel
NONE PROVIDED

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Tax Map Numbers
40.07-3-2.112

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
43.02659999999999,-78.810345

Project Details

2. What is the nature of this project?
New Construction

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Commercial

Post-Development Future Land Use
Commercial

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

---

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
1.78

Total Area to be Disturbed (acres)
1.78

Existing Impervious Area to be Disturbed (acres)
0

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Future Impervious Area Within Disturbed Area (acres)
1.19

5. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
0

C (%)
0

D (%)
100

7. Is this a phased project?
No

8. Enter the planned start and end dates of the disturbance activities.

Start Date
4/1/2022

End Date
4/1/2023

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Ellicott Creek

9a. Type of waterbody identified in question 9?
Stream/Creek Off Site

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
NONE PROVIDED

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
No

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
NONE PROVIDED

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?
NONE PROVIDED

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
Kristin L. Savard

Contact Name (Last, Space, First)
Savard, Kristin

Mailing Address
761 Cayuga Street

City
Lewistin

State
New York

Zip
14092

Phone
(716) 754-2256

Email
kristin.savard@adgengineers.com

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification

Commerce SWPPP Preparer Certification.pdf - 01/17/2022 02:17 PM
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Check Dams
Silt Fence
Stabilized Construction Entrance
Sediment Traps
Storm Drain Inlet Protection

Biotechnical
None

Vegetative Measures
Grassed Waterway
Vegetating Waterways
Seeding

Permanent Structural
Land Grading
Rock Outlet Protection

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
NONE PROVIDED

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
0.097

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.036

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
No

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
0.019

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
Yes

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
0.1

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
0.136

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
0.049

CPv Provided (acre-feet)
0.063

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Pre-Development (CFS)
NONE PROVIDED

Post-Development (CFS)
NONE PROVIDED

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
NONE PROVIDED

Post-Development (CFS)
NONE PROVIDED

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
NONE PROVIDED

If Yes, Identify the entity responsible for the long term Operation and Maintenance
NONE PROVIDED

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
The site limitations for not reducing 100% of the WQv are seasonal high groundwater and soils with an infiltration rate less than
0.5 inches/hour.

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
0.84

Total Contributing Impervious Acres for Dry Swale (O-1)
0.34

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
Yes - Please attach the MS4 Acceptance form below

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
NONE PROVIDED

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
Commerce MS4 Acceptance.pdf - 01/17/2022 02:40 PM
Comment
Not Signed

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Upload Owner/Operator Certification Form

Owner-Operator Certification Form.pdf - 01/17/2022 02:41 PM

Comment

Not Signed

Attachments

Date	Attachment Name	Context	User
1/17/2022 2:41 PM	Owner-Operator Certification Form.pdf	Attachment	Rebecca Romanow
1/17/2022 2:40 PM	Commerce MS4 Acceptance.pdf	Attachment	Rebecca Romanow
1/17/2022 2:17 PM	Commerce SWPPP Preparer Certification.pdf	Attachment	Rebecca Romanow

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

Project Site Information

Project/Site Name

321 Commerce, LLC

Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

321 Commerce, LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Kristin	L	Savard
First name	MI	Last Name

Kristin L. Savard, PE

Signature

01 - 17 - 2022

Date

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY | Department Environmen Conservatio

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: 321 Commerce, LLC

eNOI Submission Number: HP9-P8ER-D2S0M

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there a significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) busine days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledgir that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

Signature

Date

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix
Notice of Termination (NOT) For

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. ! All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. ! Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. ! Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? ! yes ! no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? ! yes ! no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? ! yes ! no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

! Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

! Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

! For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

! For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? ! yes ! no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix
Contractor Certification For

321 Commerce, LLC

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

CONTRACTOR'S CERTIFICATION STATEMENT

All contractors that will be responsible for installing, constructing, repairing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractors that will be responsible for the construction of all post-construction storm water management practices included in the SWPPP must sign the following certification statement before commencing any construction activity.

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

Site Location:_____

Name:_____

Company:_____**Title:**_____

Company Address:_____

_____

Company Telephone:_____ **Fax:**_____

Signature:_____**Date:**_____

Elements of SWPPP responsible for: _____

_____

Trained Individual Responsible for Implementation:_____

Title:_____

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

SUBCONTRACTOR'S CERTIFICATION STATEMENT

All subcontractors that will be responsible for installing, constructing, repairing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the subcontractors that will be responsible for the construction of all post-construction storm water management practices included in the SWPPP must sign the following certification statement before commencing any construction activity.

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

Site Location:_____

Name:_____

Company:_____**Title:**_____

Company Address:_____

_____

Company Telephone:_____ **Fax:**_____

Signature:_____**Date:**_____

Elements of SWPPP responsible for: _____

_____

Trained Individual Responsible for Implementation:_____

Title:_____

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix
NYSDEC Phase II SPDES Letter (folder for inser

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix C
Soil Erosion & Sediment Control Details an Specificatio

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR TEMPORARY CONSTRUCTION AREA SEEDING



Definition & Scope

Providing temporary erosion control protection to disturbed areas and/or localized critical areas for an interim period by covering all bare ground that exists as a result of construction activities or a natural event. Critical areas may include but are not limited to steep excavated cut or fill slopes and any disturbed, denuded natural slopes subject to erosion.

Conditions Where Practice Applies

Temporary seedings may be necessary on construction sites to protect an area, or section, where final grading is complete, when preparing for winter work shutdown, or to provide cover when permanent seedings are likely to fail due to mid-summer heat and drought. The intent is to provide temporary protective cover during temporary shutdown of construction and/or while waiting for optimal planting time.

Criteria

Water management practices must be installed as appropriate for site conditions. The area must be rough graded and slopes physically stable. Large debris and roc are usually removed. Seedbed must be seeded within 24 hours of disturbance or scarification of the soil surface wi be necessary prior to seeding.

Fertilizer or lime are not typically used for temporary seedings.

IF: Spring or summer or early fall, then seed the area witl ryegrass (annual or perennial) at 30 lbs. per acre (Approximately 0.7 lb./1000 sq. ft. or use 1 lb./1000 sq. ft

IF: Late fall or early winter, then seed Certified 'Aroostook' winter rye (cereal rye) at 100 lbs. per acre (2. lbs./1000 sq. ft.).

Any seeding method may be used that will provide unifor application of seed to the area and result in relatively gooc soil to seed contact.

Mulch the area with hay or straw at 2 tons/acre (approx. 9 lbs./1000 sq. ft. or 2 bales). Quality of hay or straw mulcl allowable will be determined based on long term use and visual concerns. Mulch anchoring will be required where wind or areas of concentrated water are of concern. Wooc fiber hydromulch or other sprayable products approved fo erosion control (nylon web or mesh) may be used if applie according to manufacturers' specification. Caution is advised when using nylon or other synthetic products. Th may be difficult to remove prior to final seeding and can b a hazard to young wildlife species.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR PERMANENT CONSTRUCTION AREA PLANTING



Definition & Scope

Establishing **permanent** grasses with other forbs and/or shrubs to provide a minimum 80% perennial vegetative cover on areas disturbed by construction and critical areas to reduce erosion and sediment transport. Critical areas may include but are not limited to steep excavated cut or fill slopes as well as eroding or denuded natural slopes and areas subject to erosion.

Conditions Where Practice Applies

This practice applies to all disturbed areas void of, or having insufficient, cover to prevent erosion and sediment transport. See additional standards for special situations such as sand dunes and sand and gravel pits.

Criteria

All water control measures will be installed as needed prior to final grading and seedbed preparation. Any severely compacted sections will require chiseling or disking to provide an adequate rooting zone, to a minimum depth of 12", see Soil Restoration Standard. The seedbed must be prepared to allow good soil to seed contact, with the soil not too soft and not too compact. Adequate soil moisture must be present to accomplish this. If surface is powder dry or sticky wet, postpone operations until moisture changes to a favorable condition. If seeding is accomplished within 24 hours of final grading, additional scarification is generally not needed, especially on ditch or stream banks. Remove all stones and other debris from the surface that are greater than 4 inches, or that will interfere with future mowing or maintenance.

Soil amendments should be incorporated into the upper 2 inches of soil when feasible. **The soil should be tested to determine the amounts of amendments needed.** Apply ground agricultural limestone to attain a pH of 6.0 in the upper 2 inches of soil. If soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 600 lbs. per acre of 5 -10 or equivalent. If manure is used, apply a quantity to meet the nutrients of the above fertilizer. This requires an appropriate manure analysis prior to applying to the site. Do not use manure on sites to be planted with birdsfoot trefoil or in the path of concentrated water flow.

Seed mixtures may vary depending on location within the state and time of seeding. Generally, warm season grasses should only be seeded during early spring, April to May. These grasses are primarily used for vegetating excessively drained sands and gravels. See Standard and Specification for Sand and Gravel Mine Reclamation. Other grasses may be seeded any time of the year when the soil is not frozen and is workable. When legumes such as birdsfoot trefoil are included, spring seeding is preferred. See Table 4.4, "Permanent Construction Area Planting Mixture Recommendations" for additional seed mixtures.

General Seed Mix:	Variety	lbs./ acre	lbs/100 sq. ft
Red Clover[1] OR	Acclaim, Rally, Red Head II, Renegade	8[2]	0.20
Common white clover[1]	Common	8	0.20
PLUS			
Creeping Red Fescue	Common	20	0.45
PLUS			
Smooth Bromegrass OR	Common	2	0.05
Ryegrass (perennial)	Pennfine/Linn	5	0.10

[1] add inoculant immediately prior to seeding
[2] Mix 4 lbs each of Empire and Pardee OR 4 lbs of Birdsfoot and 4 lbs white clover per acre. All seeding rat are given for Pure Live Seed (PLS)

Pure Live Seed, or (PLS) refers to the amount of live seed in a lot of bulk seed. Information on the seed bag label includes the type of seed, supplier, test date, source of see purity, and germination. Purity is the percentage of pure seed. Germination is the percentage of pure seed that wil produce normal plants when planted under favorable conditions.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

To compute Pure Live Seed multiply the "germination percent" times the "purity" and divide that by 100 to get Pure Live Seed.

$$\text{Pure Live Seed (PLS)} = \frac{\%\,\text{Germination} \times \%\,\text{Purity}}{100}$$

For example, the PLS for a lot of Kentucky Blue grass with 75% purity and 96% germination would be calculated as follows:

$$\frac{(96) \times (75)}{100} = 72\%\ \text{Pure Live Seed}$$

For 10lbs of PLS from this lot =

$$\frac{10}{0.72} = 13.9\ \text{lbs}$$

Therefore, 13.9 lbs of seed is the actual weight needed to meet 10lbs PSL from this specific seed lot.

Time of Seeding: The optimum timing for the general seed mixture is early spring. Permanent seedings may be made any time of year if properly mulched and adequate moisture is provided. Late June through early August is not a good time to seed, but may facilitate covering the land without additional disturbance if construction is completed. Portions of the seeding may fail due to drought and heat. These areas may need reseeding in late summer/fall or the following spring.

Method of seeding: Broadcasting, drilling, cultipack type seeding, or hydroseeding are acceptable methods. Proper soil to seed contact is key to successful seedings.

Mulching: Mulching is essential to obtain a uniform stand of seeded plants. Optimum benefits of mulching new seedings are obtained with the use of small grain straw applied at a rate of 2 tons per acre, and anchored with a netting or tackifier. See the Standard and Specifications for Mulching for choices and requirements.

Irrigation: Watering may be essential to establish a new seeding when a drought condition occurs shortly after a new seeding emerges. Irrigation is a specialized practice and care must be taken not to exceed the application rate for the soil or subsoil. When disconnecting irrigation pipe, be sure pipes are drained in a safe manor, not creating an erosion concern.



80% Perennial Vegetative Cover



50% Perennial Vegetative Cover

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Table 4.4
Permanent Construction Area Planting Mixture Recommendations

Seed Mixture	Variety	Rate in lbs./acre (PLS)	Rate in lbs./ 1, 000 ft^2
Mix #1			
Creeping red fescue	Ensylva, Pennlawn, Boreal	10	.25
Perennial ryegrass	Pennfine, Linn	10	.25
*This mix is used extensively for shaded areas.			
Mix #2			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	20	.50
*This rate is in pure live seed, this would be an excellent choice along the upland edge of a wetland to filter runoff and pr vide wildlife benefits. In areas where erosion may be a problem, a companion seeding of sand lovegrass should be added provide quick cover at a rate of 2 lbs. per acre (0.05 lbs. per 1000 sq. ft.).			
Mix #3			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	4	.10
Big bluestem	Niagara	4	.10
Little bluestem	Aldous or Camper	2	.05
Indiangrass	Rumsey	4	.10
Coastal panicgrass	Atlantic	2	.05
Sideoats grama	El Reno or Trailway	2	.05
Wildflower mix		.50	.01
*This mix has been successful on sand and gravel plantings. It is very difficult to seed without a warm season grass seede such as a Truax seed drill. Broadcasting this seed is very difficult due to the fluffy nature of some of the seed, such as bluestems and indiangrass.			
Mix #4			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	10	.25
Coastal panicgrass	Atlantic	10	.25
*This mix is salt tolerant, a good choice along the upland edge of tidal areas and roadsides.			
Mix #5			
Saltmeadow cordgrass (Spartina patens)—This grass is used for tidal shoreline protection and tidal marsh restoration. It i planted by vegetative stem divisions. 'Cape' American beachgrass can be planted for sand dune stabilization above the saltmeadow cordgrass zone.			
Mix #6			
Creeping red fescue	Ensylva, Pennlawn, Boreal	20	.45
Chewings Fescue	Common	20	.45
Perennial ryegrass	Pennfine, Linn	5	.10
Red Clover	Common	10	.45
*General purpose erosion control mix. Not to be used for a turf planting or play grounds.			

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR STABILIZED CONSTRUCTION ACCESS



Definition & Scope

A stabilized pad of aggregate underlain with geotextile located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk, or parking area. The purpose of stabilized construction access is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets.

Conditions Where Practice Applies

A stabilized construction access shall be used at all points of construction ingress and egress.

Design Criteria

See Figure 2.1 on page 2.31 for details.

Aggregate Size: Use a matrix of 1-4 inch stone, or reclaimed or recycled concrete equivalent.

Thickness: Not less than six (6) inches.

Width: 12-foot minimum but not less than the full width of points where ingress or egress occurs. 24-foot minimum if there is only one access to the site.

Length: As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).

Geotextile: To be placed over the entire area to be covered with aggregate. Filter cloth will not be required on a single-family residence lot. Piping of surface water under entrance shall be provided as required. If piping is impossible, a mountable berm with 5:1 slopes will be permitted.

Criteria for Geotextile: The geotextile shall be woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydro-carbons, mildew, rot resistant, and conform to the fabric properties shown:

Fabric Properties[3]	Light Duty[1] Roads Grade Subgrade	Heavy Duty[2] Haul Roads Rough Graded	Test Method
Grab Tensile Strength (lbs)	200	220	ASTM D1682
Elongation at Failure (%)	50	60	ASTM D1682
Mullen Burst Strength (lbs)	190	430	ASTM D3786
Puncture Strength (lbs)	40	125	ASTM D7 Modifie
Equivalent	40-80	40-80	US Std Sieve
Opening Size			CW-0221
Aggregate Depth	6	10	-

[1]Light Duty Road: Area sites that have been graded to subgrade and where most travel would be single axle vehicles and an occasional mul axle truck. Acceptable materials are Trevira Spunbond 1115, Mirafi 100X, Typar 3401, or equivalent.

[2]Heavy Duty Road: Area sites with only rough grading, and where mc travel would be multi-axle vehicles. Acceptable materials are Trevira Spunbond 1135, Mirafi 600X, or equivalent.

[3]Fabrics not meeting these specifications may be used only when desig procedure and supporting documentation are supplied to determine aggregate depth and fabric strength.

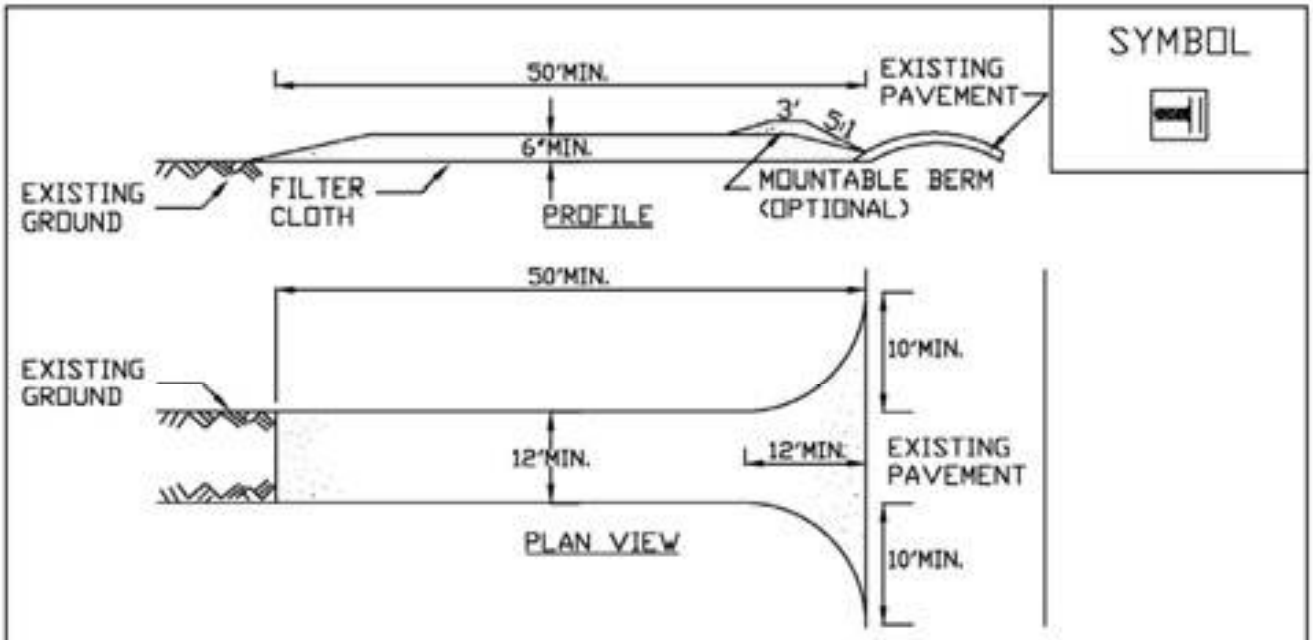
Maintenance

The access shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. This may require periodic top dressing with additional aggregate. All sediment spilled, dropped, or washed onto public rights-of-way must be removed immediately.

When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way. Wh washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device. All sediment shall be prevented from entering storm drains, ditches, or watercourses.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 2.1
Stabilized Construction Access



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STABILIZED CONSTRUCTION ACCESS

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR SILT FENCE



Definition & Scope

A **temporary** barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil by temporarily ponding the sediment laden runoff allowing settling to occur. The maximum period of use is limited by the ultraviolet stability of the fabric (approximately one year).

Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope length and fence length will not exceed the limits shown in the Design Criteria for the specific type of silt fence used ; and
2. Maximum ponding depth of 1.5 feet behind the fence; and
3. Erosion would occur in the form of sheet erosion; and
4. There is no concentration of water flowing to the barrier; and
5. Soil conditions allow for proper keying of fabric, or other anchorage, to prevent blowouts.

Design Criteria

1. Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff.
2. All silt fences shall be placed as close to the disturbed area as possible, but at least 10 feet from the toe of a slope steeper than 3H:1V, to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.
3. The type of silt fence specified for each location on tl plan shall not exceed the maximum slope length and maximum fence length requirements shown in the fol lowing table:

		Slope Length/Fence Length (ft.		
Slope	Steepness	Standard	Reinforced	Super
<2%	< 50:1	300/1500	N/A	N/A
2-10%	50:1 to 10:1	125/1000	250/2000	300/25(
10-20%	10:1 to 5:1	100/750	150/1000	200/10(
20-33%	5:1 to 3:1	60/500	80/750	100/10(
33-50%	3:1 to 2:1	40/250	70/350	100/50
>50%	> 2:1	20/125	30/175	50/25(

Standard Silt Fence (SF) is fabric rolls stapled to wood en stakes driven 16 inches in the ground.
Reinforced Silt Fence (RSF) is fabric placed against welded wire fabric with anchored steel posts driven 16 inches in the ground.
Super Silt Fence (SSF) is fabric placed against chain link fence as support backing with posts driven 3 feet in tl ground.

4. Silt fence shall be removed as soon as the disturbed area has achieved final stabilization.

The silt fence shall be installed in accordance with the appropriate details. Where ends of filter cloth come together they shall be overlapped, folded and stapled to prevent sec ment bypass. Butt joints are not acceptable. A detail of the silt fence shall be shown on the plan. See Figure 5.30 on page 5.56 for Reinforced Silt Fence as an example of deta to be provided.

Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approv authority. Such approval shall not constitute statewic acceptance.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	110	ASTM D 4632
Elongation at Failure (%)	20	ASTM D 4632
Mullen Burst Strength (PSI)	300	ASTM D 3786
Puncture Strength (lbs)	60	ASTM D 4833
Minimum Trapezoidal Tear Strength (lbs)	50	ASTM D 4533
Flow Through Rate (gal/min/sf)	25	ASTM D 4491
Equivalent Opening Size	40-80	US Std Sieve ASTM D 4751
Minimum UV Residual (%)	70	ASTM D 4355

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.5 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot. Posts for super silt fence shall be standard chain link fence posts.

3. Wire Fence for reinforced silt fence: Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.

4. Prefabricated silt fence is acceptable as long as all material specifications are met.

Reinforced Silt Fence

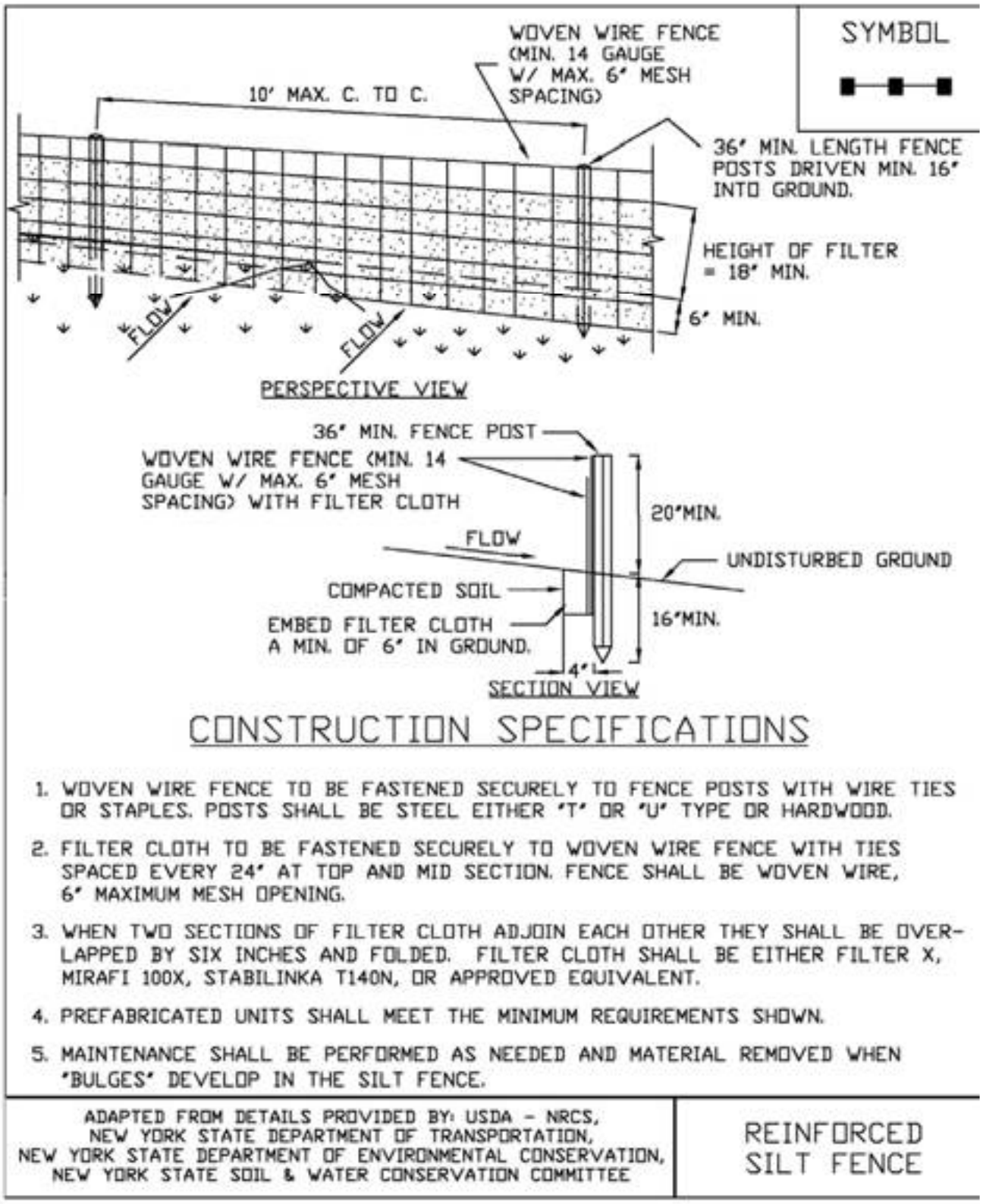


Super Silt Fence



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 5.30
Reinforced Silt Fence



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER 'T' OR 'U' TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL MEET THE MINIMUM REQUIREMENTS SHOWN.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

REINFORCED SILT FENCE

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR COMPOST FILTER SOCK



Definition & Scope

A **temporary** sediment control practice composed of a degradable geotextile mesh tube filled with compost filter media to filter sediment and other pollutants associated with construction activity to prevent their migration offsite.

Condition Where Practice Applies

Compost filter socks can be used in many construction site applications where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock. In areas with steep slopes and/or rocky terrain, soil conditions must be such that good continuous contact between the sock and the soil is maintained throughout its length. For use on impervious surfaces such as road pavement or parking areas, proper anchorage must be provided to prevent shifting of the sock or separation of the contact between the sock and the pavement. Compost filter socks are utilized both at the site perimeter as well as within the construction areas. These socks may be filled after placement by blowing compost into the tube pneumatically, or filled at a staging location and moved into its designed location.

Design Criteria

1. Compost filter socks will be placed on the contour with both terminal ends of the sock extended 8 feet upslope at a 45 degree angle to prevent bypass flow.

2. Diameters designed for use shall be 12" – 32" except that 8" diameter socks may be used for residential lots to control areas less than 0.25 acres.

3. The flat dimension of the sock shall be at least 1.5 times the nominal diameter.

4. The **Maximum Slope Length** (in feet) above a compost filter sock shall not exceed the following limits:

Dia. (in.)	Slope %						
	2	5	10	20	25	33	50
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50
* Length in feet							



5. The compost infill shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content. When using compost filter socks adjacent to surface water, the compost should have a low nutrient value.**

6. The compost filter sock fabric material shall meet the

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

7. Compost filter socks shall be anchored in earth with 2" x 2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock.

8. All specific construction details and material specifications shall appear on the erosion and sediment control constructions drawings when compost filter socks are included in the plan.

Maintenance

1. Traffic shall not be permitted to cross filter socks.

2. Accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

3. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired in the manner required by the manufacturer or replaced within 24 hours of inspection notification.

4. Biodegradable filter socks shall be replaced after 6 months; photodegradable filter socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.

5. Upon stabilization of the area contributory to the sock stakes shall be removed. The sock may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut and the compost spread as an additional mulch to act as a soil supplement.

Table 5.1 - Compost Sock Fabric Minimum Specifications Table

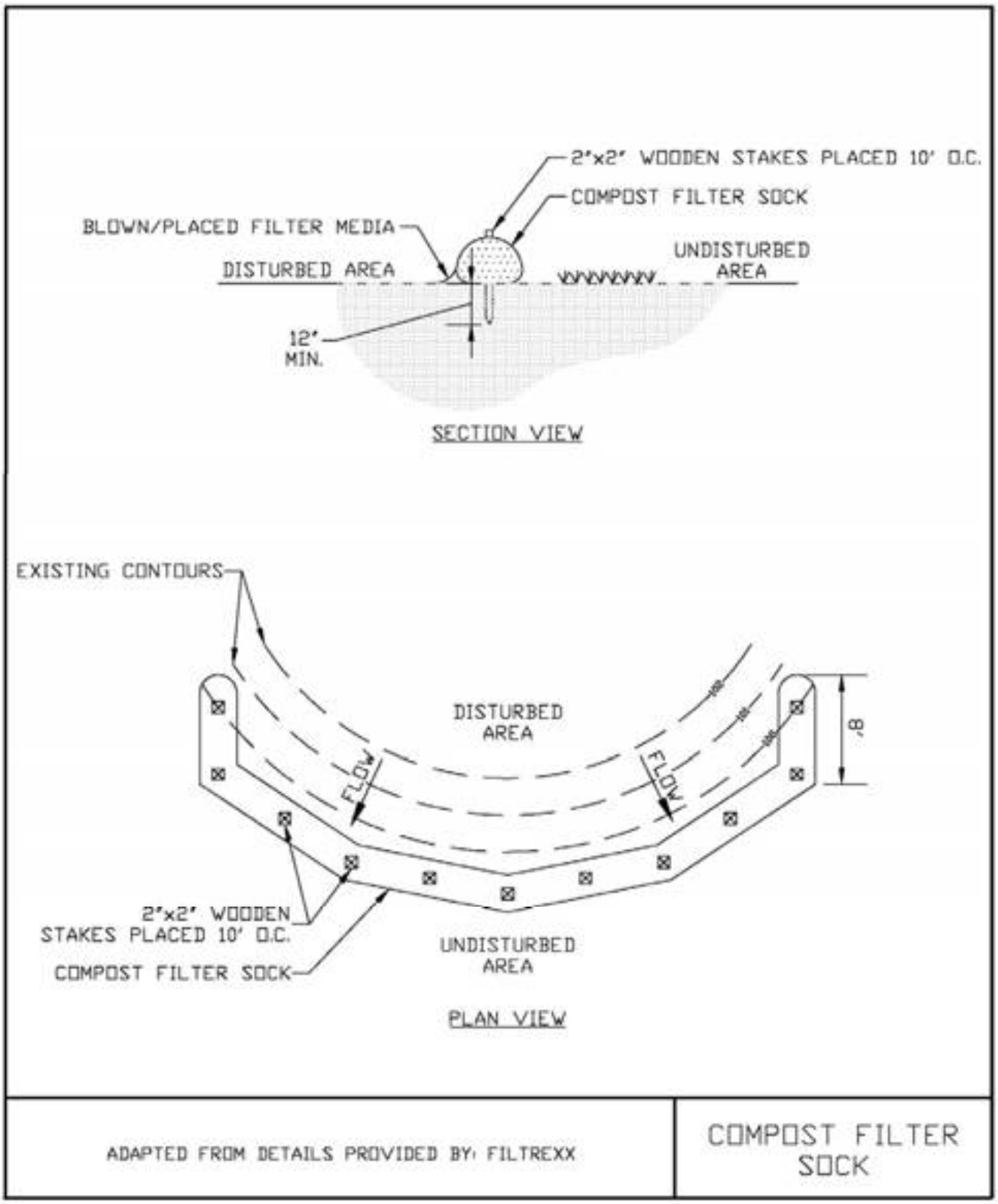
Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylen (HDMFPP)
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years

Table 5.2 - Compost Standards Table

Organic matter content	25% - 100% (dry weight)
Organic portion	Fibrous and elongated
pH	6.0 – 8.0
Moisture content	30% - 60%
Particle size	100% passing a 1" screen and 10 - 50% passing a 3/8" screen
Soluble salt concentration	5.0 dS/m (mmhos/cm) maximum

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 5.2
Compost Filter Sock



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR FIBER ROLL



Definition & Scope

A fiber roll is a coir (coconut fiber), straw, or excelsior roll encased in netting of jute, nylon, or burlap to dissipate energy along streambanks, channels, and bodies of water and to reduce sheet flow on slopes.

Conditions Where Practice Applies

Fiber rolls are used where the water surface levels are relatively constant. Artificially controlled streams for hydropower are not good candidates for this technique. The rolls provide a good medium for the introduction of herbaceous vegetation. Planting in the fiber roll is appropriate where the roll will remain continuously wet.

Design Criteria

1. The roll is placed in a shallow trench dug below baseflow or in a 4 inch trench on the slope contour and anchored by 2" x 2", 3-foot long posts driven on each side of the roll (see Figure 4.8).

2. The roll is contained by a 9-gauge non-galvanized wire placed over the roll from post to post. Braided nylon rope (1/8" thick) may be used.

3. The anchor posts shall be spaced laterally 4 feet on center on both sides of the roll and driven down to the top of the roll.

4. Soil is placed behind the roll and planted with suitable herbaceous or woody vegetation. If the roll will be continuously saturated, wetland plants may be planted into voids created in the upper surface of the roll.

5. Where water levels may fall below the bottom edge of the roll, a brush layer of willow should be installed so as to lay across the top edge of the roll.

6. Where fiber rolls are used to reduce sheet flow on slopes they should be at least 12" in diameter and spaced according to the straw bale dike standard for sediment control.

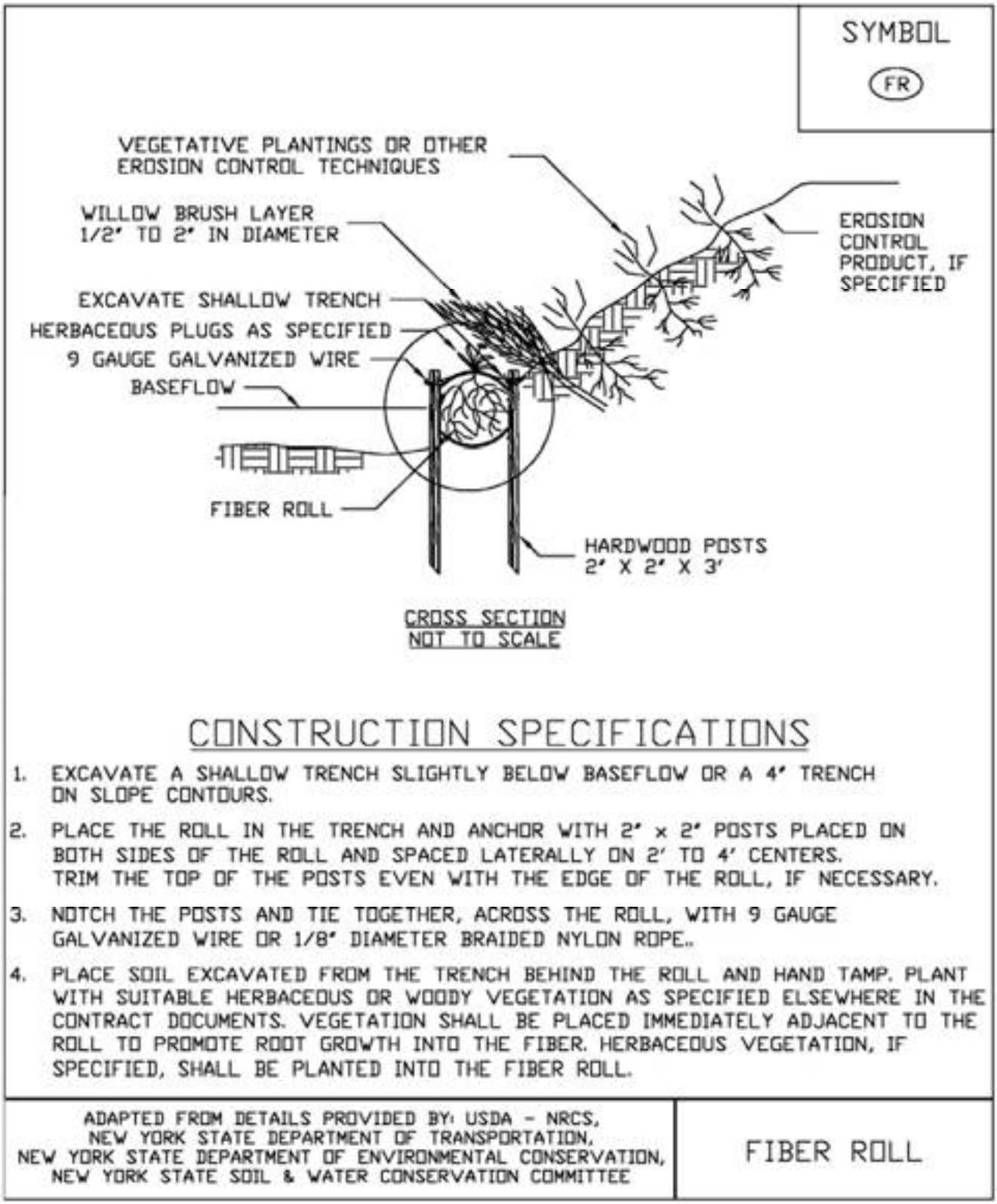
Maintenance

Due to the susceptibility of plant materials to the physical constraints of the site, climate conditions, and animal populations, it is necessary to inspect installations frequently. This is especially important during the first ye or two of establishment. Plant materials missing or damaged should be replaced as soon as possible. Sloughs or breaks in drainage pattern should be reestablished for tl site as quickly as possible to maintain stability.



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 4.8
Fiber Roll



CONSTRUCTION SPECIFICATIONS

1. EXCAVATE A SHALLOW TRENCH SLIGHTLY BELOW BASEFLOW OR A 4" TRENCH ON SLOPE CONTOURS.
2. PLACE THE ROLL IN THE TRENCH AND ANCHOR WITH 2" x 2" POSTS PLACED ON BOTH SIDES OF THE ROLL AND SPACED LATERALLY ON 2' TO 4' CENTERS. TRIM THE TOP OF THE POSTS EVEN WITH THE EDGE OF THE ROLL, IF NECESSARY.
3. NOTCH THE POSTS AND TIE TOGETHER, ACROSS THE ROLL, WITH 9 GAUGE GALVANIZED WIRE OR 1/8" DIAMETER BRAIDED NYLON ROPE..
4. PLACE SOIL EXCAVATED FROM THE TRENCH BEHIND THE ROLL AND HAND TAMP. PLANT WITH SUITABLE HERBACEOUS OR WOODY VEGETATION AS SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS. VEGETATION SHALL BE PLACED IMMEDIATELY ADJACENT TO THE ROLL TO PROMOTE ROOT GROWTH INTO THE FIBER. HERBACEOUS VEGETATION, IF SPECIFIED, SHALL BE PLANTED INTO THE FIBER ROLL.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

FIBER ROLL

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR CONCRETE TRUCK WASHOUT



Definition & Scope

A temporary excavated or above ground lined constructed pit where concrete truck mixers and equipment can be washed after their loads have been discharged, to prevent highly alkaline runoff from entering storm drainage systems or leaching into soil.

Conditions Where Practice Applies

Washout facilities shall be provided for every project where concrete will be poured or otherwise formed on the site. This facility will receive highly alkaline wash water from the cleaning of chutes, mixers, hoppers, vibrators, placing equipment, trowels, and screeds. Under no circumstances will wash water from these operations be allowed to infiltrate into the soil or enter surface waters.

Design Criteria

Capacity: The washout facility should be sized to contain solids, wash water, and rainfall and sized to allow for the evaporation of the wash water and rainfall. Wash water shall be estimated at 7 gallons per chute and 50 gallons per hopper of the concrete pump truck and/or discharging drum. The minimum size shall be 8 feet by 8 feet at the bottom and 2 feet deep. If excavated, the side slopes shall be 2 horizontal to 1 vertical.

Location: Locate the facility a minimum of 100 feet from drainage swales, storm drain inlets, wetlands, streams and other surface waters. Prevent surface water from entering the structure except for the access road. Provide appropriate access with a gravel access road sloped down to the structure. Signs shall be placed to direct drivers to the facility after their load is discharged.

Liner: All washout facilities will be lined to prevent leaching of liquids into the ground. The liner shall be plas sheeting with a minimum thickness of 10 mils with no hol or tears, and anchored beyond the top of the pit with an earthen berm, sand bags, stone, or other structural appurtenance except at the access point.

If pre-fabricated washouts are used they must ensure the capture and containment of the concrete wash and be sized based on the expected frequency of concrete pours. They shall be sited as noted in the location criteria.

Maintenance

- All concrete washout facilities shall be inspected daily. Damaged or leaking facilities shall be deactivated and repaired or replaced immediately. Excess rainwater tha has accumulated over hardened concrete should be pumped to a stabilized area, such as a grass filter strip.
- Accumulated hardened material shall be removed when 75% of the storage capacity of the structure is filled. A excess wash water shall be pumped into a containment vessel and properly disposed of off site.
- Dispose of the hardened material off-site in a construction/demolition landfill. On-site disposal may b allowed if this has been approved and accepted as part o the projects SWPPP. In that case, the material should be recycled as specified, or buried and covered with a minimum of 2 feet of clean compacted earthfill that is permanently stabilized to prevent erosion.
- The plastic liner shall be replaced with each cleaning of the washout facility.
- Inspect the project site frequently to ensure that no concrete discharges are taking place in non-designated areas.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR CHECK DAM



Definition & Scope

Small barriers or dams constructed of stone, bagged sand or gravel, or other durable materials across a drainageway to reduce erosion in a drainage channel by reducing the velocity of flow in the channel.

Conditions Where Practice Applies

This practice is used as a **temporary** and, in some cases, a **permanent** measure to limit erosion by reducing velocities in open channels that are degrading or subject to erosion or where permanent stabilization is impractical due to short period of usefulness and time constraints of construction.

Design Criteria

Drainage Area: Maximum drainage area above the check dam shall not exceed two (2) acres.

Height: Not greater than 2 feet. Center shall be maintained 9 inches lower than abutments at natural ground elevation.

Side Slopes: Shall be 2:1 or flatter.

Spacing: The check dams shall be spaced as necessary in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Therefore: $$S = \frac{h}{s}$$

Where: S = spacing interval (ft.)
h = height of check dam (ft.)
s = channel slope (ft./ft.)

Example:

For a channel with a 4% slope and 2 ft. high stone check dams they are spaced as follows: $$S = \frac{2\ \text{ft}}{0.04\ \frac{\text{ft}}{\text{ft}}} = 50\ \text{ft}$$

For stone check dams: Use a well graded stone matrix 2 to 9 inches in size (NYS – DOT Light Stone Fill meets these requirements).

The overflow of the check dams will be stabilized to resis erosion that might be caused by the check dam. See Figu 3.1 on page 3.3 for details.

Check dams should be anchored in the channel by a cutof trench 1.5 ft. wide and 0.5 ft. deep and lined with filter fal ric to prevent soil migration.

For filter sock or fiber roll check dams: The check dan will be anchored by staking the dam to the earth contact surface. The dam will extend to the top of the bank. The check dam will have a splash apron of NYS DOT #2 crushed stone extending a minimum 3 feet downstream from the dam and 1 foot up the sides of the channel. The compost and materials for a filter sock check dam shall meet the requirements shown in the standard for Compost Filter Sock on page 5.7.

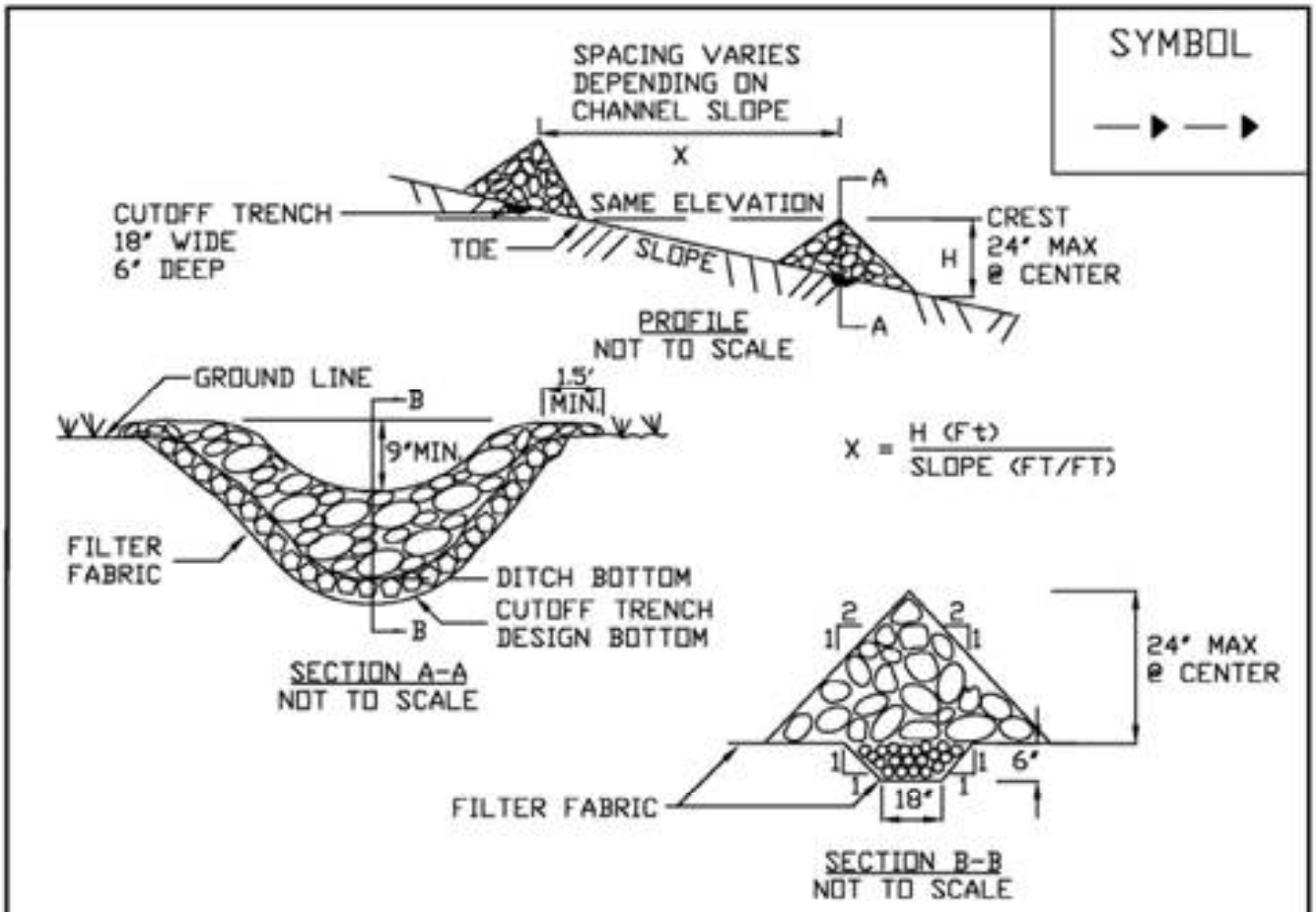
Maintenance

The check dams should be inspected after each runoff event. Correct all damage immediately. If significant ero sion has occurred between structures, a liner of stone or other suitable material should be installed in that portion c the channel or additional check dams added.

Remove sediment accumulated behind the dam as needed allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 3.1
Stone Check Dam Detail



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE CHECK DAM

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR DEWATERING SUMP PIT



Discharge of turbid water pumped from the standpipe should be to a sediment trap, sediment basin, filter bag or stabilized area, such as a filter strip. If water from the sump pit will be pumped directly to a storm drain system, filter cloth with an equivalent sieve size between 40-80 should be wrapped around the standpipe to ensure clean water discharge. It is recommended that ¼ to ½ inch hardware cloth be wrapped around and secured to the standpipe prior to attaching the filter cloth. This will increase the rate of water seepage into the standpipe.

Definition & Scope

A **temporary** pit which is constructed using pipe and stone for pumping excessive water from excavations to a suitable discharge area.



Conditions Where Practice Applies

Sump pits are constructed when water collects during the excavation phase of construction. This practice is particularly useful in urban areas during excavation for building foundations. It may also be necessary during construction activities that encounter high ground water tables in floodplain locations.

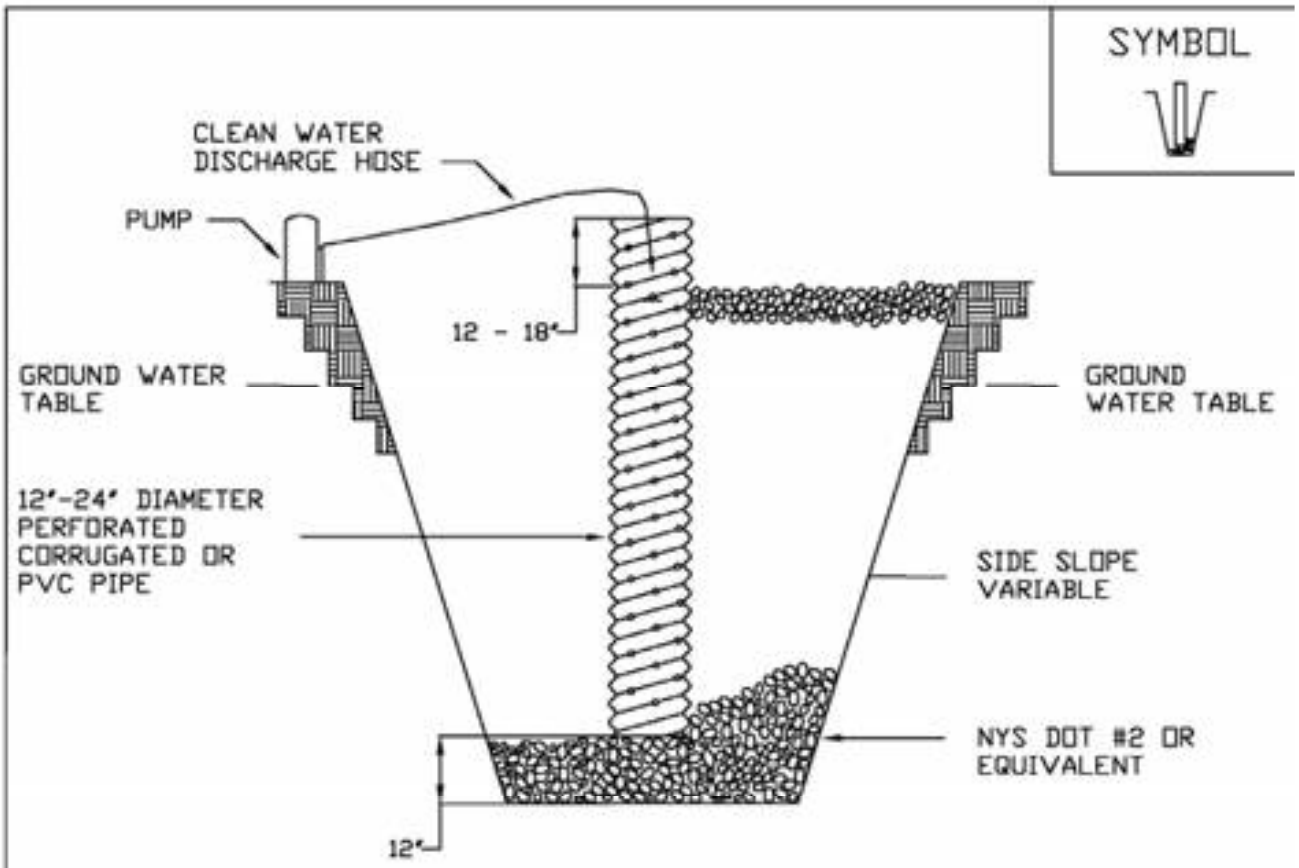
Design Criteria

The number of sump pits and their locations shall be determined by the contractor/engineer. A design is not required, but construction should conform to the general criteria outlined on Figure 3.3 on page 3.8.

A perforated vertical standpipe is placed in the center of the pit and surrounded with a stone screening material to collect filtered water. Water is then pumped from the center of the pipe to a suitable discharge area.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 3.3
Dewatering Sump Pit Detail



CONSTRUCTION SPECIFICATIONS

1. PIT DIMENSIONS ARE VARIABLE.
2. THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12-24" DIAMETER CORRUGATED OR PVC PIPE.
3. A BASE OF NYS DOT #2 OR EQUIVALENT AGGREGATE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD BE BACKFILLED WITH NYS DOT #2 OR EQUIVALENT AGGREGATE.
4. THE STANDPIPE SHOULD EXTEND 12-18" ABOVE THE LIP OF THE PIT.
5. IF DISCHARGE WILL BE PUMPED DIRECTLY TO A STORM DRAINAGE SYSTEM, THE STANDPIPE SHOULD BE WRAPPED WITH FILTERCLOTH BEFORE INSTALLATION. IT IS RECOMMENDED THAT 1/4"-1/2" HARDWARE CLOTH MAY BE PLACED AROUND THE STANDPIPE, PRIOR TO ATTACHING THE FILTERCLOTH.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	DEWATERING SUMP PIT

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR DUST CONTROL



Definition & Scope

The control of dust resulting from land-disturbing activities, to prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

Conditions Where Practice Applies

On construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing where off-site damage may occur if dust is not controlled.

Design Criteria

Construction operations should be scheduled to minimize the amount of area disturbed at one time. Buffer areas of vegetation should be left where practical. Temporary or permanent stabilization measures shall be installed. No specific design criteria is given; see construction specifications below for common methods of dust control.

Water quality must be considered when materials are selected for dust control. Where there is a potential for the material to wash off to a stream, ingredient information must be provided to the NYSDEC.

No polymer application shall take place without written approval from the NYSDEC.

Construction Specifications

A. **Non-driving Areas** – These areas use products and materials applied or placed on soil surfaces to prevent airborne migration of soil particles.

Vegetative Cover – For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control (see Section 3).

Mulch (including gravel mulch) – Mulch offers a fast effective means of controlling dust. This can also include rolled erosion control blankets.

Spray adhesives – These are products generally composed of polymers in a liquid or solid form that are mixed with water to form an emulsion that is sprayed on the soil surface with typical hydroseeding equipment. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. In no case should the application of these adhesives be made on wet soils or if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators and others working with the material.

B. **Driving Areas** – These areas utilize water, polymer emulsions, and barriers to prevent dust movement from the traffic surface into the air.

Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access route to provide short term limited dust control.

Polymer Additives – These polymers are mixed with water and applied to the driving surface by a water truck with a gravity feed drip bar, spray bar or automated distributor truck. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations. Incorporation of the emulsion into the soil will be done to the appropriate depth based on expected traffic. Compaction after incorporation will be by vibratory roller to a minimum of 95%. The prepared surface shall be moist and no application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators working with the material.

Barriers – Woven geo-textiles can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads. Stone can also be used for construction roads for effective dust control.

Windbreak – A silt fence or similar barrier can control air currents at intervals equal to ten times the barrier height. Preserve existing wind barrier vegetation as much as practical.

Maintenance

Maintain dust control measures through dry weather periods until all disturbed areas are stabilized.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR GRASSED WATERWAY



Definition & Scope

A natural or **permanent** man-made channel of parabolic or trapezoidal cross-section that is below adjacent ground level and is stabilized by suitable vegetation. The flow channel is normally wide and shallow and conveys the runoff down the slope without causing damage by erosion.

Conditions Where Practice Applies

Grass waterways are used where added vegetative protection is needed to control erosion resulting from concentrated runoff.

Design Criteria

Capacity

The minimum capacity shall be that required to confine the peak rate of runoff expected from a 10-year 24 hour frequency rainfall event or a higher frequency corresponding to the hazard involved. This requirement for confinement may be waived on slopes of less than one (1) percent where out-of-bank flow will not cause erosion or property damage.

Peak rates of runoff values used in determining the capacity requirements shall be computed by appropriate methods. Where there is base flow, it shall be handled by a stone center, subsurface drain, or other suitable means since sustained wetness usually prevents adequate vegetative cover. The cross-sectional area of the stone center or subsurface drain size to be provided shall be determined by using a flow rate of 0.1 cfs/acre or by actual measurement of the maximum base flow.

Velocity

Please see Table 3.1, Diversion Maximum Permissible Design Velocities on page 3.10, for seed, soil, and velocity variables.

Cross Section

The design water surface elevation of a grassed waterway receiving water from diversions or other tributary channels shall be equal to or less than the design water surface elevation in the diversion or other tributary channels.

The top width of parabolic waterways shall not exceed 30 feet and the bottom width of trapezoidal waterways shall not exceed 15 feet unless multiple or divided waterways, stone center, or other means are provided to control meandering of low flows.

Structural Measures

In cases where grade or erosion problems exist, special control measures may be needed such as lined waterways (see page 3.27), or grade stabilization measures (see page 3.21). Where needed, these measures will be supported by adequate design computations. For typical cross sections of waterways with riprap sections or stone centers, refer to Figure 3.8 on page 3.24.

The design procedures for parabolic and trapezoidal channels are available in the NRCS Engineering Field Handbook. Figure 3.9 on page 3.25 also provides a design chart for parabolic waterway.

Outlets

Each waterway shall have a stable outlet. The outlet may be another waterway, a stabilized open channel, grade stabilization structure, etc. In all cases, the outlet must discharge in such a manner as not to cause erosion. Outlets shall be constructed and stabilized prior to the operation of the waterway.

Stabilization

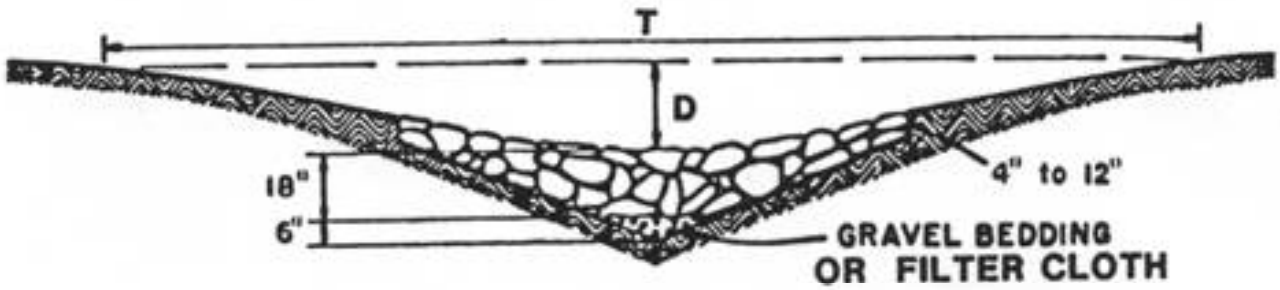
Waterways shall be stabilized in accordance with the appropriate vegetative stabilization standard and specifications, and will be dependent on such factors as slope, soil class, etc. See standard for Vegetating Waterways on Page 4.78.

Construction Specifications

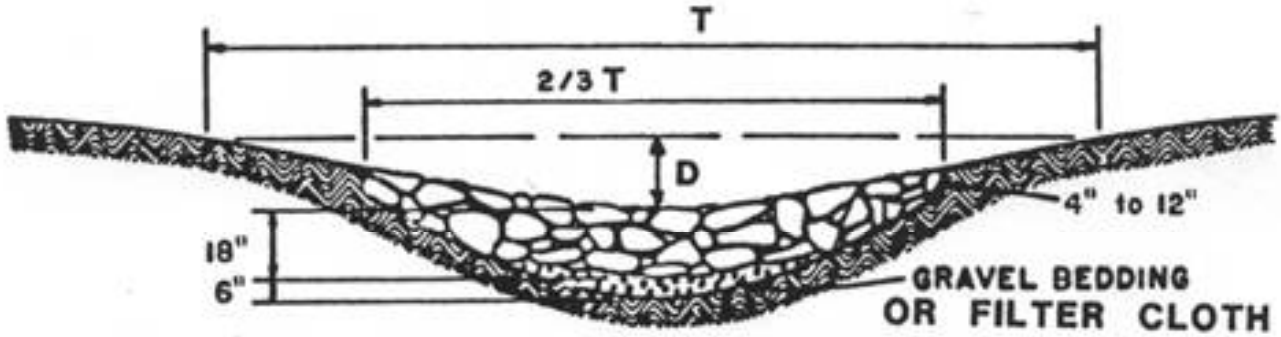
See Figure 3.10 on page 3.26 for details.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 3.8
Typical Waterway Cross Sections Details



Waterway with stone center drain. "V" section shaped by motor grader.



Waterway with stone center drain. Rounded section shaped by bulldozer.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 3.9
Parabolic Waterway Design Chart (USDA - NRCS)

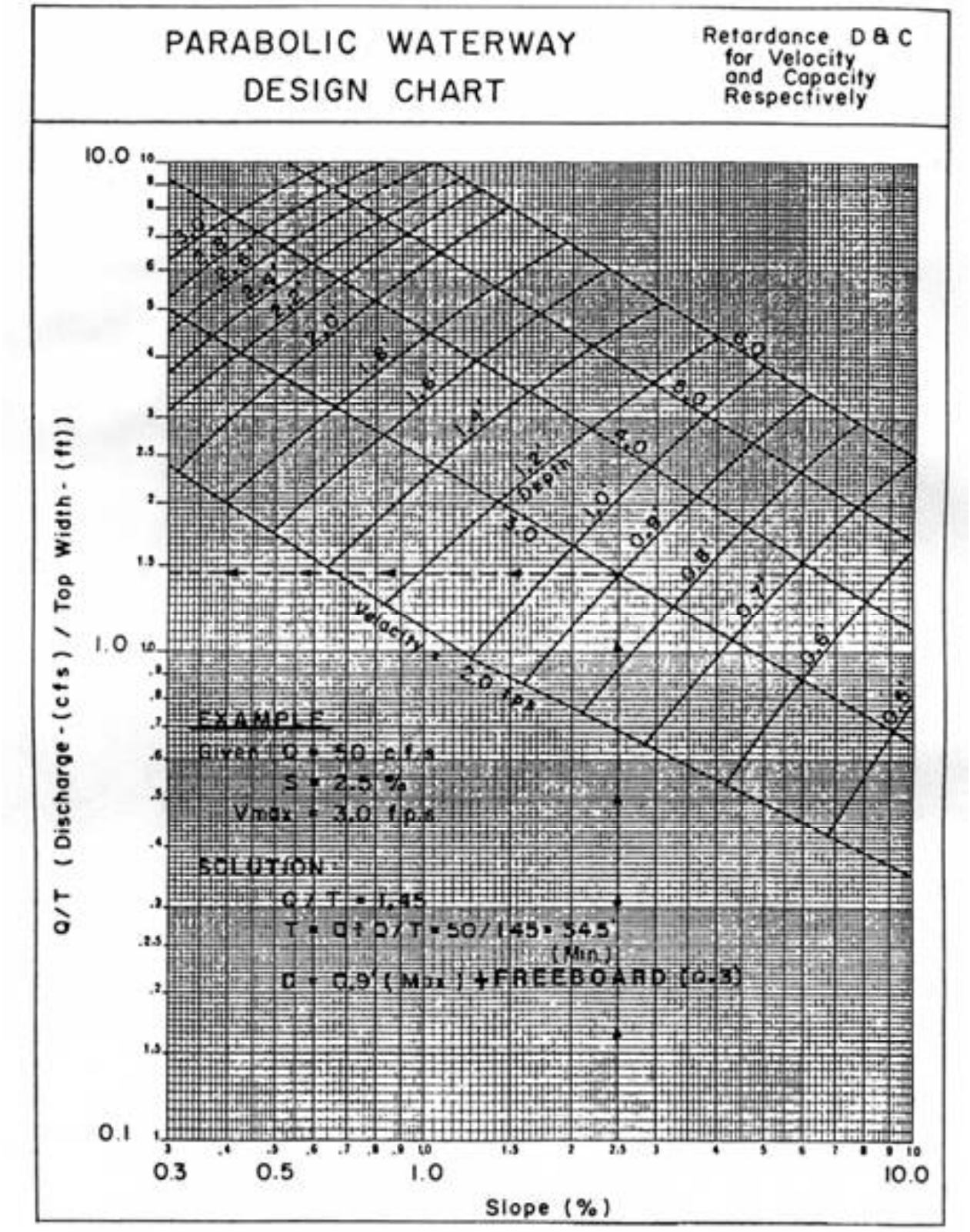


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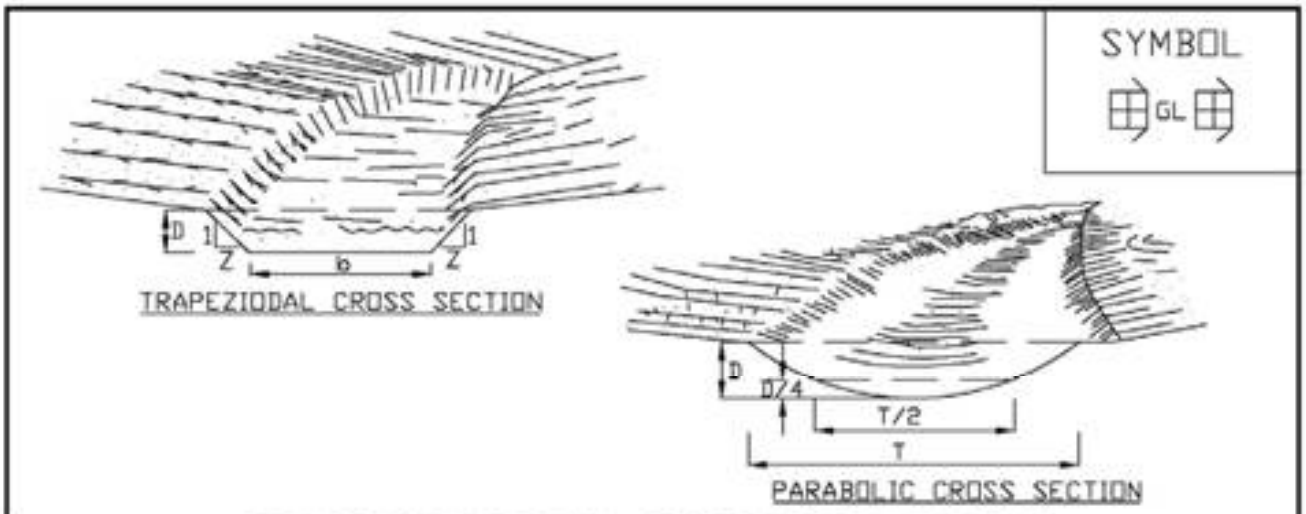
Figure 3.10
Grassed Waterway Detail



CONSTRUCTION SPECIFICATIONS

1. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE WATERWAY.
2. THE WATERWAY SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN, AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
3. FILLS SHALL BE COMPACTED AS NEEDED TO PREVENT UNEQUAL SETTLEMENT THAT WOULD CAUSE DAMAGE IN THE COMPLETE WATERWAY.
4. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE WATERWAY.
5. STABILIZATION SHALL BE DONE ACCORDING TO THE APPROPRIATE STANDARD AND SPECIFICATIONS FOR VEGETATIVE PRACTICES.
   - A. FOR DESIGN VELOCITIES OF LESS THAN 3.5 FT. PER. SEC., SEEDING AND MULCHING MAY BE USED FOR THE ESTABLISHMENT OF THE VEGETATION. IT IS RECOMMENDED THAT, WHEN CONDITIONS PERMIT, TEMPORARY WATERWAYS OR OTHER MEANS SHOULD BE USED TO PREVENT WATER FROM ENTERING THE WATERWAY DURING THE ESTABLISHMENT OF THE VEGETATION.
   - B. FOR DESIGN VELOCITIES OF MORE THAN 3.5 FT. PER. SEC., THE WATERWAY SHALL BE STABILIZED WITH SOD, WITH SEEDING PROTECTED BY JUTE OR EXCELSIOR MATTING OR WITH SEEDING AND MULCHING INCLUDING TEMPORARY DIVERSION OF THE WATER UNTIL THE VEGETATION IS ESTABLISHED.
   - C. STRUCTURAL - VEGETATIVE PROTECTION
     SUBSURFACE DRAIN FOR BASE FLOW SHALL BE CONSTRUCTED AS SHOWN ON THE STANDARD DRAWING AND AS SPECIFIED IN THE STANDARD AND SPECIFICATIONS FOR SUBSURFACE DRAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	GRASSED WATERWAY

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR STORM DRAIN INLET PROTECTION



Definition & Scope

A **temporary** barrier with low permeability, installed around inlets in the form of a fence, berm or excavation around an opening, detaining water and thereby reducing the sediment content of sediment laden water by settling thus preventing heavily sediment laden water from entering a storm drain system.

Conditions Where Practice Applies

This practice shall be used where the drainage area to an inlet is disturbed, it is not possible to temporarily divert the storm drain outfall into a trapping device, and watertight blocking of inlets is not advisable. **It is not to be used in place of sediment trapping devices.** This practice shall be used with an upstream buffer strip if placed at a storm drain inlet on a paved surface. It may be used in conjunction with storm drain diversion to help prevent siltation of pipes installed with low slope angle.

Types of Storm Drain Inlet Practices

There are five (5) specific types of storm drain inlet protection practices that vary according to their function, location, drainage area, and availability of materials:

I. Excavated Drop Inlet Protection
II. Fabric Drop Inlet Protection
III. Stone & Block Drop Inlet Protection
IV. Paved Surface Inlet Protection
V. Manufactured Insert Inlet Protection

Design Criteria

Drainage Area – The drainage area for storm drain inlets shall not exceed one acre. Erosion control/temporary stabilization measures must be implemented on the disturbed drainage area tributary to the inlet. The crest elevations of these practices shall provide storage and minimize bypass flow.

Type I – Excavated Drop Inlet Protection

This practice is generally used during initial overlot grading after the storm drain trunk line is installed.

Limit the drainage area to the inlet device to 1 acre. Excavated side slopes shall be no steeper than 2:1. The minimum depth shall be 1 foot and the maximum depth 2 feet as measured from the crest of the inlet structure. Shape the excavated basin to fit conditions with the longest dimension oriented toward the longest inflow area to provide maximum trap efficiency. The capacity of the excavated basin should be established to contain 900 cubic feet per acre of disturbed area. Weep holes, protected by fabric and stone, should be provided for draining the temporary pool.

Inspect and clean the excavated basin after every storm. Sediment should be removed when 50 percent of the storage volume is achieved This material should be incorporated into the site in a stabilized manner.

Type II – Fabric Drop Inlet Protection



This practice is generally used during final elevation grading phases after the storm drain system is completed.

Limit the drainage area to 1 acre per inlet device. Land area slope immediately surrounding this device should not exceed 1 percent. The maximum height of the fabric above the inlet crest shall not exceed 1.5 feet unless reinforced.

The top of the barrier should be maintained to allow overflow to drop into the drop inlet and not bypass the inlet to

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

unprotected lower areas. Support stakes for fabric shall be a minimum of 3 feet long, spaced a maximum 3 feet apart. They should be driven close to the inlet so any overflow drops into the inlet and not on the unprotected soil. Improved performance and sediment storage volume can be obtained by excavating the area.

Inspect the fabric barrier after each rain event and make repairs as needed. Remove sediment from the pool area as necessary with care not to undercut or damage the filter fabric. Upon stabilization of the drainage area, remove all materials and unstable sediment and dispose of properly. Bring the adjacent area of the drop inlet to grade, smooth and compact and stabilize in the appropriate manner to the site.

Type III – Stone and Block Drop Inlet Protection

This practice is generally used during the initial and intermediate overlot grading of a construction site.

Limit the drainage area to 1 acre at the drop inlet. The stone barrier should have a minimum height of 1 foot and a maximum height of 2 feet. Do not use mortar. The height should be limited to prevent excess ponding and bypass flow.

Recess the first course of blocks at least 2 inches below the crest opening of the storm drain for lateral support. Subsequent courses can be supported laterally if needed by placing a 2x4 inch wood stud through the block openings perpendicular to the course. The bottom row should have a few blocks oriented so flow can drain through the block to dewater the basin area.

The stone should be placed just below the top of the blocks on slopes of 2:1 or flatter. Place hardware cloth of wire mesh with ½ inch openings over all block openings to hold stone in place.

As an optional design, the concrete blocks may be omitted and the entire structure constructed of stone, ringing the outlet ("doughnut"). The stone should be kept at a 3:1 slope toward the inlet to keep it from being washed into the inlet. A level area 1 foot wide and four inches below the crest will further prevent wash. Stone on the slope toward the inlet should be at least 3 inches in size for stability and 1 inch or smaller away from the inlet to control flow rate. The elevation of the top of the stone crest must be maintained 6 inches lower than the ground elevation down slope from the inlet to ensure that all storm flows pass over the stone into the storm drain and not past the structure. Temporary diking should be used as necessary to prevent bypass flow.

The barrier should be inspected after each rain event and repairs made where needed. Remove sediment as necessary to provide for accurate storage volume for subsequent rains. Upon stabilization of contributing drainage area, remove all materials and any unstable soil and dispose of properly.

Bring the disturbed area to proper grade, smooth, compact and stabilize in a manner appropriate to the site.

Type IV – Paved Surface Inlet Protection



This practice is generally used after pavement construction has been done while final grading and soil stabilization is occurring. These practices should be used with upstream buffer strips in linear construction applications, and with temporary surface stabilization for overlot areas, to reduce the sediment load at the practice. This practice includes sand bags, compost filter socks, geo-tubes filled with ballast, and manufactured surface barriers. Pea gravel can also be used in conjunction with these practices to improve performance. When the inlet is not at a low point, and is offset from the pavement or gutter line, protection should be selected and installed so that flows are not diverted around the inlet.



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

The drainage area should be limited to 1 acre at the drain inlet. All practices will be placed at the inlet perimeter or beyond to maximize the flow capacity of the inlet. Practices shall be weighted, braced, tied, or otherwise anchored to prevent movement or shifting of location on paved surfaces. Traffic safety shall be integrated with the use of this practice. All practices should be marked with traffic safety cones as appropriate. Structure height shall not cause flooding or by-pass flow that would cause additional erosion.

The structure should be inspected after every storm event. Any sediment should be removed and disposed of on the site. Any broken or damaged components should be replaced. Check all materials for proper anchorage and secure as necessary.

Type V - Manufactured Insert Inlet Protection



The drainage area shall be limited to 1 acre at the drain inlet. All inserts will be installed and anchored in accordance with the manufacturers recommendations and design details. The fabric portion of the structure will equal or exceed the performance standard for the silt fence fabric. The inserts will be installed to preserve a minimum of 50 percent of the open, unobstructed design flow area of the storm drain inlet opening to maintain capacity for storm events.

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Figure 5.31
Excavated Drop Inlet Protection

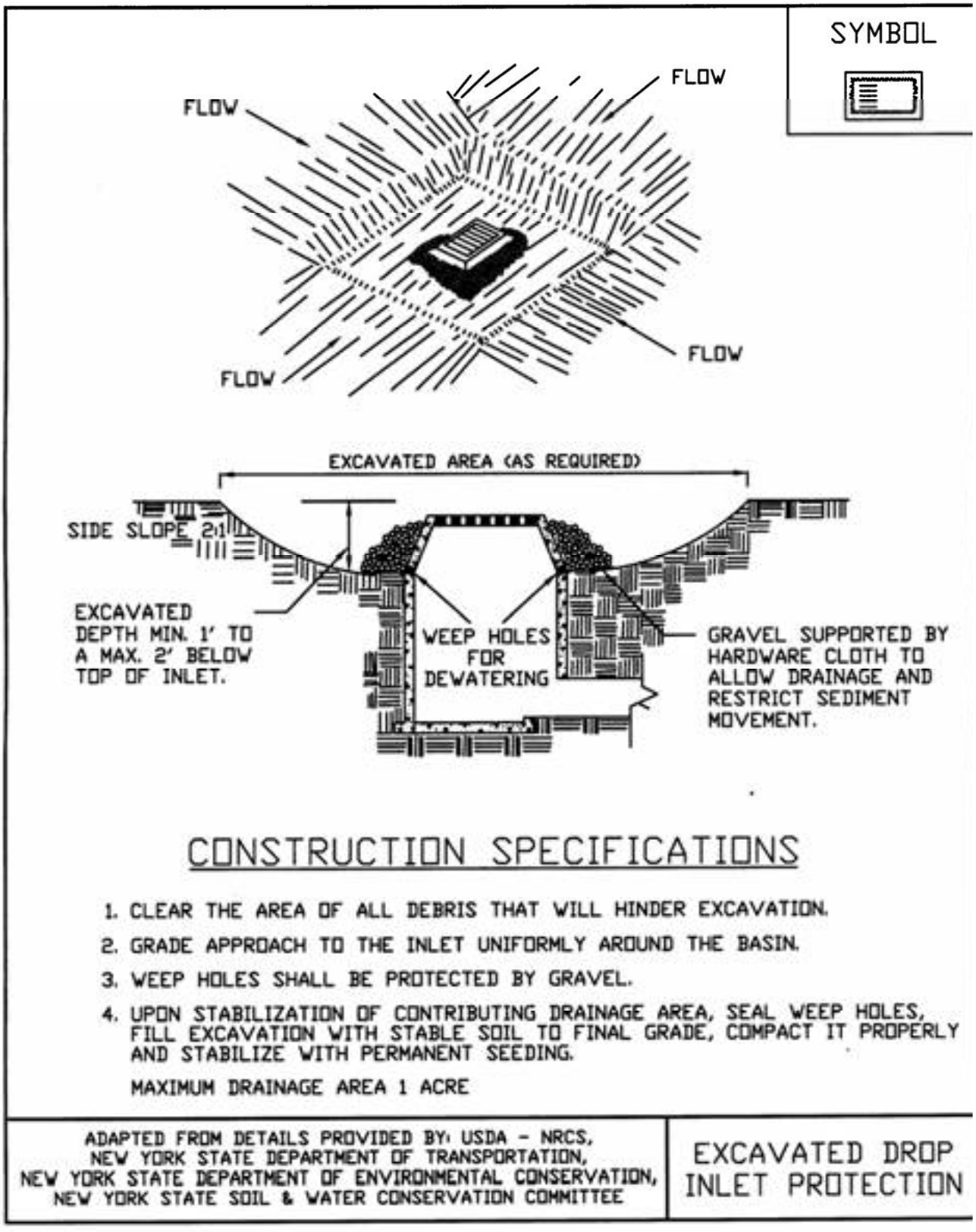

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Figure 5.32
Fabric Drop Inlet Protection

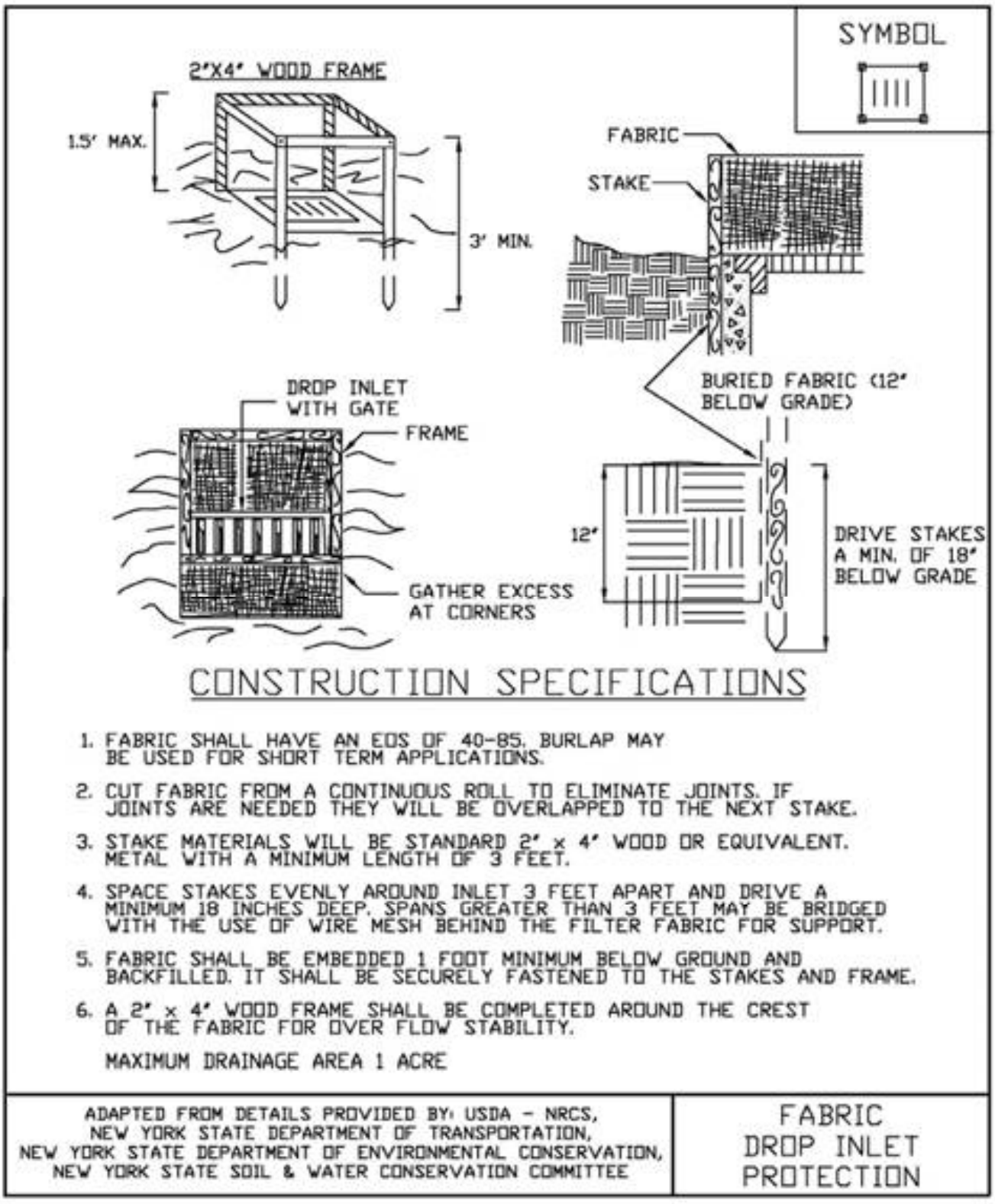

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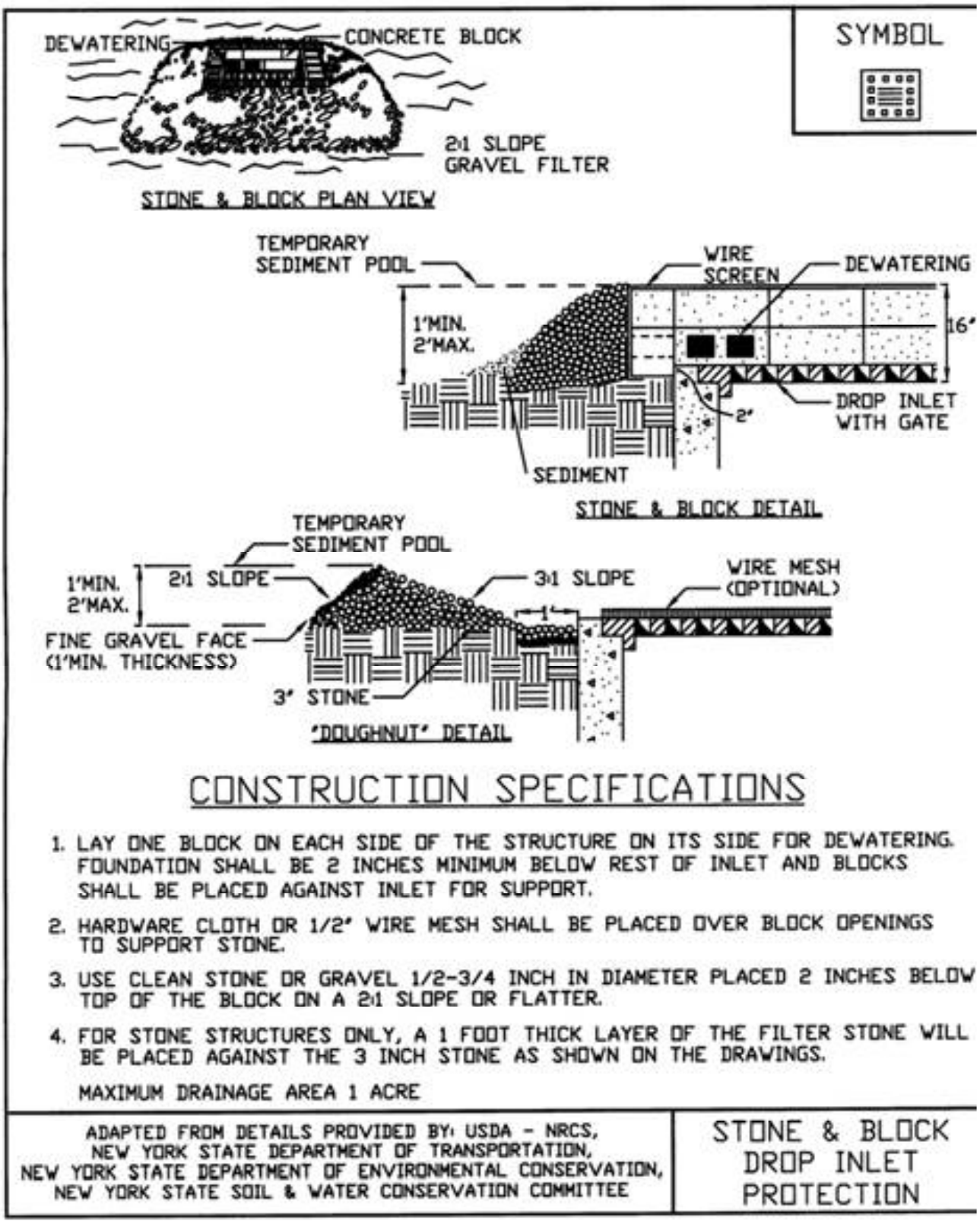
Figure 5.33
Stone & Block Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE & BLOCK DROP INLET PROTECTION

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR LANDGRADING



Definition & Scope

Permanent reshaping of the existing land surface by grading in accordance with an engineering topographic plan and specification to provide for erosion control and vegetative establishment on disturbed, reshaped areas.

Design Criteria

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surrounding to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measures for drainage and water removal, and vegetative treatment, etc.

Many municipalities and counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they shall be followed.

The plan must show existing and proposed contours of the area(s) to be graded. The plan shall also include practices for erosion control, slope stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slope benches (include grade and cross section), grade stabilization structures, retaining walls, and surface and subsurface drains. The plan shall also include phasing of these practices. The following shall be incorporated into the plan:

1. Provisions shall be made to safely convey surface runoff to storm drains, protected outlets, or to stable water courses to ensure that surface runoff will not damage slopes or other graded areas; see standards ar specifications for Grassed Waterway, Diversion, or Grade Stabilization Structure.

2. Cut and fill slopes that are to be stabilized with grasse shall not be steeper than 2:1. When slopes exceed 2:1 special design and stabilization consideration are required and shall be adequately shown on the plans. (Note: Where the slope is to be mowed, the slope should be no steeper than 3:1, although 4:1 is preferre because of safety factors related to mowing steep slopes.)

3. Reverse slope benches or diversion shall be provided whenever the vertical interval (height) of any 2:1 slop exceeds 20 feet; for 3:1 slope it shall be increased to 3 feet and for 4:1 to 40 feet. Benches shall be located t divide the slope face as equally as possible and shall convey the water to a stable outlet. Soils, seeps, rock outcrops, etc., shall also be taken into consideration when designing benches.

   A. Benches shall be a minimum of six feet wide to provide for ease of maintenance.

   B. Benches shall be designed with a reverse slope o 6:1 or flatter to the toe of the upper slope and wit a minimum of one foot in depth. Bench gradient the outlet shall be between 2 percent and 3 perce unless accompanied by appropriate design and computations.

   C. The flow length within a bench shall not exceed 800 feet unless accompanied by appropriate desig and computations; see Standard and Specificatio for Diversion on page 3.9

4. Surface water shall be diverted from the face of all cu and/or fill slopes by the use of diversions, ditches and swales or conveyed downslope by the use of a design structure, except where:

   A. The face of the slope is or shall be stabilized and the face of all graded slopes shall be protected from surface runoff until they are stabilized.

   B. The face of the slope shall not be subject to any concentrated flows of surface water such as from natural drainage ways, graded ditches, downspou etc.

   C. The face of the slope will be protected by anchor stabilization matting, sod, gravel, riprap, or other stabilization method.

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5. Cut slopes occurring in ripable rock shall be serrated as shown in Figure 4.9 on page 4.26. The serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps cut at nominal two-foot intervals with nominal three-foot horizontal shelves. These steps will vary depending on the slope ratio or the cut slope. The nominal slope line is 1 ½: 1. These steps will weather and act to hold moisture, lime, fertilizer, and seed thus producing a much quicker and longer-lived vegetative cover and better slope stabilization. Overland flow shall be diverted from the top of all serrated cut slopes and carried to a suitable outlet.

6. Subsurface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.

7. Slopes shall not be created so close to property lines as to endanger adjoining properties without adequately protecting such properties against sedimentation, erosion, slippage, settlement, subsidence, or other related damages.

8. Fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tampers or over eight (8) inches in diameter where compacted by rollers or other equipment. Frozen material shall not be placed in the fill nor shall the fill material be placed on a frozen foundation.

9. Stockpiles, borrow areas, and spoil shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.

10. All disturbed areas shall be stabilized structurally or vegetatively in compliance with the Permanent Construction Area Planting Standard on page 4.42.

Construction Specifications

See Figures 4.9 and 4.10 for details.

1. All graded or disturbed areas, including slopes, shall be protected during clearing and construction in accordance with the erosion and sediment control plan until they are adequately stabilized.

2. All erosion and sediment control practices and measures shall be constructed, applied and maintained in accordance with the erosion and sediment control plan and these standards.

3. Topsoil required for the establishment of vegetation shall be stockpiled in amount necessary to complete finished grading of all exposed areas.

4. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, or other objectionable material.

5. Areas that are to be topsoiled shall be scarified to a minimum depth of four inches prior to placement of topsoil.

6. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence, or other related problems. Fill intended to support buildings, structures, and conduits, etc., shall be compacted in accordance with local requirements or codes.

7. All fill shall be placed and compacted in layers not to exceed 9 inches in thickness.

8. Except for approved landfills or nonstructural fills, fill material shall be free of frozen particles, brush, roots, sod, or other foreign objectionable materials that would interfere with, or prevent, construction of satisfactory fills.

9. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills.

10. Fill shall not be placed on saturated or frozen surfaces.

11. All benches shall be kept free of sediment during all phases of development.

12. Seeps or springs encountered during construction shall be handled in accordance with the Standard and Specification for Subsurface Drain on page 3.48 or other approved methods.

13. All graded areas shall be permanently stabilized immediately following finished grading.

14. Stockpiles, borrow areas, and spoil areas shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.



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Figure 4.9
Typical Section of Serrated Cut Slope

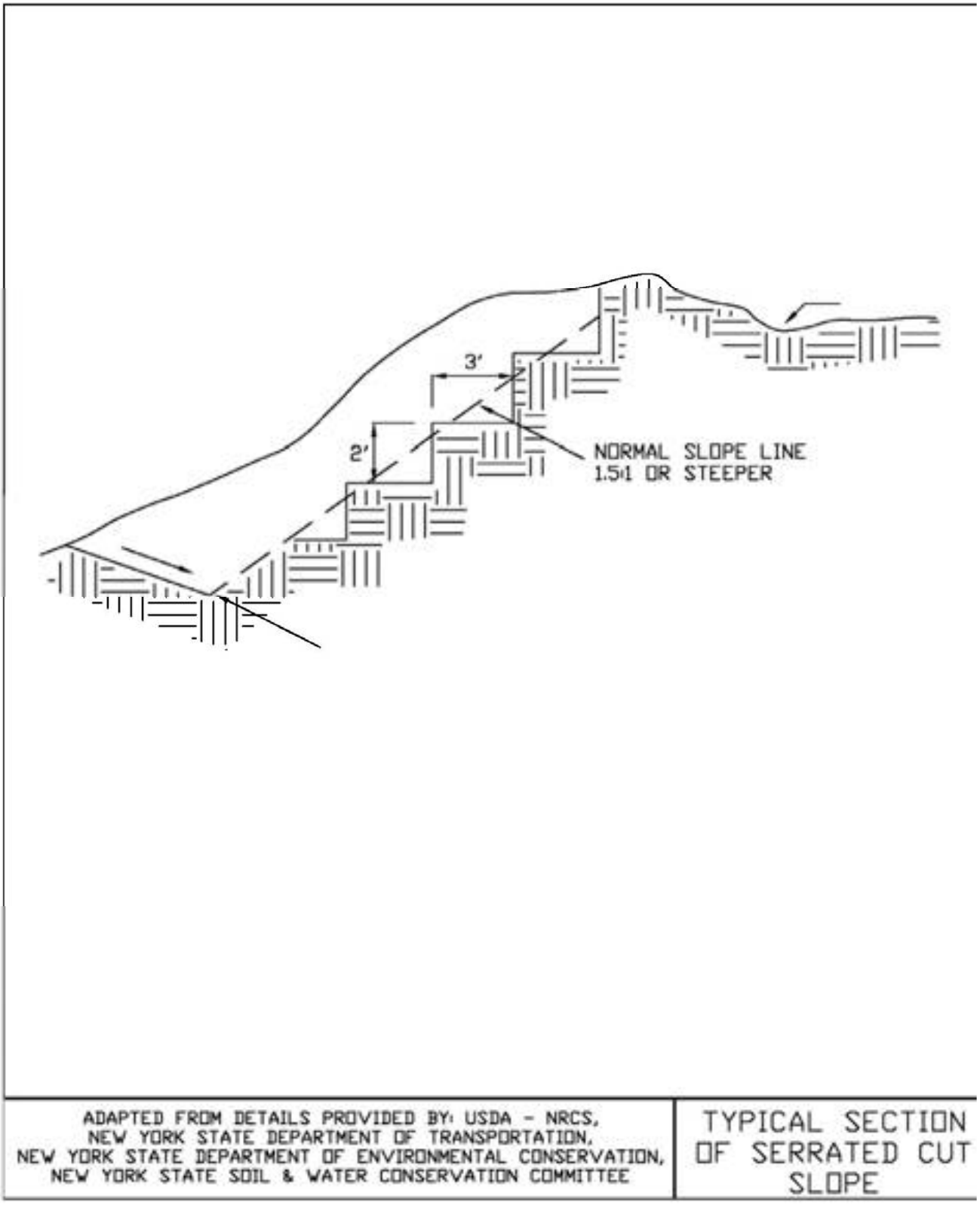

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Figure 4.10
Landgrading

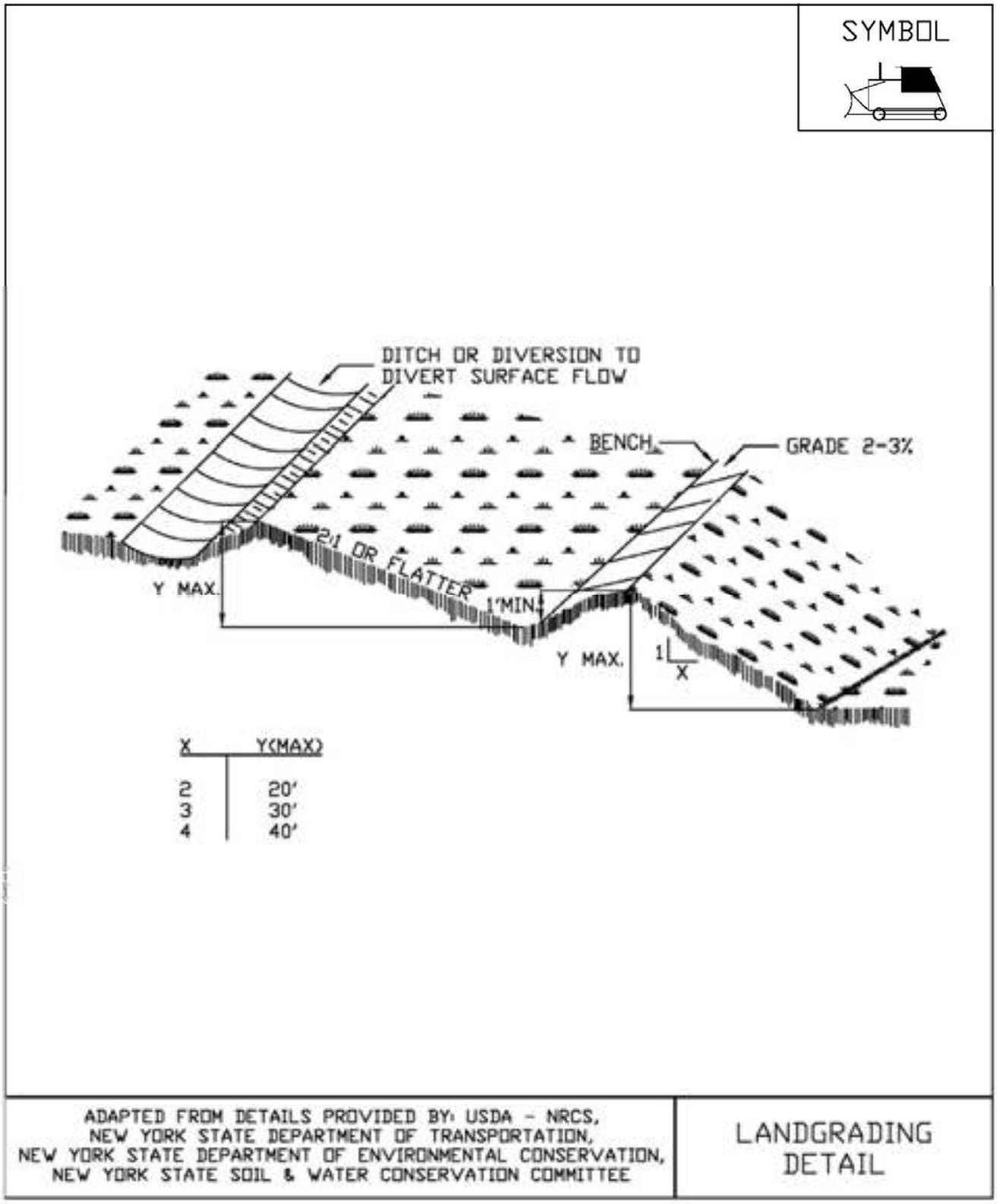

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Figure 4.11
Landgrading - Construction Specifications

CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	LANDGRADING SPECIFICATIONS

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR SURFACE ROUGHENING



Definition & Scope

Roughening a bare soil surface whether through creating horizontal grooves across a slope, stair-stepping, or tracking with construction equipment to aid the establishment of vegetative cover from seed, to reduce runoff velocity and increase infiltration, and to reduce erosion and provide for trapping of sediment.

Conditions Where Practice Applies

All construction slopes require surface roughening to facilitate stabilization with vegetation, particularly slopes steeper than 3:1.

Design Criteria

There are many different methods to achieve a roughened soil surface on a slope. No specific design criteria is required. However, the selection of the appropriate method depends on the type of slope. Methods include tracking, grooving, and stair-stepping. Steepness, mowing requirements, and/or a cut or fill slope operation are all factors considered in choosing a roughening method.

Construction Specifications

1. Cut Slope, No mowing.

   A. Stair-step grade or groove cut slopes with a gradient steeper than 3:1 (Figure 4.18).

   B. Use stair-step grading on any erodible material soft enough to be ripped with a bulldozer. Slopes of soft rock with some soil are particularly suited to stair-step grading.

   C. Make the vertical cut distance less than the horizontal distance, and slightly slope the horizontal position of the “step” to the vertical wall.

   D. Do not make vertical cuts more than 2 feet in sof materials or 3 feet in rocky materials.

Grooving uses machinery to create a series of ridges and depressions that run perpendicular to the slope following the contour. Groove using any appropriate implement tha can be safely operated on the slope, such as disks, tillers, spring harrows, or the teeth of a front-end loader bucket. Do not make the grooves less than 3 inches deep or more than 15 inches apart.

2. Fill Slope, No mowing

   A. Place fill to create slopes with a gradient no steep than 2:1 in lifts 9 inches or less and properly compacted. Ensure the face of the slope consists of loose, uncompacted fill 4 to 6 inches deep. Us grooving as described above to roughen the slope if necessary.

   B. Do not back blade or scrape the final slope face.

3. Cuts/Fills, Mowed Maintenance

   A. Make mowed slopes no steeper than 3:1.

   B. Roughen these areas to shallow grooves by norm tilling, disking, harrowing, or use of cultipacker-seeder. Make the final pass of such tillage equipment on the contour.

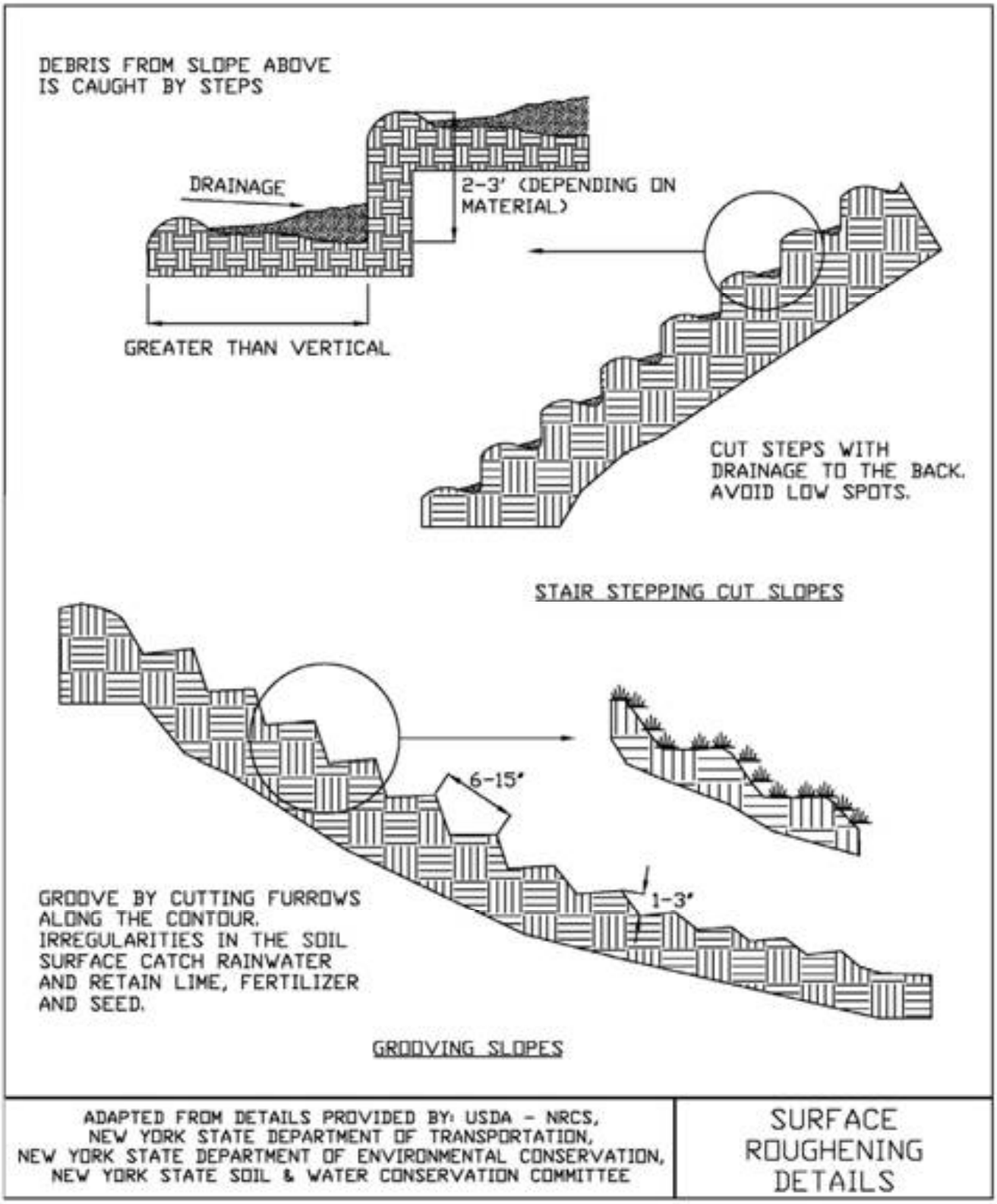
   C. Make grooves at least 1 inch deep and a maximu of 10 inches apart.

   D. Excessive roughness is undesirable where mowi is planned.

Tracking should be used primarily in sandy soils to avoid undue compaction of the soil surface. Tracking is general not as effective as the other roughening methods describe (It has been used as a method to track down mulch.) Operate tracked machinery up and down the slope to leav horizontal depressions in the soil. Do not back-blade duri the final grading operation.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 4.18
Surface Roughening



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR SOIL RESTORATION



Definition & Scope

The decompaction of areas of a development site or construction project where soils have been disturbed to recover the original properties and porosity of the soil; thus providing a sustainable growth medium for vegetation, reduction of runoff and filtering of pollutants from stormwater runoff.

Conditions Where Practice Applies

Soil restoration is to be applied to areas whose heavy construction traffic is done and final stabilization is to begin. This is generally applied in the cleanup, site restoration, and landscaping phase of construction followed by the permanent establishment of an appropriate ground cover to maintain the soil structure. Soil restoration measures should be applied over and adjacent to any runoff reduction practices to achieve design performance.



Design Criteria

1. Soil restoration areas will be designated on the plan views of areas to be disturbed.
2. Soil restoration will be completed in accordance with Table 4.6 on page 4.53.

Specification for Full Soil Restoration

During periods of relatively low to moderate subsoil moisture, the disturbed subsoils are returned to rough grade and the following Soil Restoration steps applied:

1. Apply 3 inches of compost over subsoil. The compos shall be well decomposed (matured at least 3 months) weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and conta less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table, except for "Particle Size" 100% wil pass the 1/2" sieve. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Pa 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equ to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content.**



2. Till compost into subsoil to a depth of at least 12 inch using a cat-mounted ripper, tractor mounted disc, or tiller, to mix and circulate air and compost into the subsoil.
3. Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site.
4. Apply topsoil to a depth of 6 inches.
5. Vegetate as required by the seeding plan. Use appropriate ground cover with deep roots to maintain the soil structure.
6. Topsoil may be manufactured as a mixture or a miner component and organic material such as compost.

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At the end of the project an inspector should be able to push a 3/8" metal bar 12 inches into the soil just with body weight. This should not be performed within the drip line of any existing trees or over utility installations that are within 24 inches of the surface.

Maintenance

Keep the site free of vehicular and foot traffic or other weight loads. Consider pedestrian footpaths.

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Table 4.6
Soil Restoration Requirements

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only - no change in grade	HSG A&B	HSG C&D	Protect area from any ongoing construction activities.
	Apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A&B	HSG C&D	
	Aerate* and apply 6 inches of topsoil	Apply full Soil Restoration**	
Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls)	Apply full Soil Restoration (decompaction and compost enhancement)		
Areas where Runoff Reduction and/or Infiltration practices are applied	Restoration not required, but may be applied to enhance the reduction specified for appropriate practices.		Keep construction equipment from crossing these areas. To protect newly installed practice from any ongoing construction activities construct a single phase operation fence area
Redevelopment projects	Soil Restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.		

* Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.
** Per "Deep Ripping and De-compaction, DEC 2008".

STANDARD AND SPECIFICATIONS FOR TOPSOILING



Definition & Scope

Spreading a specified quality and quantity of topsoil materials on graded or constructed subsoil areas to provide acceptable plant cover growing conditions, thereby reducing erosion; to reduce irrigation water needs; and to reduce the need for nitrogen fertilizer application.

Conditions Where Practice Applies

Topsoil is applied to subsoils that are droughty (low available moisture for plants), stony, slowly permeable, salty or extremely acid. It is also used to backfill around shrub and tree transplants. This standard does not apply to wetland soils.

Design Criteria

1. Preserve existing topsoil in place where possible, thereby reducing the need for added topsoil.

2. Conserve by stockpiling topsoil and friable fine textured subsoils that must be stripped from the excavated site and applied after final grading where vegetation will be established. Topsoil stockpiles must be stabilized. Stockpile surfaces can be stabilized by vegetation, geotextile or plastic covers. This can be aided by orientating the stockpile lengthwise into prevailing winds.

3. Refer to USDA Natural Resource Conservation Service soil surveys or soil interpretation record sheets for further soil texture information for selecting appropriate design topsoil depths.

Site Preparation

1. As needed, install erosion and sediment control practices such as diversions, channels, sediment traps, and stabilizing measures, or maintain if already installed.

2. Complete rough grading and final grade, allowing for depth of topsoil to be added.

3. Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent. Areas that have been overly compacted shall be decompacted in accordance with the Soil Restoration Standard.

4. Remove refuse, woody plant parts, stones over 3 inches in diameter, and other litter.

Topsoil Materials

1. Topsoil shall have at least 6 percent by weight of fine textured stable organic material, and no greater than 20 percent. Muck soil shall not be considered topsoil.

2. Topsoil shall have not less than 20 percent fine textured material (passing the NO. 200 sieve) and not more than 15 percent clay.

3. Topsoil treated with soil sterilants or herbicides shall be so identified to the purchaser.

4. Topsoil shall be relatively free of stones over 1 1/2 inches in diameter, trash, noxious weeds such as nut sedge and quackgrass, and will have less than 10 percent gravel.

5. Topsoil containing soluble salts greater than 500 parts per million shall not be used.

6. Topsoil may be manufactured as a mixture of a mineral component and organic material such as compost.

Application and Grading

1. Topsoil shall be distributed to a uniform depth over the area. It shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water puddles.

2. Topsoil placed and graded on slopes steeper than 5 percent shall be promptly fertilized, seeded, mulched, and stabilized by “tracking” with suitable equipment.

3. Apply topsoil in the amounts shown in Table 4.7 below:

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Table 4.7 - Topsoil Application Depth		
Site Conditions	**Intended Use**	**Minimum Topsoil Depth**
1. Deep sand or loamy sand	Mowed lawn	6 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	1 in.
2. Deep sandy loam	Mowed lawn	5 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	none
3. Six inches or more: silt loam, clay loam, loam, or silt	Mowed lawn	4 in.
	Tall legumes, unmowed	1 in.
	Tall grass, unmowed	1 in.

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STANDARD AND SPECIFICATIONS FOR MULCHING



Definition and Scope

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch can also be used alone for temporary stabilization in non-growing months. Use of stone as a mulch could be more permanent and should not be limited to non-growing months.

Conditions Where Practice Applies

On soils subject to erosion and on new seedings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

Criteria

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Hay mulch shall not be used in wetlands or in areas of permanent seeding. Clean straw mulch is preferred alternative in wetland application. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/ acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.



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Table 4.2
Guide to Mulch Materials, Rates, and Uses

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7”	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2”	9 cu. yds.	405 cu. yds.	3”	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/ yd. 60-90 lbs./roll	48” x 50 yds. or 48” x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	4’ x 112.5’ or 8’ x 112.5’ .	—	—	Use without additional mulch. Excellent for seeding establishment. Anchor as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

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Table 4.3
Mulch Anchoring Guide

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45^0 Fahrenheit are required.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR TREES, SHRUBS, AND VINES



Definition & Scope

Establishing trees, shrubs, and vines or selectively reducing stand density and trimming woody plants to protect the soil and plant resources, improve an area for recreation and increase the attractiveness and usefulness of areas.

Conditions Where Practice Applies

On any area planned for recreation or landscape use such as yard areas, leisure areas, picnic areas, and park lands providing outdoor recreational opportunities.

Criteria and Specifications

1. Planting nursery stock

   A. Select species to serve the intended purpose. See Appendix G, Table G.1**,** "Trees Suitable for Landscape and Conservation Plantings in New York." Where planting of trees is to be done in recreation areas, use those species resistant to compaction listed in Table G.2, "Susceptibility of Tree Species to Compaction" whenever possible.

   B. Plant Materials

      1) Plants shall conform to the species, variety, size, number, and conditions as stated in a conservation plan or on a plant list shown on landscape drawings. "American Standard for Nursery Stock," by American Association of Nurserymen, shall be used to develop the plant list for landscape drawings and to check quality of plant materials.

      2) Durable, legible labels with the scientific and common name and cultivar shall be securely attached to plants, bundles of seedlings, containers, and/or flats.

   C. Plant Protection

      Prior to delivery, the trunk, branches, and foliage of the plants shall be sprayed with non-toxic antidesiccant, applied according to the manufacturer's recommendations. This does not apply to state nursery seedlings.

   D. Planting Time

      Deciduous trees and shrubs: April 1 to June 1 and October 15 to December 15. Evergreen trees and shrubs: April 1 to June 1 and September 1 to November 15.

   E. Spacing

      Plant all trees and shrubs well back from buildings to allow for mature crown size. The following are guides for planning:

Large Trees	50-60 feet apart
Small Trees	20-30 feet apart
Columnar Species	6-8 feet apart
Hedges	1-4 feet apart
Shrubs	For clumps, plan spacing so mature shrubs will be touching or overlapping by only 1 or 2 feet

   F. Site Preparation

      1) Individual sites for planting seedlings can be prepared by scalping the sod away from a four foot square area where the seedling is to be planted.

      2) All planting beds shall be cultivated to a depth of 8 inches, or chemically treated for weed control. Remove objectionable objects that will interfere with maintenance of site.

   G. Planting

      1) Plants shall be located as shown on plans and/or drawings and, where necessary, located on the site by stakes, flags or other means.

      2) Prior to planting, remove galvanized wire basket securing root ball, untie and roll down burlap covering from around the stem.

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3) The plants shall be set upright in holes as illustrated in Figure G.1 in Appendix G.

4) All plants shall be thoroughly watered on the same day of planting. Plants that have settled shall be reset to grade.

H. Wrapping

Immediately after planting, wrap deciduous tree trunks from the bottom to the first limb with a 4 inch wide bituminous impregnated, insect resistant tape or paper manufactured for that purpose. Tie with jute (bag strings) at top and bottom. The wrap should be removed per nursery recommendations.

I. Mulching

Mulch the disturbed area around individual trees and shrubs with a 2-3" layer of wood chips. Pull wood chips 1 inch away from the base of shrubs to avoid fungus development.

J. Pruning

After planting, prune to remove injured twigs and branches. The natural shape of the plant should not be changed.

K. Cleanup and Maintenance

1) After all work is complete, all excess soil, peat moss, debris, etc., shall be removed from the site.

2) Water plants two weeks after planting. For two years, water plants every two weeks during dry periods, which exceed three weeks without a good soaking rain, or water as needed in accordance with local conditions. Shrubs may require 5 to 10 gallons and trees, 20 to 30 gallons for each watering.

3) Remove trunk wrap per nursery recommendation.

2. Transplanting "Wild" Stock

Successful transplanting of wild stock will require heavy equipment and considerable labor as a large weight of soil must be moved with the roots.

A. Select trees and shrubs with good form and full crowns.

B. Transplant only when plants are dormant and soil is moist. Wrap soil ball with burlap to prevent soil from separating from roots.

C. Table 4.8 shows minimum diameter and approximate weight of soil ball that must be mov with each size plant.

D. Plant and maintain as described above for nurser stock.

PRUNING AND THINNING

Use	Cleared Width Each Side of Trail Tread (ft.)	Cleared Height (ft.)
TRAILS		
Hiking	1	8
Bicycle	2	10
Motorbike	2	10
Horse	2	12
X-Country Ski	Total: 3-12	12[1]
Snowmobile	Total: 6-12	12[1]
PICNIC & CAMPING AREAS		
Campfire/Grill	10 ft. diam.	15

[1] Includes allowance for snow depth and snow load on branch

1. Pruning

A. Remove trees, limbs, and limb stubs to the above widths and heights specified for the intended use

B. Remove dead, diseased, or dying limbs that may fall.

C. Do not remove more than one-third of the live crown of a tree in a year.

D. Cut limbs flush to the branch bark ridge.

E. Use the 3 or 4 cut pruning method on all branche over 2 inches in diameter: First cut about one-third the way through the underside of the limb (about 6-12 inches from the tree trunk). Then (approximately an inch further out) make a secon cut through the limb from the upper side. When the branch is removed, there is no splintering of t main tree trunk. Remove the stub. If the branch larger than 5-6 inches in diameter, use the four cu system. Cuts 1 and 2 remain the same and cut 3 should be from the underside of the limb, on the outside of the branch collar. Cut 4 should be fro the top and in alignment with the 3rd cut. Cut 3 should be 1/4 to 1/3 the way through the limb. This will prevent the bark from peeling down the trunk. Do not paint the cut surface.

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2. Thinning

   A. Remove dead, diseased, dying, poorly anchored, or ice damaged trees that pose a hazard to recreationists or that interfere with intended use.

   B. To maintain grass cover in a wooded area, thin according to formula Dx3 (average diameter of the trunk of overstory trees, in inches, times three—the answer is the spacing between trees to be left, in feet). For example, for trees with average diameter of 6 inches, spacing after thinning should leave trees 18 feet apart on average. Crown cover after thinning should be about 50 percent.

   C. Selectively thin as needed to favor those trees that are most "resistant" to compaction around their roots. See Table G.2**,** "Susceptibility of Tree Species to Compaction" in Appendix G. If the soil on the site is naturally well drained, those species in the "intermediate" group may also be favored.

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Table 4.8
Size and Weight of Earth Ball Required to Transplant Wild Stock

Shade Trees (Maple, Ash, Oak, Birch, etc.)			Small Trees & Shrubs (Crabapple, Thornapple, Viburnum, Dogwood, etc.)		
Caliper[1] (Inches)	Minimum Diameter Ball (Inches)	Weight of Ball (lbs.)	Up to 6 ft. Height — 6 ft. and Caliper[1]	Minimum Diameter Ball (Inches)	Weight of Ball (lbs.)
1/2	14	88	2	12	55
3/4	16	130	3	14	88
1	18	186	4	16	130
1-1/4	20	227	5	18	186
1-1/2	22	302	3/4	18	186
1-3/4	24	390	1	20	227
2	28	621	1-1/2	22	302
3	32	836	1-3/4	24	390
3-1/2	38	1,400	2	28	621
4	42	1,887	2-1/2	32	836
			3	38	1,400

[1]Caliper is a diameter measurement of trees at a height of 6 inches above the ground.

STANDARD AND SPECIFICATIONS FOR VEGETATING WATERWAYS



Definition & Scope

Waterways are a **permanently** constructed conveyance channel, shaped or graded. They are vegetated for the safe transport of excess surface water from construction sites and urban areas without damage from erosion.

Conditions Where Practice Applies

This standard applies to vegetating waterways and similar water carrying structures.

Supplemental measures may be required with this practice. These may include: subsurface drainage to permit the growth of suitable vegetation and to eliminate wet spots; a section stabilized with asphalt, stone, or other suitable means; or additional storm drains to handle snowmelt or storm runoff.

Retardance factors for determining waterway dimensions are shown in Table 3.1 on page 3.10 and "Maximum Permissible Velocities for Selected Grass and Legume Mixtures" (See Table 4.10 on page 4.79).

Design Criteria

Waterways or outlets shall be protected against erosion by vegetative means as soon after construction as practical. Vegetation must be well established before diversions or other channels are outletted into them. Consideration should be given to the use of turf reinforcement mats, excelsior matting, other rolled erosion control products, or sodding of channels to provide erosion protection as soon after construction as possible. It is strongly recommended that the center line of the waterway be protected with one of the above materials to avoid center gullies and to protect seedlings from erosion before establishment.

1. Liming, fertilizing, and seedbed preparation.

   A. Lime to pH 6.5.

   B. **The soil should be tested to determine the amounts of amendments needed.** If the soil must be fertilized before results of a soil test can obtained to determine fertilizer needs, apply commercial fertilizer at 1.0 lbs/1,000 sq. ft. of N, P_2O_5, and K_2O.

   C. Lime and fertilizer shall be mixed thoroughly into the seedbed during preparation.

   D. Channels, except for paved section, shall have at least 4 inches of topsoil.

   E. Remove stones and other obstructions that will hinder maintenance.

2. Timing of Seeding.

   A. Early spring and late August are best.

   B. Temporary cover to protect from erosion is recommended during periods when seedings may fail.

3. Seed Mixtures:

Mixtures	Rate per Acre (lbs)	Rate per 1,00 sq. ft. (lbs)
A. White clover or ladino clover[1]	8	0.20
Smooth bromegrass	20	0.45
Creeping red fescue[2]	2	0.05
Total	30	0.70
OR		
B. Smooth bromegass[3]	25	0.60
Creeping red fescue	20	0.50
Perennial ryegrass	10	0.20
Total	55	1.30

[1] Inoculate with appropriate inoculum immediately prior to seeding. La no or birdsfoot trefoil may be substituted for common white clover and seeded at the same rate.

[2] Perennial ryegrass may be substituted for the creeping red fescue but increase seeding rate to 5 lbs/acre (0.1 lb/1,000 sq. ft).

[3] Use this mixture in areas which are mowed frequently. Common whit clover may be added if desired and seeded at 8 lbs/acre (0.2 lb/1,000 sq. ft.)

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4. Seeding

Select the appropriate seed mixture and apply uniformly over the area. Rolling or cultipacking across the waterway is desirable.

Waterway centers or crucial areas may be sodded. Refer to the standard and specification for Stabilization with Sod. Be sure sod is securely anchored using staples or stakes.

5. Mulching

All seeded areas will be mulched. Channels more than 300 feet long, and/or where the slope is 5 percent or more, must have the mulch securely anchored. Refer to the standard and specifications for Mulching for details.

6. Maintenance

Fertilize, lime, and mow as needed to maintain dense protective vegetative cover.

Waterways shall not be used for roadways.

If rills develop in the centerline of a waterway, prompt attention is required to avoid the formation of gullies. Either stone and/or compacted soil fill with excelsior or filter fabric as necessary may be used during the establishment phase. See Figure 4.25, Rill Maintenance Measures. Spacing between rill maintenance barriers shall not exceed 100 feet.

Table 4.10
Maximum Permissible Velocities for Selected Seed Mixtures

Cover	Slope Range [2] (%)	Permissible Velocity [1]	
		Erosion-resistant Soils (ft. per sec.) K=0.10 - 0.35 [3]	Easily Eroded Soils (ft. per sec.) K=0.36 - 0.80
Smooth Bromegrass Hard Fescue	0-5 5-10 Over 10	7 6 5	5 4 3
Grass Mixtures	[2] 0-5 5-10	5 4	4 3
White/Red Clover Alfalfa Red Fescue	[4] 0-5	3.5	2.5

[1] Use velocities exceeding 5 feet per second only where good covers and proper maintenance can be obtained.
[2] Do not use on slopes steeper than 10 percent except for vegetated side slopes in combination with a stone, concrete, or highly resistant vegetative center section.
[3] K is the soil erodibility factor used in the Revised Universal Soil Loss Equation. Visit Appendix A or consult the appropriate USDA-NRCS technical guide for K values for New York State soils.
[4] Do not use on slopes steeper than 5 percent except for vegetated side slopes in combination with a stone, concrete, or highly resistant vegetative center section.
[5] Annuals - use on mild slopes or as temporary protection until permanent covers are established.
[6] Use on slopes steeper than 5 percent is not recommended.

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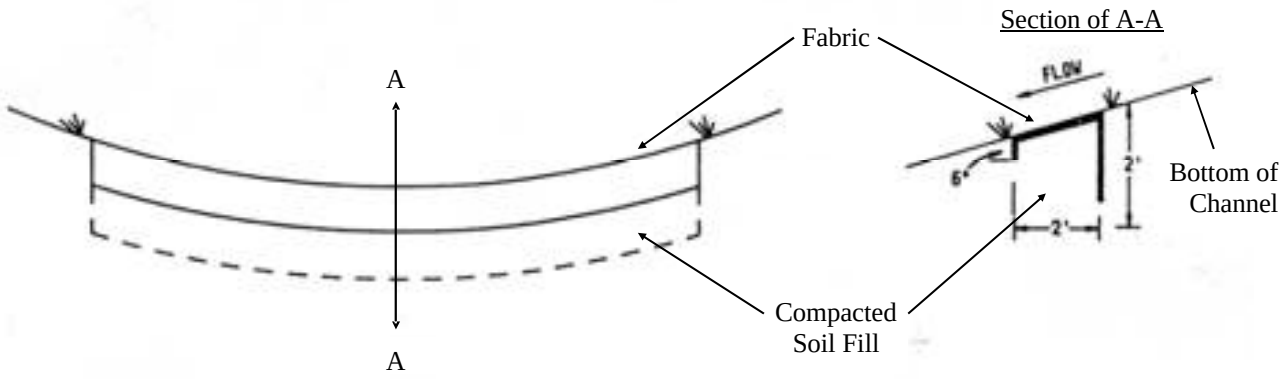
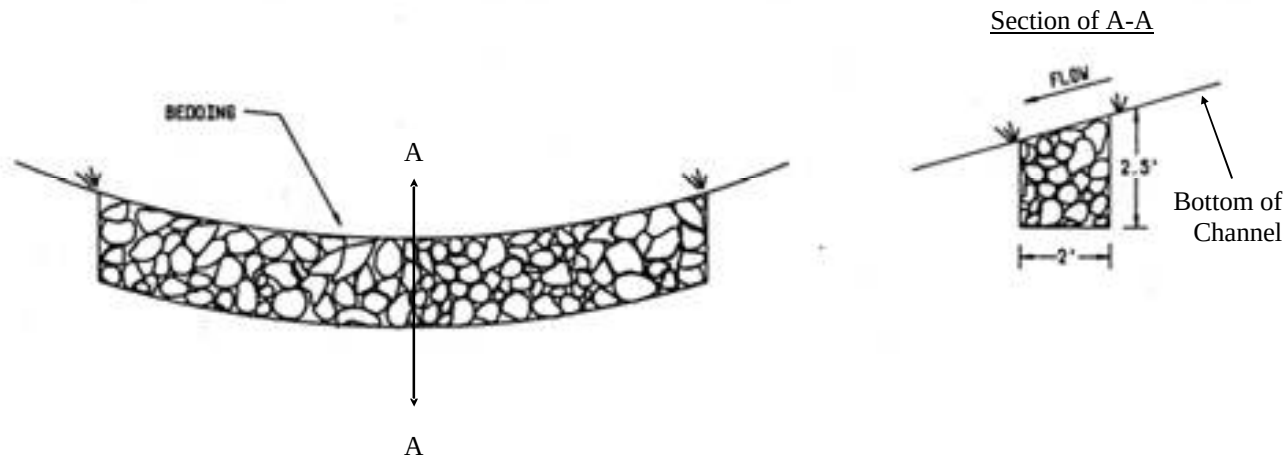
Figure 4.25
Rill Maintenance Measures

Filter Fabric



Stone



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STANDARD AND SPECIFICATIONS FOR ROCK OUTLET PROTECTION



Definition & Scope

A **permanent** section of rock protection placed at the outlet end of the culverts, conduits, or channels to reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving downstream reach.

Conditions Where Practice Applies

This practice applies where discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach. This applies to:

1. Culvert outlets of all types.
2. Pipe conduits from all sediment basins, dry storm water ponds, and permanent type ponds.
3. New channels constructed as outlets for culverts and conduits.

Design Criteria

The design of rock outlet protection depends entirely on the location. Pipe outlet at the top of cuts or on slopes steeper than 10 percent, cannot be protected by rock aprons or riprap sections due to re-concentration of flows and high velocities encountered after the flow leaves the apron.

Many counties and state agencies have regulations and design procedures already established for dimensions, type and size of materials, and locations where outlet protection is required. Where these requirements exist, they shall be followed.

Tailwater Depth

The depth of tailwater immediately below the pipe outlet must be determined for the design capacity of the pipe. If the tailwater depth is less than half the diameter of the outlet pipe, and the receiving stream is wide enough to accept divergence of the flow, it shall be classified as a Minimum Tailwater Condition; see Figure 3.16 on page 3.42 as an example. If the tailwater depth is greater than half the pipe diameter and the receiving stream will continue to confine the flow, it shall be classified as a Maximum Tailwater Condition; see Figure 3.17 on page 3.43 as an example. Pipes which outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition; see Figure 3.16 on page 3.42 as an example.

Apron Size

The apron length and width shall be determined from the curves according to the tailwater conditions:

Minimum Tailwater – Use Figure 3.16 on page 3.42
Maximum Tailwater – Use Figure 3.17 on page 3.43

If the pipe discharges directly into a well defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank, whichever is less.

The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe, or conform to pipe end section if used.

Bottom Grade

The outlet protection apron shall be constructed with no slope along its length. There shall be no overfall at the end of the apron. The elevation of the downstream end of the apron shall be equal to the elevation of the receiving channel or adjacent ground.

Alignment

The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

Materials

The outlet protection may be done using rock riprap, grouted riprap, or gabions. Outlets constructed on the bank of a stream or wetland shall not use grouted rip-rap, gabions or concrete.

Riprap shall be composed of a well-graded mixture of rock size so that 50 percent of the pieces, by weight, shall be larger than the d_{50} size determined by using the charts. A

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well-graded mixture, as used herein, is defined as a mixture composed primarily of larger rock sizes, but with a sufficient mixture of other sizes to fill the smaller voids between the rocks. The diameter of the largest rock size in such a mixture shall be 1.5 times the d_{50} size.

Thickness

The minimum thickness of the riprap layer shall be 1.5 times the maximum rock diameter for d_{50} of 15 inches or less; and 1.2 times the maximum rock size for d_{50} greater than 15 inches. The following chart lists some examples:

D_{50} (inches)	d_{max} (inches)	Minimum Blanket Thickness (inches)
4	6	9
6	9	14
9	14	20
12	18	27
15	22	32
18	27	32
21	32	38
24	36	43

Rock Quality

Rock for riprap shall consist of field rock or rough unhewn quarry rock. The rock shall be hard and angular and of a quality that will not disintegrate on exposure to water or weathering. The specific gravity of the individual rocks shall be at least 2.5.

Filter

A filter is a layer of material placed between the riprap and the underlying soil surface to prevent soil movement into and through the riprap. Riprap shall have a filter placed under it in all cases.

A filter can be of two general forms: a gravel layer or a plastic filter cloth. The plastic filter cloth can be woven or non-woven monofilament yarns, and shall meet these base requirements: thickness 20-60 mils, grab strength 90-120 lbs; and shall conform to ASTM D-1777 and ASTM D-1682.

Gravel filter blanket, when used, shall be designed by comparing particle sizes of the overlying material and the base material. Design criteria are available in Standard and Specification for Anchored Slope and Channel Stabilization on page 4.7.

Gabions

Gabions shall be made of hexagonal triple twist mesh with heavily galvanized steel wire. The maximum linear dimension of the mesh opening shall not exceed 4 ½ inches and the area of the mesh opening shall not exceed 10 square inches.

Gabions shall be fabricated in such a manner that the sides, ends, and lid can be assembled at the construction site into a rectangular basket of the specified sizes. Gabions shall be of single unit construction and shall be installed according to manufacturer's recommendations.

The area on which the gabion is to be installed shall be graded as shown on the drawings. Foundation conditions shall be the same as for placing rock riprap, and filter cloth shall be placed under all gabions. Where necessary, key, or tie, the structure into the bank to prevent undermining of the main gabion structure.

Maintenance

Once a riprap outlet has been installed, the maintenance needs are very low. It should be inspected after high flows for evidence of scour beneath the riprap or for dislodged rocks. Repairs should be made immediately.

Design Procedure

1. Investigate the downstream channel to assure that nonerosive velocities can be maintained.
2. Determine the tailwater condition at the outlet to establish which curve to use.
3. Use the appropriate chart with the design discharge to determine the riprap size and apron length required. It is noted that references to pipe diameters in the charts are based on full flow. For other than full pipe flow, the parameters of depth of flow and velocity must be used to adjust the design discharges.
4. Calculate apron width at the downstream end if a flare section is to be employed.

Design Examples are demonstrated in Appendix B.

Construction Specifications

1. The subgrade for the filter, riprap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grad-

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ing limits when installed respectively in the riprap or filter.

3. Filter cloth shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps, whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.

4. Rock for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The rock for riprap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogenous with the smaller rocks and spalls filling the voids between the larger rocks. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

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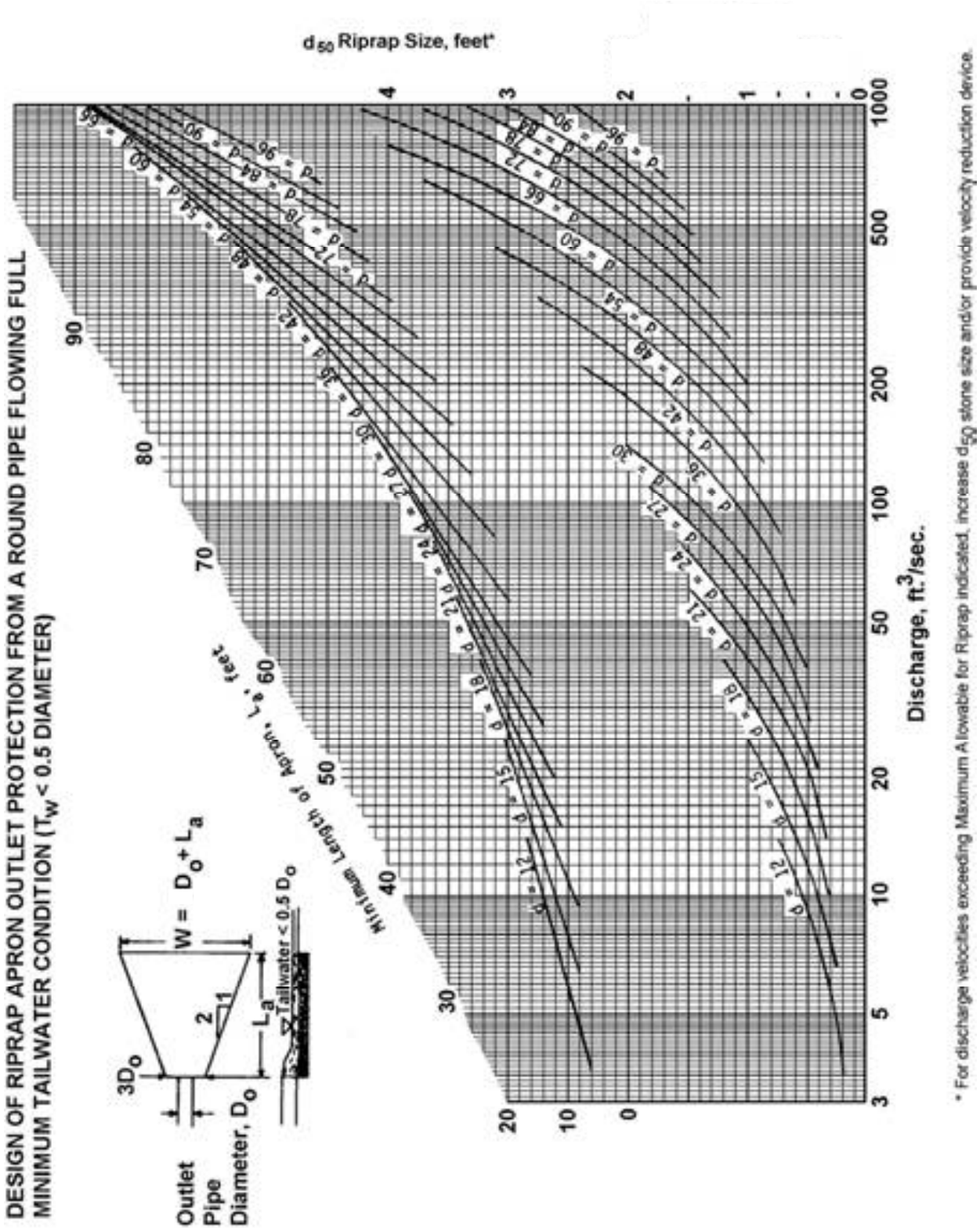
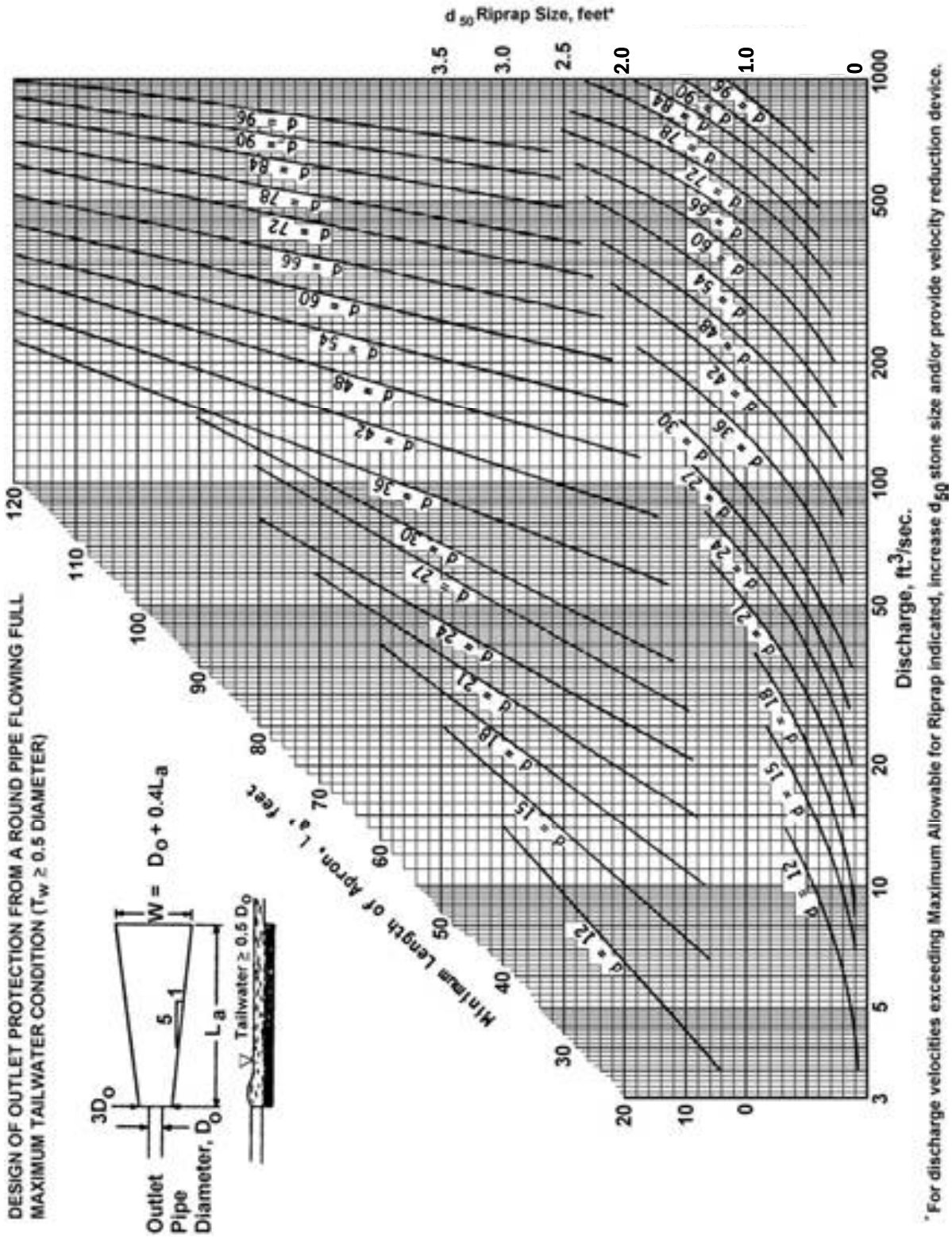
Figure 3.16
Outlet Protection Design—Minimum Tailwater Condition Chart (Design of Outlet Protection from a Round Pipe Flowing Full, Minimum Tailwater Condition: $T_w < 0.5D_o$) (USDA - NRCS)



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 3.17
Outlet Protection Design—Maximum Tailwater Condition Chart (Design of Outlet Protection from a Round Pipe Flowing Full, Maximum Tailwater Condition: T_w ! $0.5D_o$) (USDA - NRCS)



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Figure 3.18
Riprap Outlet Protection Detail (1)

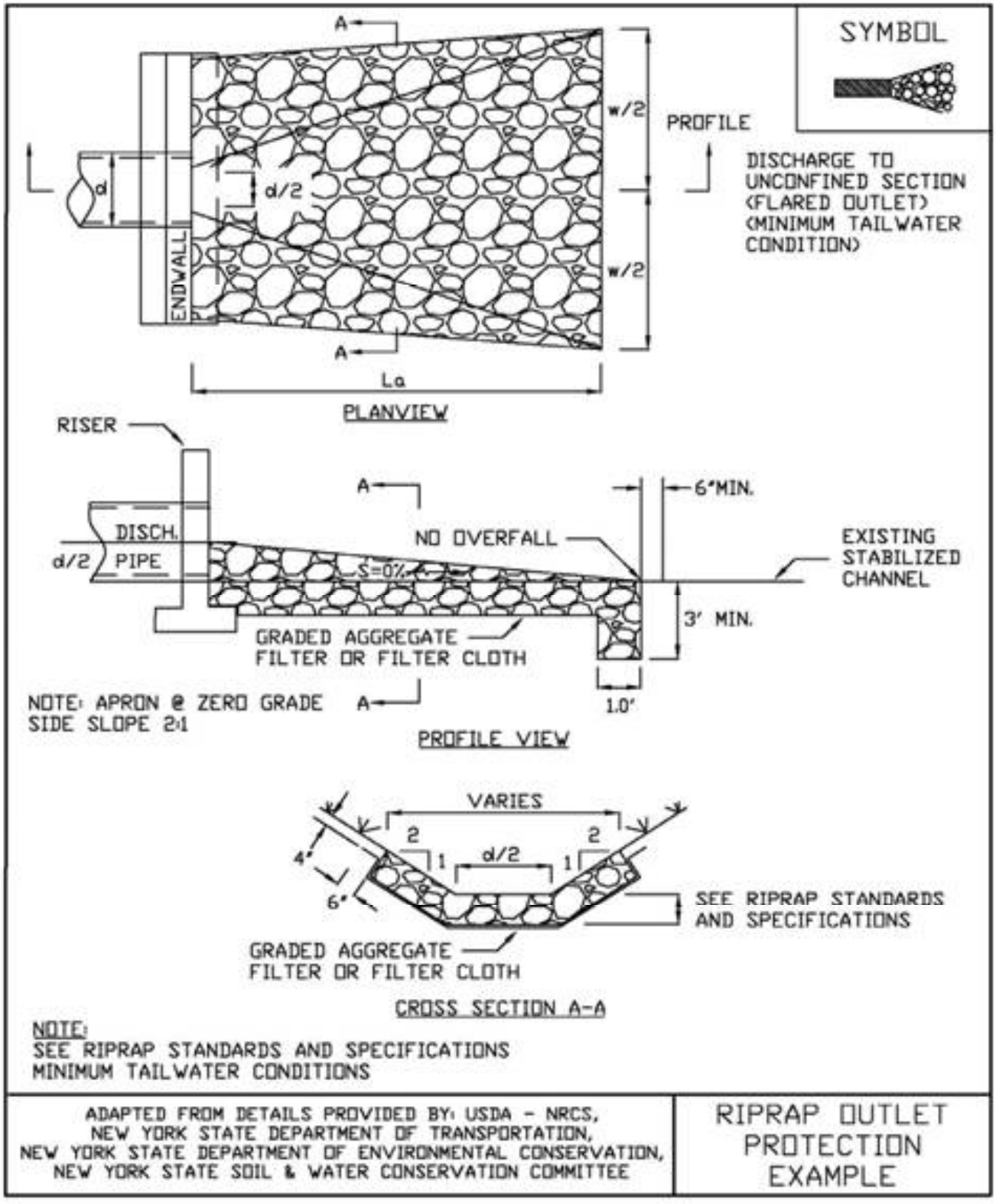


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Figure 3.19
Riprap Outlet Protection Detail (2)

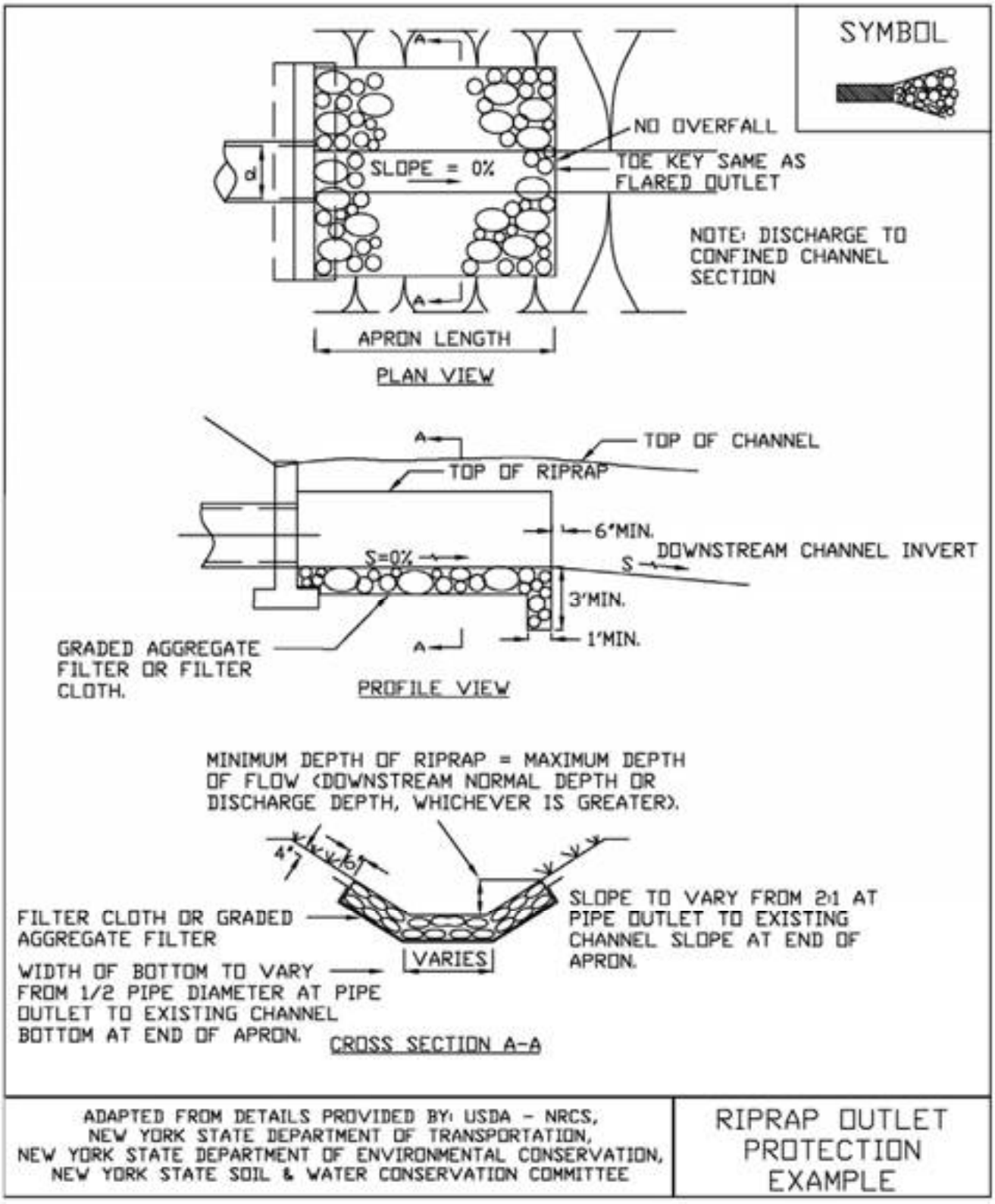

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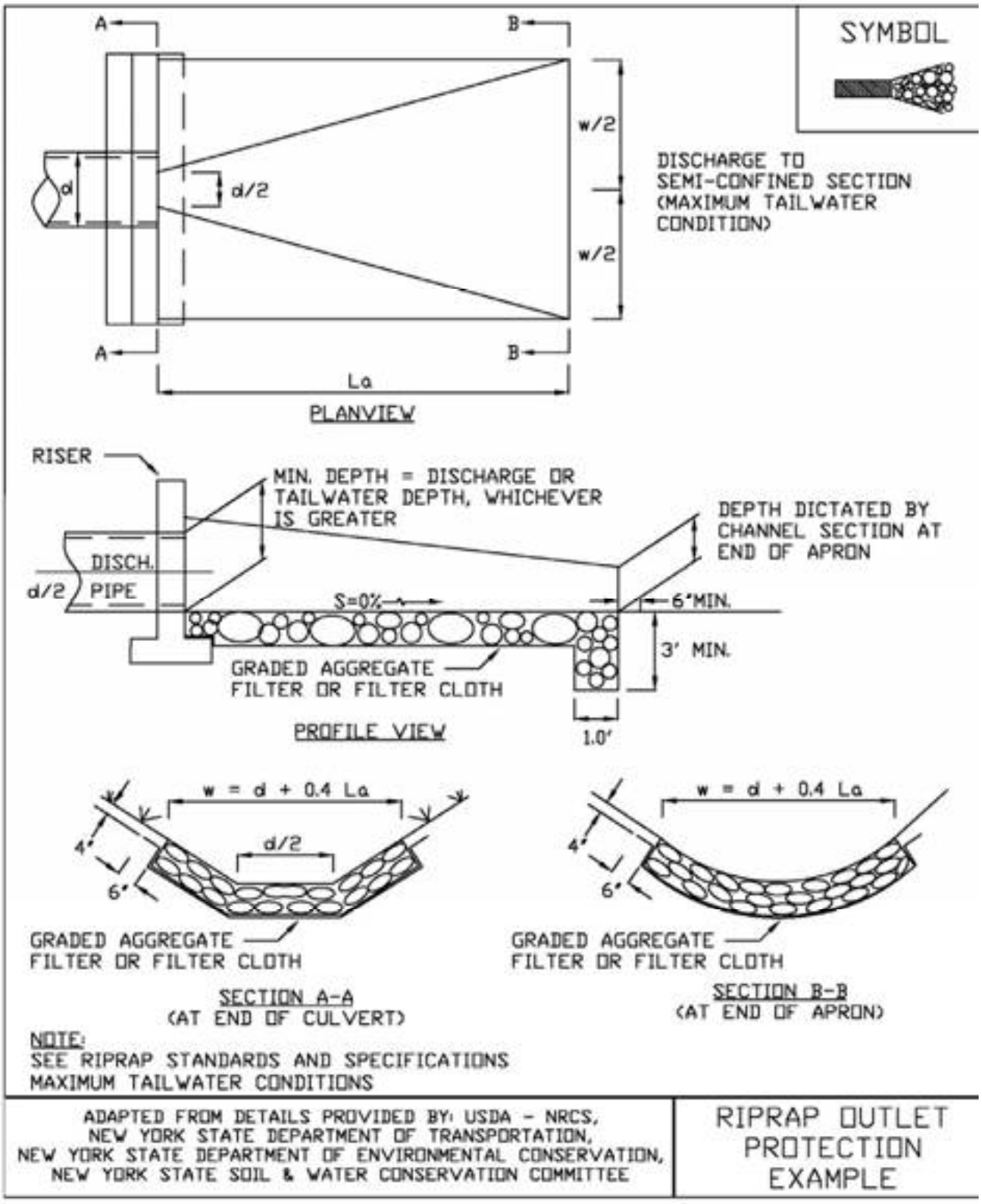
Figure 3.20
Riprap Outlet Protection Detail (3)



Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR SITE POLLUTION PREVENTION





Definition & Scope

A collection of management practices intended to control non-sediment pollutants associated with construction activities to prevent the generation of pollutants due to improper handling, storage, and spills and prevent the movement of toxic substances from the site into surface waters.

Conditions Where Practice Applies

On all construction sites where the earth disturbance exceeds 5,000 square feet, and involves the use of fertilizers, pesticides, petroleum based chemicals, fuels and lubricants, as well as sealers, paints, cleared woody vegetation, garbage, and sanitary wastes.

Design Criteria

The variety of pollutants on a particular site and the severity of their impacts depend on factors such as the nature of the construction activity, the physical characteristics of the construction site, and the proximity of water bodies and conveyances to the pollutant source.

1. All state and federal regulations shall be followed for the storage, handling, application, usage, and disposal of pesticides, fertilizers, and petroleum products.

2. Vehicle and construction equipment staging and maintenance areas will be located away from all drainage ways with their parking areas graded so the runoff from these areas is collected, contained and treated prior to discharge from the site.

3. Provide sanitary facilities for on-site personnel.

4. Store, cover, and isolate construction materials including topsoil, and chemicals, to prevent runoff of pollutants and contamination of groundwater and surface waters.

5. Develop and implement a spill prevention and control plan. The plan should include NYSDEC's spill reporting and initial notification requirements.

6. Provide adequate disposal for solid waste including woody debris, stumps, and other construction waste and include these methods and directions in the construction details on the site construction drawings. Fill, woody debris, stumps and construction waste shall not be placed in regulated wetlands, streams or other surface waters.

7. Distribute or post informational material regarding proper handling, spill response, spill kit location, and emergency actions to be taken, to all construction personnel.

8. Refueling equipment shall be located at least 100 feet from all wetlands, streams and other surface waters.



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STANDARD AND SPECIFICATIONS FOR WINTER STABILIZATION



Definition & Scope

A temporary site specific, enhanced erosion and sediment control plan to manage runoff and sediment at the site during construction activities in the winter months to protect off-site water resources.

Conditions Where Practice Applies

This standard applies to all construction activities involved with ongoing land disturbance and exposure between November 15th to the following April 1st.

Design Criteria

1. Prepare a snow management plan with adequate storage for snow and control of melt water, requiring cleared snow to be stored in a manner not affecting ongoing construction activities.

2. Enlarge and stabilize access points to provide for snow management and stockpiling. Snow management activities must not destroy or degrade installed erosion and sediment control practices.

3. A minimum 25 foot buffer shall be maintained from all perimeter controls such as silt fence. Mark silt fence with tall stakes that are visible above the snow pack.

4. Edges of disturbed areas that drain to a waterbody within 100 feet will have 2 rows of silt fence, 5 feet apart, installed on the contour.

5. Drainage structures must be kept open and free of snow and ice dams. All debris, ice dams, or debris from plowing operations, that restrict the flow of runoff and meltwater, shall be removed.

6. Sediment barriers must be installed at all appropriate perimeter and sensitive locations. Silt fence and othe practices requiring earth disturbance must be installe before the ground freezes.

7. Soil stockpiles must be protected by the use of established vegetation, anchored straw mulch, rolled stabilization matting, or other durable covering. A barrier must be installed at least 15 feet from the toe the stockpile to prevent soil migration and to capture loose soil.

8. In areas where soil disturbance activity has temporar or permanently ceased, the application of soil stabilization measures should be initiated by the end the next business day and completed within three (3) days. Rolled erosion control blankets must be used c all slopes 3 horizontal to 1 vertical or steeper.

9. If straw mulch alone is used for temporary stabilization, it shall be applied at double the standar rate of 2 tons per acre, making the application rate 4 tons per acre. Other manufactured mulches should be applied at double the manufacturer's recommended rate.

10. To ensure adequate stabilization of disturbed soil in advance of a melt event, areas of disturbed soil shoul be stabilized at the end of each work day unless:

    a. work will resume within 24 hours in the same ar and no precipitation is forecast or;

    b. the work is in disturbed areas that collect and retain runoff, such as open utility trenches, foundation excavations, or water management areas.

11. Use stone paths to stabilize access perimeters of buildings under construction and areas where construction vehicle traffic is anticipated. Stone path should be a minimum 10 feet in width but wider as necessary to accommodate equipment.

Maintenance

The site shall be inspected frequently to ensure that the erosion and sediment control plan is performing its winte stabilization function. If the site will not have earth disturbing activities ongoing during the "winter season", bare exposed soil must be stabilized by established vegetation, straw or other acceptable mulch, matting, rocl or other approved material such as rolled erosion control products. Seeding of areas with mulch cover is preferred but seeding alone is not acceptable for proper stabilizatio

Compliance inspections must be performed and reports filed properly in accordance with the SWPPP for all sites under a winter shutdown.

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Appendix I
Inspection Forms, Checklists and Maintenance Guidelin

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I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____

Permit No. _____**Date of Authorization**_____

Name of Operator _____

Prime Contractor _____

a. Preamble to Site Assessment and Inspections -The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified professional[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request. The Operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis (Monthly Summary Report).

The operator shall also prepare a written summary of compliance with this general permit at a minimum frequency of every three months (Operator's Compliance Response Form), while coverage exists. The summary should address the status of achieving each component of the SWPPP.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 "Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).

2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

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b. Operators Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law. "

Name (please print):_____

Title _____**Date:**_____

Address: _____

Phone: _____ **Email:**_____

Signature:_____

c. Qualified Professional's Credentials & Certification

" I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (please print):_____

Title _____**Date:**_____

Address: _____

Phone: _____ **Email:**_____

Signature:_____

d. Pre-construction Site Assessment Checklist (NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

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Pre-construction Site Assessment Checklist (continued)

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?

[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.

[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.

[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.

[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.

[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.

[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.

[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.

[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals

[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.

[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.

[ ] [ ] [ ] The plan is contained in the SWPPP on page _____

[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

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II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:
Inspection Forms will be filled out during the entire construction phase of the project.
Required Elements:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

(6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Time of inspection:**	
Contractor:		**Weather conditions:**	
Inspector (Print name):		**Temperature:**	
Permit ID No.		**Wind:**	
		Soil Conditions:	

SUGGESTED E&SC REMEDIAL WORK BASED ON CURRENT INSPECTION:

MOIFICATIONS TO THE SWPP BASED ON CURRENT INSPECTION:

Modification and reason:

Refer to attached site plan sketch for summary of observed site conditions (page 2).
Refer to attached inspection checklist (pages 3 to 6) for items inspected.

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

SITE SKETCH

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CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

INSPECTION CHECKLIST

Maintaining Water quality

Yes	No	N/A	
☐	☐	☐	Is there an increase in turbidity causing a substantial visible? Contrast to natural conditions?
☐	☐	☐	Is there residue from oil and floating substances, visible oil film, oil globules or grease
☐	☐	☐	Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site conditions

Yes	No	N/A	
☐	☐	☐	Is construction site litter and debris appropriately managed?
☐	☐	☐	Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained.
☐	☐	☐	Is all disturbance within the limits of the approved plans? (i.e. no construction impacts to the adjacent property)?
☐	☐	☐	Is dust adequately controlled?

2. Temporary Stream crossing

Yes	No	N/A	
☐	☐	☐	Maximum diameter pipes necessary to span creek without dredging are installed.
☐	☐	☐	Installed non-woven geotextile fabric beneath approaches.
☐	☐	☐	Is fill composed of aggregate (no earth or soil)?
☐	☐	☐	Rock on approaches is clean enough to remove mud from vehicles and prevent sediment from entering stream during high flow.

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

Runoff Control practices

1. Excavation Dewatering

Yes	No	N/A	
☐	☐	☐	Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
☐	☐	☐	Clean water from upstream pool is being pumped to the downstream pool.
☐	☐	☐	Sediment laden water from work area is being discharged to a silt-trapping device.
☐	☐	☐	Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader

Yes	No	N/A	
☐	☐	☐	Installed per plan.
☐	☐	☐	Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
☐	☐	☐	Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes	No	N/A	
☐	☐	☐	Installed per plan with minimum side slopes @ 2H:1V or flatter.
☐	☐	☐	Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
☐	☐	☐	Sediment-laden runoff directed to sediment trapping structure.

4. Stone check Dam

Yes	No	N/A	
☐	☐	☐	Is channel stable? (flow is not eroding soil underneath or around the structure).
☐	☐	☐	Check is in good condition (rocks in place and no permanent pools behind the structure).
☐	☐	☐	Has accumulated sediment been removed?

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

5. Rock Outlet protection

Yes	No	N/A	
☐	☐	☐	Installed per plan
☐	☐	☐	Installed concurrently with pipe installation.

Soil stabilization

1. Topsoil and Spoil Stockpiles.

Yes	No	N/A	
☐	☐	☐	Stockpiles are stabilized with vegetation and/or mulch.
☐	☐	☐	Sediment control is installed at the toe of the slope.

2. Revegetation

Yes	No	N/A	
☐	☐	☐	Temporary seedings and mulch have been applied to idle areas.
☐	☐	☐	Four (4) inches minimum of topsoil has been applied under permanent seedings.

Sediment Control

1. Stabilize Construction Entrance.

Yes	No	N/A	
☐	☐	☐	Stone is clean enough to effectively remove mud from vehicles.
☐	☐	☐	Installed per standards and specifications?
☐	☐	☐	Does all traffic use the stabilized entrance to enter and leave site?
☐	☐	☐	Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence.

Yes	No	N/A	
☐	☐	☐	Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
☐	☐	☐	Joints constructed by wrapping the two ends together for continuous support.
☐	☐	☐	Fabric buried six (6) inches minimum.
☐	☐	☐	Posts are stable, fabric is tight and without rips or frayed areas. Sediment accumulation is __%__ of capacity.

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Project:		**Date:**	
Job No.:		**Client:**	

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or Excavated Practices).

Yes	No	N/A	
☐	☐	☐	Installed concrete blocks lengthwise so open ends face outward, not upward.
☐	☐	☐	Place wire screen between No.3 crushed stone and concrete blocks.
☐	☐	☐	Drainage area is one (1) acre or less.
☐	☐	☐	Excavated area is 900 cubic feet.
☐	☐	☐	Excavated side slopes should be 2:1.
☐	☐	☐	2’ x 4’ frame is constructed and structurally sound.
☐	☐	☐	Posts 3-foot maximum spacing between posts.
☐	☐	☐	Fabric is embedded 1 to 1.5 feet below ground and secured to frame/post with staples at max 8-inch spacing.
☐	☐	☐	Posts are stable, fabric is tight and without rips or frayed areas. Sediment accumulation __%of design capacity.

4. Temporary Sediment Trap

Yes	No	N/A	
☐	☐	☐	Outlet structure is constructed per the approved plan or drawing.
☐	☐	☐	Geotextile fabric has been placed beneath rock fill. Sediment Accumulation is _____% of design capacity.

5. Temporary Sediment Basin

Yes	No	N/A	
☐	☐	☐	Basin and outlet structure constructed per the approved plan.
☐	☐	☐	Basin side slopes are stabilized with seed/mulch.
☐	☐	☐	Drainage structure flushed and basin restored upon removal of Sediment basin facility. Sediment accumulation __% of design capacity.

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CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

Additional Field Observations/Comments:

Qualified Professional Verification:
"I acknowledge that, to the best of my knowledge, all information provided within this inspection report is accurate and complete".

Qualified Professional (print name): _____

(signature): _____

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

PHOTOGRAPHS OF SITE E&S DEFICIENCIES:

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(:08 $3-8806 (:0;-=498! ' -48=08-8.0! -8/
' -8-20 7 08= &8<:0.=498 $30.564<=

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Contributing areas clean of debris		
2. Check Dams or Energy Dissipators (Annual, After Major Storms)		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
3. Vegetation (Monthly)		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
4. Dewatering (Monthly)		
Dewaters between storms		

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MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Sediment deposition (Annual)		
Clean of sediment		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repairs		
No evidence of erosion		

Comments:

Actions to be Taken:

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H.2 Bioretention

Planting Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through adsorption and microbial activity within the soil profile. Therefore, the soils must balance soil chemistry and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should by less than 25% by volume. Soils should fall within the SM, or ML classifications of the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds. Placement of the planting soil should be in lifts of 12 to 18", loosely compacted (tamped lightly with a dozer or backhoe bucket). The specific characteristics are presented in Table H.2.

Table H.2 Planting Soil Characteristics

Parameter	Value
PH range	5.2 to 7.00
Organic matter	1.5 to 4.0%
Magnesium	35 lbs. per acre, minimum
Phosphorus (P_2O_5)	75 lbs. per acre, minimum
Potassium (K_2O)	85 lbs. per acre, minimum
Soluble salts	≤ 500 ppm
Clay	10 to 25%
Silt	30 to 55%
Sand	35 to 60%

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Mulch Layer

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoid surface sealing which reduces permeability. Mulch helps prevent erosion, and provides a micro-environment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double, shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

Planting Plan Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an ecosystem consisting of an upland-oriented community dominated by trees, but having a distinct community, or sub-canopy, of understory trees, shrubs and herbaceous materials. The intent is to establish a diverse, dense plant cover to treat stormwater runoff and withstand urban stresses from insect and disease infestations, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure H.1). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports a slightly drier group of plants, but still tolerates fluctuating water levels. The outer edge is the highest elevation and generally supports plants adapted to dryer conditions. When using Table A.5 to identify species, use the following guideline:

Lowest Zone: Zones 2-3

Middle Zone: Zones 3-4

Outer Zone: Zones 5-6

The layout of plant material should be flexible, but should follow the general principals described in Table H.3. The objective is to have a system which resembles a random and natural plant layout, while maintaining optimal conditions for plant establishment and growth.

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Figure H.1 Planting Zones for Bioretention Facilities

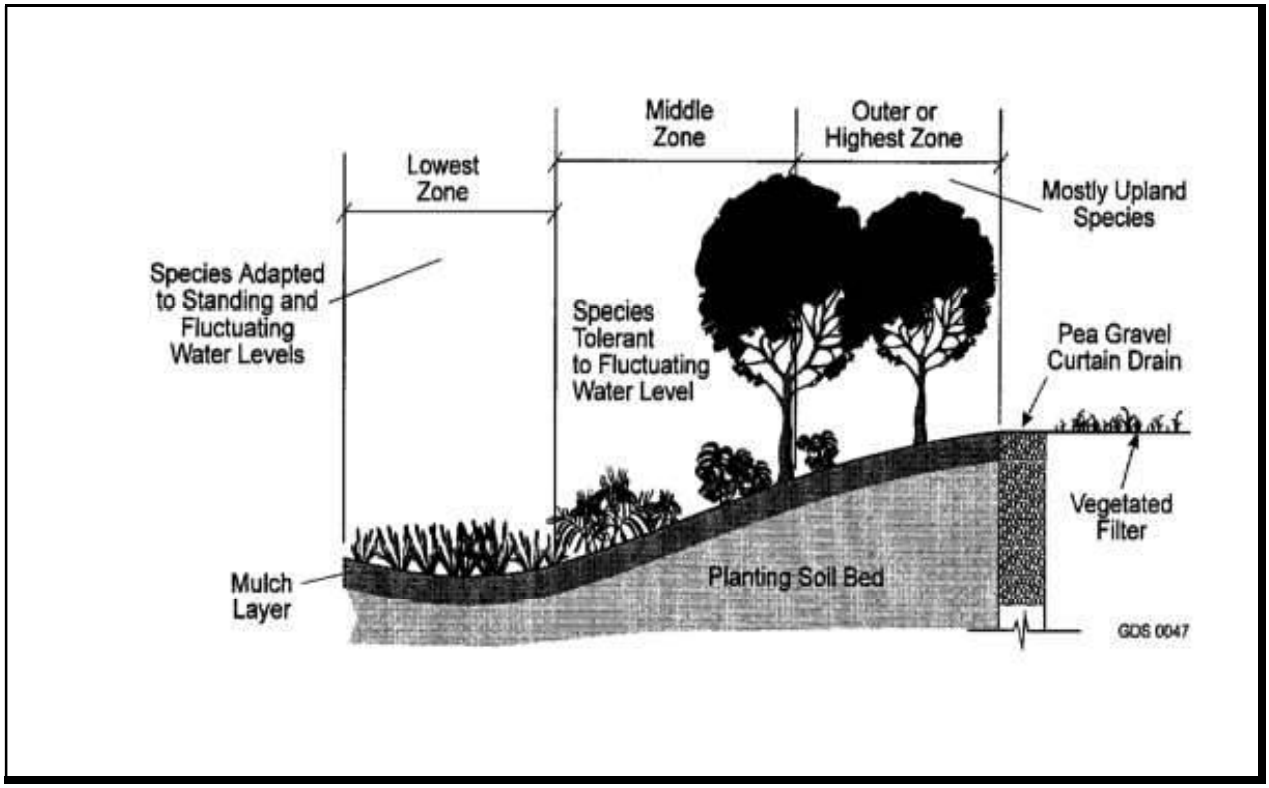

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Table H.3 Planting Plan Design Considerations
Native plant species should be specified over exotic or foreign species.
Appropriate vegetation should be selected based on the zone of hydric tolerance (see Figure H.1).
Species layout should generally be random and natural.
A canopy should be established with an understory of shrubs and herbaceous materials.
Woody vegetation should not be specified in the vicinity of inflow locations.
Trees should be planted primarily along the perimeter of the bioretention area.
Urban stressors (e.g., wind, sun, exposure, insect and disease infestation, drought) should be considered when laying out the planting plan.
Noxious weeds should not be specified.
Aesthetics and visual characteristics should be a prime consideration.
Traffic and safety issues must be considered.
Existing and proposed utilities must be identified and considered.

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Plant Material Guidance

Plant materials should conform to the American Standard Nursery Stock, published by the American Association of Nurserymen, and should be selected from certified, reputable nurseries. Planting specifications should be prepared by the designer and should include a sequence of construction, a description of the contractor's responsibilities, a planting schedule and installation specifications, initial maintenance, and a warranty period and expectations of plant survival. Table H.4 presents some typical issues for planting specifications.

Table H.4 Planting Specification Issues for Bioretention Areas	
Specification Element	**Elements**
Sequence of Construction	Describe site preparation activities, soil amendments, etc.; address erosion and sediment control procedures; specify step-by-step procedure for plant installation through site clean-up.
Contractor's Responsibilities	Specify the contractors responsibilities, such as watering, care of plant material during transport, timeliness of installation, repairs due to vandalism, etc.
Planting Schedule and Specifications	Specify the materials to be installed, the type of materials (e.g., B&B, bare root, containerized); time of year of installations, sequence of installation of types of plants; fertilization, stabilization seeding, if required; watering and general care.
Maintenance	Specify inspection periods; mulching frequency (annual mulching is most common); removal and replacement of dead and diseased vegetation; treatment of diseased trees; watering schedule after initial installation (once per day for 14 days is common); repair and replacement of staking and wires.
Warranty	Specify the warranty period, the required survival rate, and expected condition of plant species at the end of the warranty period.

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Trees and Shrubs						
American Elm *(Ulmus americana)*	4,5,6	Dec. Tree	yes	Irregular-seasonal saturation	High. Food (seeds,browsing), cover, nesting for birds & mammals	Susceptible to diesease (short-lived). Sun to full shade, tolerates drought and wind/ice damage.
Arrowwood Viburrium *(Viburrium dentatum)*	3,4	Dec. Shrub	yes	yes	High. Songbirds and mammals	Grows best in sun to partial shade
Bald Cypress *(Taxodium distichum)*	3,4	Dec. Tree	yes	yes	Little food value, but good perching site for waterfowl	Forested Coastal Plain. North of normal range. Tolerates drought.
Bayberry *(Myrica pensylvanica)*	4,5,6	Dec. Shrub	yes	yes	High. Nesting, food, cover. Berries last into winter	Coastal Plain only. Roots fix N_2 Tolerates slightly acidic soils.
Black Ash *(Fraxinus nigra)*	3,4,5	Dec. Tree	yes	Irregular-seasonal saturation	High. Food (seeds, sap), cover, nesting for birds & mammals. Fruit persists in winter	Rapid growth. Requires full sun. Susceptible to wind/ice damage & disease. Tolerates drought and infrequent flooding by salt water.
Black Cherry *(Prunus serotina)*	5,6	Dec. Tree	yes	no	High. Food	Moist soils or wet bottomland areas
Blackgum or Sourgum *(Nyssa sylvatica)*	4,5,6	Dec. Tree	yes	yes	High. Songbirds, egrets, herons, raccoons, owls	Can be difficult to transplant. Prefers sun to partial shade
Black Willow *(Salix nigra)*	3,4,5	Dec. Tree	yes	yes	High. Browsing and cavity nesters.	Rapid growth, stabilizes stream-banks. Full sun
Buttonbush *(Cepahlanthus occidentalis)*	2,3,4,5	Dec. Shrub	yes	yes	High. Ducks and shorebirds. Seeds, nectar and nesting.	Full sun to partial shade. Will grow in dry areas.
Common Spice Bush *(Lindera benzoin)*	3,4,5	Dec. Shrub	yes	yes	Very high. Songbirds	Shade and rich soils. Tolerates acidic soils. Good understory species

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Eastern Cottonwood *(Populus deltoides)*	4,5	Dec. Tree	yes	yes	Moderate. Cover, food.	Shallow rooted, subject to windthrow. Invasive roots. Rapid growth.
Eastern Hemlock *(Tsuga canadensis)*	5,6	Conif. Tree	yes	yes	Moderate. Mostly cover and some food	Tolerates all sun/shade conditions. Tolerates acidic soil.
Eastern Red Cedar *(Juniperus virginiana)*	4,5,6	Conif. Tree	yes	no	High. Fruit for birds. Some cover.	Full sun to partial shade. Common in wetlands, shrub bogs and edge of stream
Elderberry *(Sambucus canadensis)*	3,4,5,6	Dec. Shrub	yes	yes	Extremely high. Food and cover, birds and mammals.	Full sun to partial shade.
Green Ash, Red Ash *(Fraxinus pennsylvania)*	4,5	Dec. Tree	yes	yes	Moderate. Songbirds.	Rapid growing streambank stabilizer. Full sun to partial shade.
Hackenberry *(Celtis occidentalis)*	5,6	Dec. Tree	yes	some	High. Food and cover	Full sun to partial shade.
Larch, Tamarack *(Larix latricina)*	3,4	Conif. Tree	no	yes	Low. Nest tree and seeds.	Rapid initial growth. Full sun, acidic boggy soil.
Pin Oak *(Quercus palustris)*	3,4,5,6	Dec. Tree	yes	yes	High. Tolerates acidic soil	Gypsy moth target. Prefers well drained, sandy soils.
Red Choke Berry *(Pyrus arbutifolia)*	3,4,5	Dec. Shrub	no	yes	Moderate. Songbirds.	Bank stabilizer. Partial sun.
Red Maple *(Acer rubrum)*	3,4,5,6	Dec. Tree	yes	yes	High seeds and browse. Tolerates acidic soil.	Rapid growth.
River Birch *(Betula nigra)*	3,4,5	Dec. Tree	yes	yes	Low. Good for cavity nesters.	Bank erosion control. Full sun.
Shadowbush, Serviceberry *(Amelanchier*	4,5,6	Dec. Shrub	yes	yes	High. Nesting, cover, food. Birds and	Prefers partial shade. Common in forested

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
canadensis)					mammals.	wetlands and upland woods.
Silky Dogwood *(Cornus amomium)*	3,4,5	Dec. Shrub	yes	yes	High. Songbirds, mammals.	Shade and drought tolerant. Good bank stabilizer.
Slippery Elm *(Ulnus rubra)*	3,4,5	Dec. Tree	rare	yes	High. Food (seeds, buds) for birds & mammals (browse). Nesting	Rapid growth, no salinity tolerance. Tolerant to shade and drought.
Smooth Alder *(Alnus serrulata)*	3,4,5	Dec. Tree	no	yes	High. Food, cover.	Rapid growth. Stabilizes streambanks.
Speckled Alder *(Alnus rugosa)*	3,4	Dec. Shrub	yes	yes	High. Cover, browse for deer, seeds for bird.	
Swamp White Oak *(Quercus bicolor)*	3,4,5	Dec. Tree	yes	yes	High. Mast	Full sun to partial shade. Good bottomland tree.
Swamp Rose *(Rosa Palustrus)*	3,4	Dec. Shrub		Irregular, seasonal, or regularly saturated	High. Food (hips) for birds including turkey, ruffed grouse and mammals. Fox cover.	Prefers full sun. Easy to establish. Low salt tolerance.
Sweetgum *(Liquidambar styraciflua)*	4,5,6	Dec. Tree	yes	yes	Moderate. Songbirds	Tolerates acid or clay soils. Sun to partial shade.
Sycamore *(Platanus occidentalis)*	4,5,6,	Dec. Tree	yes	yes	Low. Food, cavities for nesting.	Rapid growth. Common in floodplains and alluvial woodlands.
Tulip Tree *(Liriodendron tulipifera)*	5,6	Dec. Tree	yes	no	Moderate. Seeds and nest sites	Full sun to partial shade. Well drained soils. Rapid growth.
Tupelo *(Nyssa sylvatica vari biflora)*	3,4,5	Dec. Tree	yes	yes	High. Seeds and nest sites	Ornamental

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
White Ash *(Fraxinus americana)*	5,6	Dec. Tree	yes	no	High. Food	All sunlight conditions. Well drained soils.
Winterberry *(Ilex verticillata)*	3,4,5	Dec. Shrub	yes	yes	High. Cover and fruit for birds. Holds berries into winter.	Full sun to partial shade. Seasonally flooded areas.
Witch Hazel *(Hamamelis virginiana)*	4,5	Dec. Shrub	yes	no	Low. Food for squirrels, deer, and ruffed grouse.	Prefers shade. Ornamental.
Herbaceous Plants						
Arrow arum *(Peltandra virginica)*	2,3	Emergent	yes	up to 1 ft.	High. Berries are eaten by wood ducks.	Full sun to partial shade.
Arrowhead, Duck Potato *(Saggitaria latifolia)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Tubers and seeds eaten by ducks.	Aggressive colonizer.
Big Bluestem (*Andropogon gerardi*)	4,5	Perimeter	yes	Irregular or seasonal inundation.	High. Seeds for songbirds. Food for deer	Requires full sun.
Birdfoot deervetch (*Lotus Corniculatus*)	4,5,6	Perimeter	yes	Infrequent inundation	High. Food for birds.	Full sun. Nitrogen fixer.
Blue Flag Iris *(Iris versicolor)*	2,3	Emergent	yes	Regular or permanently, up to ½ ft or saturated	Moderate. Food muskrat and wildfowl. Cover, marshbirds	Slow growth. Full sun to partial shade. Tolerates clay. Fresh to moderately brackish water.
Blue Joint (*Calamagrotis canadensis*)	2,3,4	Emergent	yes	Regular or permanent inundation up to 0.5 ft.	Moderate. Food for game birds and moose.	Tolerates partial shade
Broomsedge *(Andropogon virginicus)*	2,3	Perimeter	yes	up to 3 in.	High. Songbirds and browsers. Winter food and cover.	Tolerant of fluctuation water levels & partial shade.
Bushy Beardgrass *(Andropogon glomeratus)*	2,3	Emergent	yes	up to 1 ft.		Requires full sun.
Cardinal flower (*Lobelia cardinalis*)	4,5,6	Perimeter	yes	Some. Tolerates saturation up to 100% of season.	High. Nectar for hummingbird, oriole, butterflies.	Tolerates partial shade

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Cattail *(Typha sp.)*	2,3	Emergent	yes	up to 1 ft.	Low. Except as cover	Aggressive. May eliminate other species. Volunteer. High pollutant treatment
Coontail *(Ceratophyllum demersum)*	1	Submergent	no	yes	Low food value. Good habitat and shelter for fish and invertebrates.	Free floating SAV. Shade tolerant. Rapid growth.
Common Three-Square *(Scirpus pungens)*	2	Emergent	yes	up to 6 in.	High. Seeds, cover. Waterfowl and fish.	High metal removal.
Duckweed *(Lemma sp.)*	1,2	Submergent/ Emergent	yes	yes	High. Food for waterfowl and fish.	High metal removal.
Fowl mannagrass (*Glyceria striata*)	4,5	Perimeter	yes	Irregular or seasonal inundation	High. Food for waterfowl, muskrat, and deer.	Partial to full shade.
Hardstem Bulrush *(Scirpus acutus)*	2	Emergent	yes	up to 3 ft.	High. Cover, food (achenes, rhizomes) ducks, geese, muskrat, fish. Nesting for bluegill and bass.	Quick to establish, fresh to brackish. Good for sediment stabilization and erosion control.
Giant Burreed *(Sparganium eurycarpum)*	2,3	Emergent	rare	Regular to permanently inundated. up to 1 ft.	High. Food (seeds, plant) waterfowl, beaver & other mammals. Cover for marshbirds, waterfowl.	Rapid spreading . Tolerates partial sun. Good for shoreline stabilization.. Salinity <0.5 ppt
Lizard's Tail *(Saururus cernuus)*	2	Emergent	yes	up to 1 ft.	Low, except wood ducks.	Rapid growth. Shade tolerant
Long-leaved Pond Weed *(Potamogeton nodosus)*	1,2	Rooted submerged aquatic	yes	up to 1-6 ft. depending on turbidity	High. Food (seeds, roots) waterfowl, aquatic fur-bearers, deer, moose. Habitat for fish	Rapid spread. Salinity <0.5 ppt. Flowers float on surface, Aug.-Sept.

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Marsh Hibiscus *(Hibiscus moscheutos)*	2,3	Emergent	yes	up to 3 in.	Low. Nectar.	Full sun. Can tolerate periodic dryness.
Pickerelweed *(Pontederia cordata)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Ducks. Nectar for butterflies.	Full sun to partial shade.
Pond Weed, Sago *(Potamogeton pectinatus*	1	Submergent	yes	yes	Extremely high. Waterfowl, marsh and shorebirds.	Removes heavy metals.
Redtop (*Agrostis alba*)	3,4,5	Perimeter	yes	Up to 25% of season	Moderate. Rabbits and some birds.	Quickly established but not highly competitive.
Rice Cutgrass *(Leersia oryzoides)*	2,3	Emergent	yes	up to 3 in.	High. Food and cover.	Full sun although tolerant of shade. Shoreline stabilization.
Sedges *(Carex spp.)*	2,3	Emergent	yes	up to 3 in.	High waterfowl, songbirds.	Many wetland and upland species.
Tufted Hairgrass (*Deschampsia caespitosa*)	3,4,5	Perimeter	yes	Regular to irregular inundation.	High.	Full sun. May become invasive.
Soft-stem Bulrush *(Scirpus validus)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Good cover and food.	Full sun. Aggressive colonizer. High pollutant removal.
Smartweed *(Polygonum spp.)*	2,3,4	Emergent	yes	up to 1 ft.	High. Waterfowl, songbirds. Seeds and cover.	Fast colonizer. Avoid weedy aliens such as *P. perfoliatum.*
Soft Rush *(Juncus effusus)*	2,3,4	Emergent	yes	up to 3 in.	Moderate.	Tolerates wet or dry conditions.
Spatterdock *(Nuphar luteum)*	2	Emergent	yes	up to 3 ft.	Moderate for food but high for cover.	Fast colonizer. Tolerant of fluctuating water levels.
Switchgrass *(Panicum virgatum)*	2,3,4,5,6	Perimeter	yes	up to 3 in.	High. Seeds, cover for waterfowl, songbirds.	Tolerates wet/dry conditions.

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Sweet Flag *(Acorus calamus)*	2,3	Herbaceous	yes	up to 3 in.	Low.	Tolerant of dry periods. Not a rapid colonizer. Tolerates acidic conditions.
Waterweed *(Elodea canadensis)*	1	Submergent	yes	yes	Low.	Good water oxygenator. High nutrient, copper, manganese and chromium removal.
Wild Celery *(Valisneria americana)*	1	Submergent	yes	yes	High. Food for waterfowl. Habitat for fish and invertebrates.	Tolerant of murkey water and high nutrient loads.
Wild Rice *(Zizania aquatica)*	2	Emergent	yes	up to 1 ft.	High. Food for birds.	Prefers full sun
Wool Grass *(Scirpus cyperinus)*	2,3	Emergent	yes	Irregularly to seasonally indundated	Moderate. Cover, Food.	Requires full sun. Can tolerate acidic soils, drought. Colonizes disturbed areas, moderate growth.

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Bioretention Operation, Maintenance and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		

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MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

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Comments:

Actions to be Taken:

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Appendix
Environmental Assessment For

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond t any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exis or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If th answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: 321 Commerce, LLC (Self-Storage)		
Project Location (describe, and attach a general location map): 321 Commerce Drive, Amherst, NY 14228		
Brief Description of Proposed Action (include purpose or need): New industrial development (approx. 164 self-storage unit rentals) on 1.78 +/- acre parcel located on the south side of Commerce Drive zoned RD, Research and Development. Four single story, slab on grade, buildings will be constructed sized to accommodate 10'x10' and 10'x15' units. Stormwat management controls are to be installed and will be SPDES compliant including a Bio-retention area and Dry Swale.		
Name of Applicant/Sponsor: 321 Commerce, LLC	Telephone: (716) 807-2388 E-Mail: BogartLandscape@yahoo.com	
Address: 6885 Campbell Blvd		
City/PO: North Tonawanda	State: New York	Zip Code: 14120
Project Contact (if not same as sponsor; give name and title/role): Advanced Design Group (Kristin L. Savard, PE - Owner/President)	Telephone: (716) 754-2256 E-Mail: kristin.savard@adgengineers.com	
Address: 761 Cayuga Street		
City/PO: Lewiston	State: New York	Zip Code: 14092
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

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B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of finan assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Amherst Town Board Site Plan and SEQR Approval	Jan 2022
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Amherst Planning Board Site Plan and SEQR (Recommending Body)	Jan 2022
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☐Yes ☑No		
e. County agencies ☑Yes ☐No	Erie County Planning Site Plan and SEQR (Recommending body)	Jan 2022
f. Regional agencies ☐Yes ☑No		
g. State agencies ☐Yes ☑No		
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No
iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐Yes ☑No
If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No
If Yes, identify the plan(s):
NYS Heritage Areas:West Erie Canal Corridor

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No
If Yes, identify the plan(s):

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C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Classified as RD - Research and Development

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home Central School District, New York

b. What police or other public protection forces serve the project site?
Amherst Town Police Department

c. Which fire protection and emergency medical services serve the project site?
Ellicott Creek Fire Company

d. What parks serve the project site?
Ellicott Creek Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? New industrial development - Self-storage rental units

b. a. Total acreage of the site of the proposed action? 1.78 +/- acres
b. Total acreage to be physically disturbed? 1.78+/- acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 1.78 +/- acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 12 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase m determine timing or duration of future phases: _____

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f. Does the project include new residential uses? ☐ Yes ☑ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No

If Yes,

i. Total number of structures 4

ii. Dimensions (in feet) of largest proposed structure: 9 height; 20 width; and 260 length

iii. Approximate extent of building space to be heated or cooled: 0 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No

If Yes,

i. Purpose of the impoundment:

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other speci

iii. If other than water, identify the type of impounded/contained liquids and their source.

iv. Approximate size of the proposed impoundment. Volume: million gallons; surface area: ac

v. Dimensions of the proposed dam or impounding structure: height; length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐ Yes ☑ No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)

If Yes:

i .What is the purpose of the excavation or dredging?

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards):
- Over what duration of time?

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No
If yes, describe.

v. What is the total area to be dredged or excavated? acres

vi. What is the maximum area to be worked at any one time? acres

vii. What would be the maximum depth of excavation or dredging? feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☑ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description):

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ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

_____

_____

_____

_____

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☐No

If Yes, describe: _____

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☐No

If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion:_____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____

_____

- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

_____

c. Will the proposed action use, or create a new demand for water? ☐Yes ☑No

If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐Yes ☐No

If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No
- Do existing lines serve the project site? ☐Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No

If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

_____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐Yes ☑No

If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

_____

_____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐Yes ☐No

If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No

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- Do existing sewer lines serve the project site? ☐Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 1.17 acres (impervious surface)

_____ Square feet or 1.78 acres (parcel size)

ii. Describe types of new point sources. Pavement drive and four storage buildings, two 5,200 sq. ft. and two 4,500 sq. ft.

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Stormwater runoff will be directed through vegetated swales, pipes, dry swales, and bio-retention areas to the existing stormwater manhole on t west side of the property and out to Ellicott Creek.

- If to surface waters, identify receiving water bodies or wetlands: Ellicott Creek
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☑No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

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h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

_____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 07:00 AM to 07:00 PM
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: 07:00 AM to 07:00 PM
- Saturday: 07:00 AM to 07:00 PM
- Sunday: 07:00 AM to 07:00 PM
- Holidays: 07:00 AM to 07:00 PM

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m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Heavy equipment operations, deliveries of material, construction traffic, and select components of construction will produce noise that will exceed existing ambient noise levels (only during construction hours).

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☑ Yes ☐ No

Describe: Land clearing will occur as part of the project. Proper buffer zones will be maintained.

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Wall Packs, between proposed storage buildings, 10 feet high, directed at ground 45 degrees from buildings, 55 feet to KOM Automation, Inc.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☑ Yes ☐ No

Describe: Land clearing will occur as part of the project. Proper buffer zones will be maintained.

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

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s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☑ Industrial ☑ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☑ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

There is both industrial and commercial near the project site as it is zoned research and development. Ellicott Creek is to the south of the project are

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0.0	1.17	+1.17
• Forested	0.0	0.0	0.0
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	1.78	0.61	-1.17
• Agricultural (includes active orchards, field, greenhouse etc.)	0.0	0.0	0.0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.0	0.0	0.0
• Wetlands (freshwater or tidal)	0.0	0.0	0.0
• Non-vegetated (bare rock, earth or fill)	0.0	0.0	0.0
• Other Describe: _____			

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c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐Yes ☑No
If Yes,
i. Identify Facilities:
_____
_____

e. Does the project site contain an existing dam? ☐Yes ☑No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:
_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No
If Yes:
i. Has the facility been formally closed? ☐Yes ☐ No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
_____
_____
iii. Describe any development constraints due to the prior solid waste activities: _____
_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:
_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes ☑ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☑No
☐ Yes – Spills Incidents database Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:_____
_____
_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes ☑No
If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):
_____
_____

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v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? > 6.5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %

c. Predominant soil type(s) present on project site:

Cosad Loamy Fine Sand	66 %
Getzville Silt Loam	34 %
	%

d. What is the average depth to the water table on the project site? Average: 0.75 feet

e. Drainage status of project site soils:

☐ Well Drained:	% of site
☐ Moderately Well Drained:	% of site
☑ Poorly Drained	100 % of site

f. Approximate proportion of proposed action site with slopes:

☑ 0-10%:	100 % of site
☐ 10-15%:	% of site
☐ 15% or greater:	% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☑ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name Ellicott Creek Classification fourth order
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

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m. Identify the predominant wildlife species that occupy or use the project site:
Woodland Wildlife

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation): _____
ii. Source(s) of description or evaluation: _____
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☑No

If Yes:
i. Species and listing (endangered or threatened): _____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑Yes ☐No

If Yes:
i. Species and listing:
Spiny Softshell

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use: _____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No
i. If Yes: acreage(s) on project site? _____
ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name: _____
ii. Basis for designation: _____
iii. Designating agency and date: _____

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e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: Ellicott Creek Park

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): Park

iii. Distance between project and resource: 0.19 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name _____ Date_____

Signature_____ Title_____

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PRINT FORM

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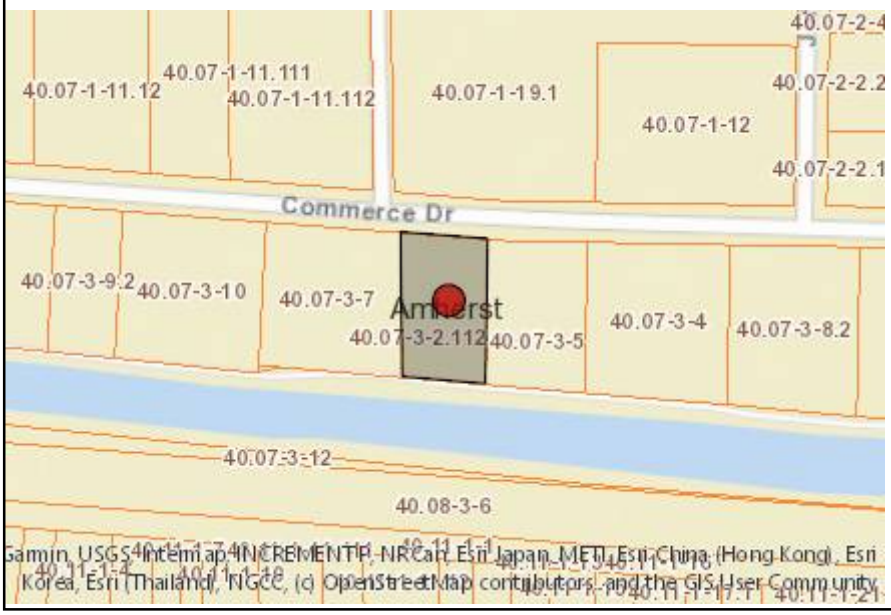
EAF Mapper Summary Report

Tuesday, August 3, 2021 2:21 PM



Disclaimer: The EAF Mapper is a screening tool intended to project sponsors and reviewing agencies in preparing an environ assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Alt the EAF Mapper provides the most up-to-date digital data availab DEC, you may also need to contact local or other data sources in to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Distric Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No

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E.2.p. [Rare Plants or Animals]	Yes
E.2.p. [Rare Plants or Animals - Name]	Spiny Softshell
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

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Appendix
NYS Stormwater Management Design Manual Appendix

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Appendix H: Landscaping Guidance/Plant Lists

H.1 Ponds and Wetlands

For areas that are to be planted within a stormwater pond, it is necessary to determine what type o hydrologic zones will be created within the pond. The following six zones describe the differen conditions encountered in stormwater management facilities. Every facility does not necessaril reflect all of these zones. The hydrologic zones designate the degree of tolerance the plant exhibits t differing degrees of inundation by water.

Table H.5 at the end of this appendix designates appropriate zones for each plant. There may be othe zones listed outside of these brackets. The plant materials may occur within these zones, but are no typically found in them. Plants suited for specific hydrologic conditions may perish when thos conditions change, exposing the soil, and therefore, increasing the chance for erosion.

Each zone has its own set of plant selection criteria based on the hydrology of the zone, the stormwate functions required of the plant and the desired landscape effect. The hydrologic zones are as follows:

Table H.1 Hydrologic Zones

Zone #	Zone Description	Hydrologic Conditions
Zone 1	Deep Water Pool	1-6 feet deep Permanent Pool
Zone 2	Shallow Water Bench	6 inches to 1 foot deep
Zone 3	Shoreline Fringe	Regularly inundated
Zone 4	Riparian Fringe	Periodically inundated
Zone 5	Floodplain Terrace	Infrequently inundated
Zone 6	Upland Slopes	Seldom or never inundated

Zone 1: Deep Water Area ***(1- 6 Feet)***

Ponds and wetlands both have deep pool areas that comprise Zone 1. These pools range from one to six feet in depth, and are best colonized by submergent plants, if at all.

This pondscaping zone has not been routinely planted for several reasons. First, the availability o plant materials that can survive and grow in this zone is limited, and it is also feared that plants coul clog the stormwater facility outlet structure. In many cases, these plants will gradually becom established through natural recolonization (e.g., transport of plant fragments from other ponds via th feet and legs of waterfowl). If submerged plant material becomes more commercially available an clogging concerns are addressed, this area can be planted. The function of the planting is to reduc resedimentation and improve oxidation while creating a greater aquatic habitat.

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- Plant material must be able to withstand constant inundation of water of one foot or greater in depth.
- Plants may be submerged partially or entirely.
- Plants should be able to enhance pollutant uptake.
- Plants may provide food and cover for waterfowl, desirable insects, and other aquatic life.

Zone 2: Shallow Water Bench ***(Normal Pool To 1 Foot)***

Zone 2 includes all areas that are inundated below the normal pool to a depth of one foot, and is th primary area where emergent plants will grow in a stormwater wetlands. Zone 2 also coincides witl the aquatic bench found in stormwater ponds. This zone offers ideal conditions for the growth o many emergent wetland species. These areas may be located at the edge of the pond or on low mound of earth located below the surface of the water within the pond. When planted, Zone 2 can be a important habitat for many aquatic and nonaquatic animals, creating a diverse food chain. This foo chain includes predators, allowing a natural regulation of mosquito populations, thereby reducing th need for insecticidal applications.

- Plant material must be able to withstand constant inundation of water to depths betwee six inches and one foot deep.
- Plants will be partially submerged.
- Plants should be able to enhance pollutant uptake.
- Plants may provide food and cover for waterfowl, desirable insects and other aquatic life.

Plants will stabilize the bottom of the pond, as well as the edge of the pond, absorbing wave impact and reducing erosion, when water level fluctuates. Plant also slow water velocities and increas sediment deposition rates. Plants can reduce resuspension of sediments caused by the wind. Plant can also soften the engineered contours of the pond, and can conceal drawdowns during dry weather.

Zone 3: Shoreline Fringe ***(Regularly Inundated)***

Zone 3 encompasses the shoreline of a pond or wetland, and extends vertically about one foot i elevation from the normal pool. This zone includes the safety bench of a pond, and may also b periodically inundated if storm events are subject to extended detention. This zone occurs in a we pond or shallow marsh and can be the most difficult to establish since plants must be able to withstan inundation of water during storms, when wind might blow water into the area, or the occasiona drought during the summer. In order to stabilize the soil in this zone, Zone 3 must have a vigorou cover.

- Plants should stabilize the shoreline to minimize erosion caused by wave and wind action or water fluctuation.
- Plant material must be able to withstand occasional inundation of water. Plants will be partially submerged at this time.
- Plant material should, whenever possible, shade the shoreline, especially the southern exposure. This will help to reduce the water temperature.

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- Plants should be able to enhance pollutant uptake.
- Plants may provide food and cover for waterfowl, songbirds, and wildlife. Plants could also be selected and located to control overpopulation of waterfowl.
- Plants should be located to reduce human access, where there are potential hazards, but should not block the maintenance access.
- Plants should have very low maintenance requirements, since they may be difficult or impossible to reach.
- Plants should be resistant to disease and other problems which require chemical applications (since chemical application is not advised in stormwater ponds).

Zone 4: Riparian Fringe ***(Periodically Inundated)***

Zone 4 extends from one to four feet in elevation above the normal pool. Plants in this zone are subject to periodic inundation after storms, and may experience saturated or partly saturated soil conditions. Nearly all of the temporary ED area is included within this zone.

- Plants must be able to withstand periodic inundation of water after storms, as well as occasional drought during the warm summer months.
- Plants should stabilize the ground from erosion caused by run-off.
- Plants should shade the low flow channel to reduce the pool warming whenever possible.
- Plants should be able to enhance pollutant uptake.
- Plant material should have very low maintenance, since they may be difficult or impossible to access.
- Plants may provide food and cover for waterfowl, songbirds and wildlife. Plants may also be selected and located to control overpopulation of waterfowl.
- Plants should be located to reduce pedestrian access to the deeper pools.

Zone 5: Floodplain Terrace ***(Infrequently Inundated)***

Zone 5 is periodically inundated by flood waters that quickly recedes in a day or less. Operationally Zone 5 extends from the maximum two year or Cpv water surface elevation up to the 10 or 100 yea maximum water surface elevation. Key landscaping objectives for Zone 5 are to stabilize the steej slopes characteristic of this zone, and establish a low maintenance, natural vegetation.

- Plant material should be able to withstand occasional but brief inundation during storms, although typical moisture conditions may be moist, slightly wet, or even swing entirely to drought conditions during the dry weather periods.
- Plants should stabilize the basin slopes from erosion.
- Ground cover should be very low maintenance, since they may be difficult to access on steep slopes or if frequency of mowing is limited. A dense tree cover may help reduce maintenance and discourage resident geese.
- Plants may provide food and cover for waterfowl, songbirds, and wildlife.

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- Placement of plant material in Zone 5 is often critical, as it often creates a visual focal point and provides structure and shade for a greater variety of plants.

Zone 6: Upland Slopes *(Seldom or Never Inundated)*

The last zone extends above the maximum 100 year water surface elevation, and often includes the outer buffer of a pond or wetland. Unlike other zones, this upland area may have sidewalks, bike paths, retaining walls, and maintenance access roads. Care should be taken to locate plants so they will not overgrow these routes or create hiding places that might make the area unsafe.

- Plant material is capable of surviving the particular conditions of the site. Thus, it is not necessary to select plant material that will tolerate any inundation. Rather, plant selections should be made based on soil condition, light, and function within the landscape.
- Ground covers should emphasize infrequent mowing to reduce the cost of maintaining this landscape.
- Placement of plants in Zone 6 is important since they are often used to create a visual focal point, frame a desirable view, screen undesirable views, serve as a buffer, or provide shade to allow a greater variety of plant materials. Particular attention should be paid to seasonal color and texture of these plantings.

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H.2 Bioretention

Planting Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through adsorption and microbial activity within the soil profile. Therefore, the soils must balance soil chemistry and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should by less than 25% by volume. Soils should fall within the SM, or ML classifications of the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds. Placement of the planting soil should be in lifts of 12 to 18", loosely compacted (tamped lightly with a dozer or backhoe bucket). The specific characteristics are presented in Table H.2.

Table H.2 Planting Soil Characteristics

Parameter	Value
PH range	5.2 to 7.00
Organic matter	1.5 to 4.0%
Magnesium	35 lbs. per acre, minimum
Phosphorus (P_2O_5)	75 lbs. per acre, minimum
Potassium (K_2O)	85 lbs. per acre, minimum
Soluble salts	≤ 500 ppm
Clay	10 to 25%
Silt	30 to 55%
Sand	35 to 60%

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Mulch Layer

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoid surface sealing which reduces permeability. Mulch helps prevent erosion, and provides a micro-environment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double, shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

Planting Plan Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an ecosystem consisting of an upland-oriented community dominated by trees, but having a distinct community, or sub-canopy, of understory trees, shrubs and herbaceous materials. The intent is to establish a diverse, dense plant cover to treat stormwater runoff and withstand urban stresses from insect and disease infestations, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure H.1). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports a slightly drier group of plants, but still tolerates fluctuating water levels. The outer edge is the highest elevation and generally supports plants adapted to dryer conditions. When using Table A.5 to identify species, use the following guideline:

Lowest Zone: Zones 2-3

Middle Zone: Zones 3-4

Outer Zone: Zones 5-6

The layout of plant material should be flexible, but should follow the general principals described in Table H.3. The objective is to have a system which resembles a random and natural plant layout, while maintaining optimal conditions for plant establishment and growth.

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Figure H.1 Planting Zones for Bioretention Facilities

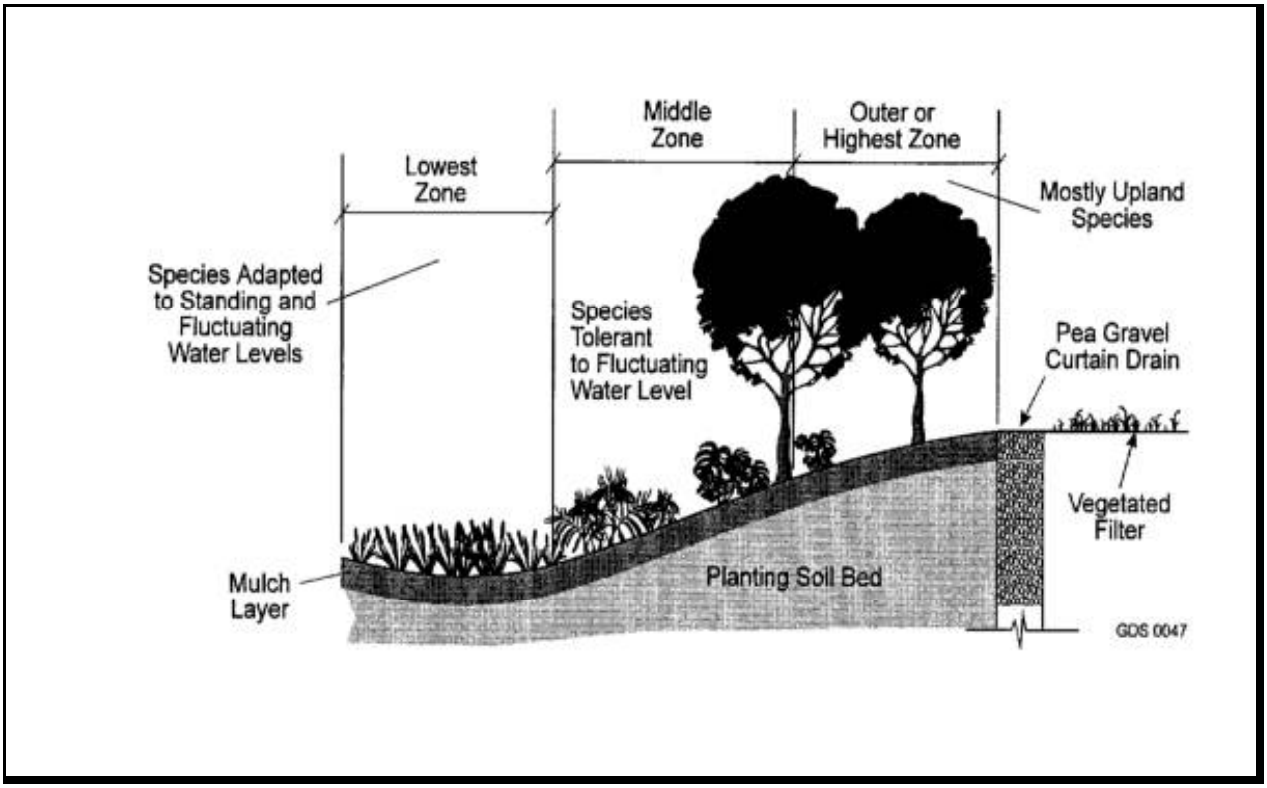

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Table H.3 Planting Plan Design Considerations
Native plant species should be specified over exotic or foreign species.
Appropriate vegetation should be selected based on the zone of hydric tolerance (see Figure H.1).
Species layout should generally be random and natural.
A canopy should be established with an understory of shrubs and herbaceous materials.
Woody vegetation should not be specified in the vicinity of inflow locations.
Trees should be planted primarily along the perimeter of the bioretention area.
Urban stressors (e.g., wind, sun, exposure, insect and disease infestation, drought) should be considered when laying out the planting plan.
Noxious weeds should not be specified.
Aesthetics and visual characteristics should be a prime consideration.
Traffic and safety issues must be considered.
Existing and proposed utilities must be identified and considered.

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Plant Material Guidance

Plant materials should conform to the American Standard Nursery Stock, published by the American Association of Nurserymen, and should be selected from certified, reputable nurseries. Planting specifications should be prepared by the designer and should include a sequence of construction, a description of the contractor's responsibilities, a planting schedule and installation specifications, initial maintenance, and a warranty period and expectations of plant survival. Table H.4 presents some typical issues for planting specifications.

Table H.4 Planting Specification Issues for Bioretention Areas	
Specification Element	**Elements**
Sequence of Construction	Describe site preparation activities, soil amendments, etc.; address erosion and sediment control procedures; specify step-by-step procedure for plant installation through site clean-up.
Contractor's Responsibilities	Specify the contractors responsibilities, such as watering, care of plant material during transport, timeliness of installation, repairs due to vandalism, etc.
Planting Schedule and Specifications	Specify the materials to be installed, the type of materials (e.g., B&B, bare root, containerized); time of year of installations, sequence of installation of types of plants; fertilization, stabilization seeding, if required; watering and general care.
Maintenance	Specify inspection periods; mulching frequency (annual mulching is most common); removal and replacement of dead and diseased vegetation; treatment of diseased trees; watering schedule after initial installation (once per day for 14 days is common); repair and replacement of staking and wires.
Warranty	Specify the warranty period, the required survival rate, and expected condition of plant species at the end of the warranty period.

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Trees and Shrubs						
American Elm *(Ulmus americana)*	4,5,6	Dec. Tree	yes	Irregular-seasonal saturation	High. Food (seeds,browsing), cover, nesting for birds & mammals	Susceptible to diesease (short-lived). Sun to full shade, tolerates drought and wind/ice damage.
Arrowwood Viburrium *(Viburrium dentatum)*	3,4	Dec. Shrub	yes	yes	High. Songbirds and mammals	Grows best in sun to partial shade
Bald Cypress *(Taxodium distichum)*	3,4	Dec. Tree	yes	yes	Little food value, but good perching site for waterfowl	Forested Coastal Plain. North of normal range. Tolerates drought.
Bayberry *(Myrica pensylvanica)*	4,5,6	Dec. Shrub	yes	yes	High. Nesting, food, cover. Berries last into winter	Coastal Plain only. Roots fix N_2 Tolerates slightly acidic soils.
Black Ash *(Fraxinus nigra)*	3,4,5	Dec. Tree	yes	Irregular-seasonal saturation	High. Food (seeds, sap), cover, nesting for birds & mammals. Fruit persists in winter	Rapid growth. Requires full sun. Susceptible to wind/ice damage & disease. Tolerates drought and infrequent flooding by salt water.
Black Cherry *(Prunus serotina)*	5,6	Dec. Tree	yes	no	High. Food	Moist soils or wet bottomland areas
Blackgum or Sourgum *(Nyssa sylvatica)*	4,5,6	Dec. Tree	yes	yes	High. Songbirds, egrets, herons, raccoons, owls	Can be difficult to transplant. Prefers sun to partial shade
Black Willow *(Salix nigra)*	3,4,5	Dec. Tree	yes	yes	High. Browsing and cavity nesters.	Rapid growth, stabilizes stream-banks. Full sun
Buttonbush *(Cepahlanthus occidentalis)*	2,3,4,5	Dec. Shrub	yes	yes	High. Ducks and shorebirds. Seeds, nectar and nesting.	Full sun to partial shade. Will grow in dry areas.
Common Spice Bush *(Lindera benzoin)*	3,4,5	Dec. Shrub	yes	yes	Very high. Songbirds	Shade and rich soils. Tolerates acidic soils. Good understory species

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
Eastern Cottonwood *(Populus deltoides)*	4,5	Dec. Tree	yes	yes	Moderate. Cover, food.	Shallow rooted, subject to windthrow. Invasive roots. Rapid growth.
Eastern Hemlock *(Tsuga canadensis)*	5,6	Conif. Tree	yes	yes	Moderate. Mostly cover and some food	Tolerates all sun/shade conditions. Tolerates acidic soil.
Eastern Red Cedar *(Juniperus virginiana)*	4,5,6	Conif. Tree	yes	no	High. Fruit for birds. Some cover.	Full sun to partial shade. Common in wetlands, shrub bogs and edge of stream
Elderberry *(Sambucus canadensis)*	3,4,5,6	Dec. Shrub	yes	yes	Extremely high. Food and cover, birds and mammals.	Full sun to partial shade.
Green Ash, Red Ash *(Fraxinus pennsylvania)*	4,5	Dec. Tree	yes	yes	Moderate. Songbirds.	Rapid growing streambank stabilizer. Full sun to partial shade.
Hackenberry *(Celtis occidentalis)*	5,6	Dec. Tree	yes	some	High. Food and cover	Full sun to partial shade.
Larch, Tamarack *(Larix latricina)*	3,4	Conif. Tree	no	yes	Low. Nest tree and seeds.	Rapid initial growth. Full sun, acidic boggy soil.
Pin Oak *(Quercus palustris)*	3,4,5,6	Dec. Tree	yes	yes	High. Tolerates acidic soil	Gypsy moth target. Prefers well drained, sandy soils.
Red Choke Berry *(Pyrus arbutifolia)*	3,4,5	Dec. Shrub	no	yes	Moderate. Songbirds.	Bank stabilizer. Partial sun.
Red Maple *(Acer rubrum)*	3,4,5,6	Dec. Tree	yes	yes	High seeds and browse. Tolerates acidic soil.	Rapid growth.
River Birch *(Betula nigra)*	3,4,5	Dec. Tree	yes	yes	Low. Good for cavity nesters.	Bank erosion control. Full sun.
Shadowbush, Serviceberry *(Amelanchier*	4,5,6	Dec. Shrub	yes	yes	High. Nesting, cover, food. Birds and	Prefers partial shade. Common in forested

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
canadensis)					mammals.	wetlands and upland woods.
Silky Dogwood *(Cornus amomium)*	3,4,5	Dec. Shrub	yes	yes	High. Songbirds, mammals.	Shade and drought tolerant. Good bank stabilizer.
Slippery Elm *(Ulnus rubra)*	3,4,5	Dec. Tree	rare	yes	High. Food (seeds, buds) for birds & mammals (browse). Nesting	Rapid growth, no salinity tolerance. Tolerant to shade and drought.
Smooth Alder *(Alnus serrulata)*	3,4,5	Dec. Tree	no	yes	High. Food, cover.	Rapid growth. Stabilizes streambanks.
Speckled Alder *(Alnus rugosa)*	3,4	Dec. Shrub	yes	yes	High. Cover, browse for deer, seeds for bird.	
Swamp White Oak *(Quercus bicolor)*	3,4,5	Dec. Tree	yes	yes	High. Mast	Full sun to partial shade. Good bottomland tree.
Swamp Rose *(Rosa Palustrus)*	3,4	Dec. Shrub		Irregular, seasonal, or regularly saturated	High. Food (hips) for birds including turkey, ruffed grouse and mammals. Fox cover.	Prefers full sun. Easy to establish. Low salt tolerance.
Sweetgum *(Liquidambar styraciflua)*	4,5,6	Dec. Tree	yes	yes	Moderate. Songbirds	Tolerates acid or clay soils. Sun to partial shade.
Sycamore *(Platanus occidentalis)*	4,5,6,	Dec. Tree	yes	yes	Low. Food, cavities for nesting.	Rapid growth. Common in floodplains and alluvial woodlands.
Tulip Tree *(Liriodendron tulipifera)*	5,6	Dec. Tree	yes	no	Moderate. Seeds and nest sites	Full sun to partial shade. Well drained soils. Rapid growth.
Tupelo *(Nyssa sylvatica vari biflora)*	3,4,5	Dec. Tree	yes	yes	High. Seeds and nest sites	Ornamental

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
White Ash *(Fraxinus americana)*	5,6	Dec. Tree	yes	no	High. Food	All sunlight conditions. Well drained soils.
Winterberry *(Ilex verticillata)*	3,4,5	Dec. Shrub	yes	yes	High. Cover and fruit for birds. Holds berries into winter.	Full sun to partial shade. Seasonally flooded areas.
Witch Hazel *(Hamamelis virginiana)*	4,5	Dec. Shrub	yes	no	Low. Food for squirrels, deer, and ruffed grouse.	Prefers shade. Ornamental.
Herbaceous Plants						
Arrow arum *(Peltandra virginica)*	2,3	Emergent	yes	up to 1 ft.	High. Berries are eaten by wood ducks.	Full sun to partial shade.
Arrowhead, Duck Potato *(Saggitaria latifolia)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Tubers and seeds eaten by ducks.	Aggressive colonizer.
Big Bluestem (*Andropogon gerardi*)	4,5	Perimeter	yes	Irregular or seasonal inundation.	High. Seeds for songbirds. Food for deer	Requires full sun.
Birdfoot deervetch (*Lotus Corniculatus*)	4,5,6	Perimeter	yes	Infrequent inundation	High. Food for birds.	Full sun. Nitrogen fixer.
Blue Flag Iris *(Iris versicolor)*	2,3	Emergent	yes	Regular or permanently, up to ½ ft or saturated	Moderate. Food muskrat and wildfowl. Cover, marshbirds	Slow growth. Full sun to partial shade. Tolerates clay. Fresh to moderately brackish water.
Blue Joint (*Calamagrotis canadensis*)	2,3,4	Emergent	yes	Regular or permanent inundation up to 0.5 ft.	Moderate. Food for game birds and moose.	Tolerates partial shade
Broomsedge *(Andropogon virginicus)*	2,3	Perimeter	yes	up to 3 in.	High. Songbirds and browsers. Winter food and cover.	Tolerant of fluctuation water levels & partial shade.
Bushy Beardgrass *(Andropogon glomeratus)*	2,3	Emergent	yes	up to 1 ft.		Requires full sun.
Cardinal flower (*Lobelia cardinalis*)	4,5,6	Perimeter	yes	Some. Tolerates saturation up to 100% of season.	High. Nectar for hummingbird, oriole, butterflies.	Tolerates partial shade

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
Cattail *(Typha sp.)*	2,3	Emergent	yes	up to 1 ft.	Low. Except as cover	Aggressive. May eliminate other species. Volunteer. High pollutant treatment
Coontail *(Ceratophyllum demersum)*	1	Submergent	no	yes	Low food value. Good habitat and shelter for fish and invertebrates.	Free floating SAV. Shade tolerant. Rapid growth.
Common Three-Square *(Scirpus pungens)*	2	Emergent	yes	up to 6 in.	High. Seeds, cover. Waterfowl and fish.	High metal removal.
Duckweed *(Lemma sp.)*	1,2	Submergent/ Emergent	yes	yes	High. Food for waterfowl and fish.	High metal removal.
Fowl mannagrass (*Glyceria striata*)	4,5	Perimeter	yes	Irregular or seasonal inundation	High. Food for waterfowl, muskrat, and deer.	Partial to full shade.
Hardstem Bulrush *(Scirpus acutus)*	2	Emergent	yes	up to 3 ft.	High. Cover, food (achenes, rhizomes) ducks, geese, muskrat, fish. Nesting for bluegill and bass.	Quick to establish, fresh to brackish. Good for sediment stabilization and erosion control.
Giant Burreed *(Sparganium eurycarpum)*	2,3	Emergent	rare	Regular to permanently inundated. up to 1 ft.	High. Food (seeds, plant) waterfowl, beaver & other mammals. Cover for marshbirds, waterfowl.	Rapid spreading . Tolerates partial sun. Good for shoreline stabilization.. Salinity <0.5 ppt
Lizard's Tail *(Saururus cernuus)*	2	Emergent	yes	up to 1 ft.	Low, except wood ducks.	Rapid growth. Shade tolerant
Long-leaved Pond Weed *(Potamogeton nodosus)*	1,2	Rooted submerged aquatic	yes	up to 1-6 ft. depending on turbidity	High. Food (seeds, roots) waterfowl, aquatic fur-bearers, deer, moose. Habitat for fish	Rapid spread. Salinity <0.5 ppt. Flowers float on surface, Aug.-Sept.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
Marsh Hibiscus *(Hibiscus moscheutos)*	2,3	Emergent	yes	up to 3 in.	Low. Nectar.	Full sun. Can tolerate periodic dryness.
Pickerelweed *(Pontederia cordata)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Ducks. Nectar for butterflies.	Full sun to partial shade.
Pond Weed, Sago *(Potamogeton pectinatus*	1	Submergent	yes	yes	Extremely high. Waterfowl, marsh and shorebirds.	Removes heavy metals.
Redtop (*Agrostis alba*)	3,4,5	Perimeter	yes	Up to 25% of season	Moderate. Rabbits and some birds.	Quickly established but not highly competitive.
Rice Cutgrass *(Leersia oryzoides)*	2,3	Emergent	yes	up to 3 in.	High. Food and cover.	Full sun although tolerant of shade. Shoreline stabilization.
Sedges *(Carex spp.)*	2,3	Emergent	yes	up to 3 in.	High waterfowl, songbirds.	Many wetland and upland species.
Tufted Hairgrass (*Deschampsia caespitosa*)	3,4,5	Perimeter	yes	Regular to irregular inundation.	High.	Full sun. May become invasive.
Soft-stem Bulrush *(Scirpus validus)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Good cover and food.	Full sun. Aggressive colonizer. High pollutant removal.
Smartweed *(Polygonum spp.)*	2,3,4	Emergent	yes	up to 1 ft.	High. Waterfowl, songbirds. Seeds and cover.	Fast colonizer. Avoid weedy aliens such as *P. perfoliatum.*
Soft Rush *(Juncus effusus)*	2,3,4	Emergent	yes	up to 3 in.	Moderate.	Tolerates wet or dry conditions.
Spatterdock *(Nuphar luteum)*	2	Emergent	yes	up to 3 ft.	Moderate for food but high for cover.	Fast colonizer. Tolerant of fluctuating water levels.
Switchgrass *(Panicum virgatum)*	2,3,4,5,6	Perimeter	yes	up to 3 in.	High. Seeds, cover for waterfowl, songbirds.	Tolerates wet/dry conditions.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Sweet Flag *(Acorus calamus)*	2,3	Herbaceous	yes	up to 3 in.	Low.	Tolerant of dry periods. Not a rapid colonizer. Tolerates acidic conditions.
Waterweed *(Elodea canadensis)*	1	Submergent	yes	yes	Low.	Good water oxygenator. High nutrient, copper, manganese and chromium removal.
Wild Celery *(Valisneria americana)*	1	Submergent	yes	yes	High. Food for waterfowl. Habitat for fish and invertebrates.	Tolerant of murkey water and high nutrient loads.
Wild Rice *(Zizania aquatica)*	2	Emergent	yes	up to 1 ft.	High. Food for birds.	Prefers full sun
Wool Grass *(Scirpus cyperinus)*	2,3	Emergent	yes	Irregularly to seasonally indundated	Moderate. Cover, Food.	Requires full sun. Can tolerate acidic soils, drought. Colonizes disturbed areas, moderate growth.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix I
Project Correspondenc

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

ERIE COUNTY CLERK'S OFFICE

County Clerk's Recording Page

Return to:
BOX 145

Party 1:
EWE II LLC

Party 2:
355 PROPERTIES LLC

Book Type: D Book: 11349 Page: 6748
Page Count: 4
Doc Type: DEED
Rec Date: 09/10/2019
Rec Time: 04:34:32 PM
Control #: 2019194899
UserID: Sharon
Trans #: 19149337
Document Sequence Number
TT2019003112

Recording Fees:

RECORDING	$40.00
COE CO $1 RET	$1.00
COE STATE $14.25 GEN	$14.25
COE STATE $4.75 RM	$4.75
RP5217 CNTY $9	$9.00
RP5217 ST-NON RES $241	$241.00
TP584	$10.00

Consideration Amount: 775000.00

BASIC MT	$0.00
SONYMA MT	$0.00
ADDL MT/NFTA	$0.00
SP MT/M-RAIL	$0.00
NY STATE TT	$3,100.00
ROAD FUND TT	$3,875.00

Total: $7,295.00

STATE OF NEW YORK
ERIE COUNTY CLERK'S OFFICE

WARNING – THIS SHEET CONSTITUTES THE CLERK'S ENDORSEMENT REQUIRED BY SECTION 319&316-a (5) OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH. THIS IS NOT A BILL.

Michael P. Kearns
Erie County Clerk

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Box 145

BS/Dw/Cov(Corp.)

BARGAIN & SALE DEED

THIS INDENTURE, made the 9th day of September, 2019,

BETWEEN **EWE II, LLC**, a New York limited liability company having its office at 60 Buttonwood Court, East Amherst, New York 14051, (the **"Grantor"**), and

355 PROPERTIES LLC, a New Jersey limited liability company, having its office at 28 Fox Hill Drive, Tabernacle, New Jersey 08088, (the **"Grantee"**).

WITNESSETH, that the Grantor, in consideration of ONE AND MORE DOLLARS ($1.00 & more), lawful money of the United States, paid by the Grantee, does hereby grant and release unto the Grantee, the successors and assigns of the Grantee forever,

Parcel "A": **ALL THAT TRACT OR PARCEL OF LAND**, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 82, Township 12, Range 7 of the Holland Land Company's Survey, described as follows: Beginning at a point in the southerly boundary line of Commerce Drive (Commerce Drive being 100.0 feet wide) at a distance of 235.54 feet S 86° 36′ 49″ E, measured along the southerly boundary of Commerce Drive from its intersection with the westerly line of Lot No. 82; thence S 86° 36′ 49″ E along the southerly boundary of Commerce Drive, a distance of 36.01 feet, thence N 90° 00′ 00″ E along the southerly boundary of Commerce Drive, a distance of 214.05 feet; thence S 00° 00′ 00″ E, a distance of 376.68 feet to the northerly line of the lands acquired by the New York State Department of Environmental Conservation for the Ellicott Creek Flood Protection Project as shown on Map No. 28, Parcel No. 34 of said project; thence N 85° 39′ 14″ W along the northerly line of said acquired land, a distance of 86.09 feet; thence continuing along the northerly line of said acquired lands, N 86° 20′ 53″ W, a distance of 164.49 feet; thence N 00° 00′ 00″ W, a distance of 361.81 feet to the point of beginning.

Parcel "B": **ALL THAT TRACT OR PARCEL OF LAND**, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 82, Township 12, Range 7 of the Holland Land Company's Survey, described as follows: Beginning at a point in the southerly boundary line of Commerce Drive (Commerce Drive being 100.00 feet wide) at a distance of 235.54 feet S 86° 36′ 49″ E, measured along the southerly boundary of Commerce Drive from its intersection with the westerly line of Lot 82, said point of beginning being the northwesterly corner of the lands conveyed to B.G. Sulzle, Inc., Sulzle Marketing, Inc. and Sulzle Eye Suturing Needles, Inc. by deed recorded in

194899
775,000
2P
AMH
Dep 2

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

the Erie County Clerk's Office in liber 9519 of Deeds at page 430; thence S 00° 00′ 00″ E along the westerly line of the said Sulzle, a distance of 361.81 feet to a point in the northerly line of the lands acquired by the New York State Department of Environmental Conservation for the Ellicott Creek Flood Protection Project as shown on Map No. 28, Parcel No. 34 of said project; thence N 86° 20′ 53″ W along the northerly line of said acquired land, a distance of 208.80 feet to its intersection with the easterly line of the lands conveyed to the Town of Amherst Industrial Development Agency by deed recorded in Erie County Clerk's Office in liber 9188 of Deeds at page 576; thence N 01° 52′ 00″ W along the easterly line of said Development Agency, a distance of 361.72 feet to the northeasterly corner thereof; thence S 86° 36′ 49″ E along the southerly boundary line of Commerce Drive a distance of 220.54 feet to the point of beginning.

TOGETHER with the appurtenances and all the estate and rights of the Grantor in and to said premises, and

TOGETHER with the ownership and rights, if any, of the Grantor to land lying in the bed or any street or highway, adjoining said premises to the center line thereof; and

SUBJECT to easements, agreements, rights of way and restrictions of record, if any.

TO HAVE and to hold the premises herein granted unto the Grantee, the successors and assigns of the Grantee forever.

AND the Grantor covenants that it has not done or suffered anything whereby the said premises have been encumbered in any way whatever.

THE Grantor, in compliance with Section 13 of the Lien Law, covenants that the Grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

IN WITNESS WHEREOF, the Grantor has caused these presents to be signed by its duly authorized officer the day and year first above written.

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

EWE II, LLC

By: Angela Sue Lamb
Name: Angela Sue Lamb
Title: Sole Member

STATE OF NEW YORK)
) SS:
COUNTY OF ERIE)

On the 9th day of September in the year 2019, before me, the undersigned, personally appeared Angela Sue Lamb, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public

PATRICK THOMAS FITZGERALD
No. 02FI6371635
Notary Public, State of New York
Qualified in Erie County
My Commission Expires 3/5/2022

Record and Return to:
==========
Colligan Law LLP
Attn: Robert Townsley, Esquire
12 Fountain Plaza, Suite 600
Buffalo, NY 14202
==========

Doc #4161026.1

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

INSTRUCTIONS(RP-5217-PDF-INS): www.orps.state.ny.us

FOR COUNTY USE ONLY

C1. SWIS Code: 1,4,2,2,8,9

C2. Date Deed Recorded: 9 / 10 / 19 (Month / Day / Year)

C3. Book: 1,1,3,4,9 C4. Page: 6,7,4,8

New York State Department of **Taxation and Finance**

Office of Real Property Tax Services

RP- 5217-PDF

Real Property Transfer Report (8/10)

PROPERTY INFORMATION

1. Property Location: 321 & 355 (* STREET NUMBER) Commerce Drive (* STREET NAME)

Amherst (* CITY OR TOWN) (VILLAGE) 14228 (* ZIP CODE)

2. Buyer Name: 355 Properties LLC (* LAST NAME/COMPANY) (FIRST NAME)

(LAST NAME/COMPANY) (FIRST NAME)

3. Tax Billing Address: Indicate where future Tax Bills are to be sent if other than buyer address(at bottom of form) (LAST NAME/COMPANY) (FIRST NAME)

(STREET NUMBER AND NAME) (CITY OR TOWN) (STATE) (ZIP CODE)

4. Indicate the number of Assessment Roll parcels transferred on the deed: 2 # of Parcels OR ☐ Part of a Parcel

5. Deed Property Size: ____ (* FRONT FEET) X ____ (* DEPTH) OR 3.88 (*ACRES)

(Only if Part of a Parcel) Check as they apply:

4A. Planning Board with Subdivision Authority Exists ☐

4B. Subdivision Approval was Required for Transfer ☐

4C. Parcel Approved for Subdivision with Map Provided ☐

6. Seller Name: EWE II, LLC (* LAST NAME/COMPANY) (FIRST NAME)

(LAST NAME/COMPANY) (FIRST NAME)

*7. Select the description which most accurately describes the use of the property at the time of sale:

F. Commercial

Check the boxes below as they apply:

8. Ownership Type is Condominium ☐

9. New Construction on a Vacant Land ☐

10A. Property Located within an Agricultural District ☐

10B. Buyer received a disclosure notice indicating that the property is in an Agricultural District ☐

SALE INFORMATION

11. Sale Contract Date: 06/26/2019

* 12. Date of Sale/Transfer: 09/10/19

*13. Full Sale Price: 775,000.00

(Full Sale Price is the total amount paid for the property including personal property. This payment may be in the form of cash, other property or goods, or the assumption of mortgages or other obligations.) *Please round to the nearest whole dollar amount.*

15. Check one or more of these conditions as applicable to transfer:

- ☐ A. Sale Between Relatives or Former Relatives
- ☐ B. Sale between Related Companies or Partners in Business.
- ☐ C. One of the Buyers is also a Seller
- ☐ D. Buyer or Seller is Government Agency or Lending Institution
- ☐ E. Deed Type not Warranty or Bargain and Sale (Specify Below)
- ☐ F. Sale of Fractional or Less than Fee Interest (Specify Below)
- ☐ G. Significant Change in Property Between Taxable Status and Sale Dates
- ☐ H. Sale of Business is Included in Sale Price
- ☐ I. Other Unusual Factors Affecting Sale Price (Specify Below)
- ☒ J. None

Comment(s) on Condition:

14. Indicate the value of personal property included in the sale: 0.00

ASSESSMENT INFORMATION - Data should reflect the latest Final Assessment Roll and Tax Bill

16. Year of Assessment Roll from which information taken(YY): 19

*17. Total Assessed Value: 710,000

*18. Property Class: 449

*19. School District Name: Sweet Home

*20. Tax Map Identifier(s)/Roll Identifier(s) (If more than four, attach sheet with additional identifier(s))

40.07-3-2.112 40.07-3-5

CERTIFICATION

I Certify that all of the items of information entered on this form are true and correct (to the best of my knowledge and belief) and I understand that the making of any willful false statement of material fact herein subject me to the provisions of the penal law relative to the making and filing of false instruments.

SELLER SIGNATURE

SELLER SIGNATURE DATE

BUYER SIGNATURE

BUYER SIGNATURE DATE

BUYER CONTACT INFORMATION

(Enter information for the buyer. Note: If buyer is LLC,society, association, corporation, joint stock company, estate or entity that is not an individual agent or fiduciary, then a name and contact information of an individual/responsible party who can answer questions regarding the transfer must be entered. **Type or print clearly.**)

355 Properties LLC (* LAST NAME) (FIRST NAME)

(*AREA CODE) (*TELEPHONE NUMBER (Ex: 9999999))

28 (* STREET NUMBER) Fox Hill Drive (* STREET NAME)

Tabernacle (*CITY OR TOWN) NJ (*STATE) 08088 (*ZIP CODE)

BUYER'S ATTORNEY

Townsley (LAST NAME) Robert (FIRST NAME)

(716) (AREA CODE) 885-1150 (TELEPHONE NUMBER (Ex: 9999999))

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Page 2 of 2

INSTRUCTIONS(RP-5217-PDF-INS): www.orps.state.ny.us

FOR COUNTY USE ONLY

C1. SWIS Code 142289

C2. Date Deed Recorded 9 / 10 / 19 (Month / Day / Year)

C3. Book 11349 C4. Page 6748

New York State Department of **Taxation and Finance**

Office of Real Property Tax Services

RP- 5217-PDF

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4. Indicate the number of Assessment Roll parcels transferred on the deed 2 # of Parcels OR ☐ Part of a Parcel

5. Deed Property Size (* FRONT FEET) X (* DEPTH) OR 3.88 (*ACRES)

6. Seller Name: EWE II, LLC (* LAST NAME/COMPANY) (FIRST NAME)

(LAST NAME/COMPANY) (FIRST NAME)

*7. Select the description which most accurately describes the use of the property at the time of sale:

F. Commercial

(Only if Part of a Parcel) Check as they apply:

4A. Planning Board with Subdivision Authority Exists ☐

4B. Subdivision Approval was Required for Transfer ☐

4C. Parcel Approved for Subdivision with Map Provided ☐

Check the boxes below as they apply:

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(Full Sale Price is the total amount paid for the property including personal property. This payment may be in the form of cash, other property or goods, or the assumption of mortgages or other obligations.) *Please round to the nearest whole dollar amount.*

15. Check one or more of these conditions as applicable to transfer:

- ☐ A. Sale Between Relatives or Former Relatives
- ☐ B. Sale between Related Companies or Partners in Business.
- ☐ C. One of the Buyers is also a Seller
- ☐ D. Buyer or Seller is Government Agency or Lending Institution
- ☐ E. Deed Type not Warranty or Bargain and Sale (Specify Below)
- ☐ F. Sale of Fractional or Less than Fee Interest (Specify Below)
- ☐ G. Significant Change in Property Between Taxable Status and Sale Dates
- ☐ H. Sale of Business is Included in Sale Price
- ☐ I. Other Unusual Factors Affecting Sale Price (Specify Below)
- ☒ J. None

Comment(s) on Condition:

14. Indicate the value of personal property included in the sale: 0.00

ASSESSMENT INFORMATION - Data should reflect the latest Final Assessment Roll and Tax Bill

16. Year of Assessment Roll from which information taken(YY) 19

*17. Total Assessed Value: 710,000

*18. Property Class: 449

*19. School District Name: Sweet Home

*20. Tax Map Identifier(s)/Roll Identifier(s) (If more than four, attach sheet with additional identifier(s))

40.07-3-2.112 40.07-3-5

CERTIFICATION

I Certify that all of the items of information entered on this form are true and correct (to the best of my knowledge and belief) and I understand that the making of any willful false statement of material fact herein subject me to the provisions of the penal law relative to the making and filing of false instruments.

SELLER SIGNATURE

Angela Sweeney 9.10.19

SELLER SIGNATURE DATE

BUYER SIGNATURE

BUYER SIGNATURE DATE

BUYER CONTACT INFORMATION

(Enter information for the buyer. Note: If buyer is LLC,society, association, corporation, joint stock company, estate or entity that is not an individual agent or fiduciary, then a name and contact information of an individual/responsible party who can answer questions regarding the transfer must be entered. **Type or print clearly.**)

355 Properties LLC (* LAST NAME) (FIRST NAME)

(*AREA CODE) (*TELEPHONE NUMBER (Ex: 9999999))

28 (* STREET NUMBER) Fox Hill Drive (* STREET NAME)

Tabernacle (*CITY OR TOWN) NJ (*STATE) 08088 (*ZIP CODE)

BUYER'S ATTORNEY

Townsley (LAST NAME) Robert (FIRST NAME)

(716) (AREA CODE) 885-1150 (TELEPHONE NUMBER (Ex: 9999999))

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

January 11, 2022

Kristin Savard
Advanced Design Group
761 Cayuga Street
Lewiston, NY 14092

Re: DEC
Commerce Drive Self-Storage Construction Project
321 Commerce Dr, Amherst, Erie County, NY
21PR06285

Dear Kristin Savard:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

R. Daniel Mackay

Deputy Commissioner for Historic Preservation
Division for Historic Preservation

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

Appendix
Project Drawing

Attachment: SP-2022-01 application 031722 (25330 : Sp-2022-01)

321 Commerce, LLC

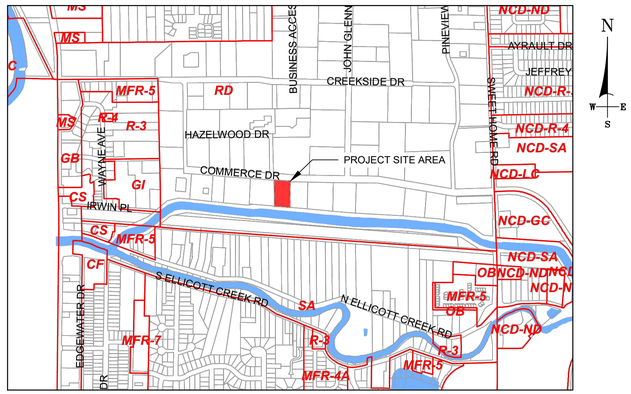
321 Commerce Drive

Town of Amherst, County of Erie, New York 14228

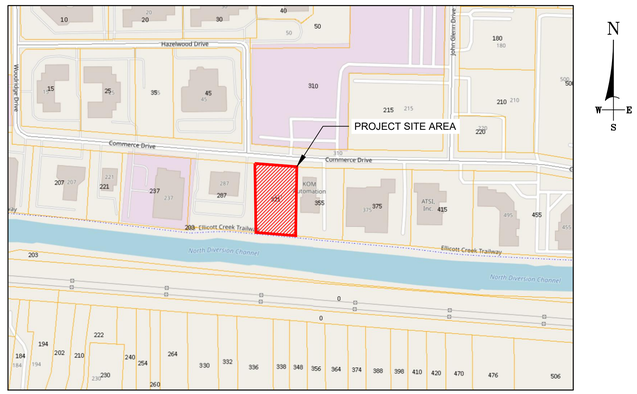




AERIAL PHOTO
NTS



ZONING MAP
NTS



LOCATION MAP
NTS

ZONING DATA

ZONING: RD RESEARCH AND DEVELOPMENT DISTRICT

	REQUIREMENT	EXISTING CONDITION	PROVIDED
MIN. LOT AREA	1.0 AC	1.78± AC	NA
MIN. LOT FRONTAGE	150'	220'±	NA
MIN. LOT WIDTH	35'	209'±	NA
MIN. FRONT YARD SETBACK	20'	NA	20'
MIN. SIDE YARD SETBACK	15'	NA	15'
MIN. REAR YARD SETBACK	15'	NA	15'
MAX. BUILDING HEIGHT (FEET)	65'	NA	10'
MAX BUILDING COVERAGE	NONE	0%	25%
MAX INTERIOR BUILDING SEPARATION	30'	NA	30'

Legend

- Zoning District Boundary
- Village of Williamsville
- Water Body

RR	Rural Residential
SA	Suburban Agricultural
R-1	Residential District One
R-2	Residential District Two
R-3	Residential District Three
CR-3A	Cluster Residential District Three-A
TR-3	Traditional Single-Family Residential District
R-4	Residential District Four
MFR-4A	Multifamily Residential District Four-A
MFR-5	Multifamily Residential District Five
MFR-6	Multifamily Residential District Six
MFR-7	Multifamily Residential District Seven
MHR-8	Manufactured Home Residential District Eight
OB	Office Building District
NB	Neighborhood Business District
GB	General Business District
CS	Commercial Service District
MS	Motor Service District
RD	Research & Development District
ST	Science Technology District
GI	General Industrial District
AG	Agricultural District
NCD	New Community District
PRD	Planned Residential District
PDD	Planned Development District
CF	Community Facilities District
TND	Traditional Neighborhood Development District
TNB	Traditional Neighborhood Business Overlay District
LW-1	Live-Work District 1
RC	Recreation Conservation District

MIXED USE DISTRICTS

TI-2.5	Traditional Infill 2.5
TI-4	Traditional Infill 4
SC-3	Shallow Corridor 3
DC-3	Deep Cooridor 3
DC-5	Deep Cooridor 5
CTR-2.5	Center 2.5
CTR-5	Center 5
CTR-8	Center 8

MIXED USE DISTRICT FRONTAGE TYPE

g	Green
v	Village

DRAWING INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	1 OF 11
EXISTING CONDITIONS PLAN	2 OF 11
SITE LAYOUT PLAN	3 OF 11
GRADING AND DRAINAGE PLAN	4 OF 11
PHOTOMETRIC PLAN	5 OF 11
LANDSCAPING PLAN	6 OF 11
EROSION AND SEDIMENT CONTROL PLAN	7 OF 11
DETAILS - EROSION & SEDIMENT CONTROL	8 OF 11
DETAILS - PAVING & DRAINAGE	9 OF 11
DETAILS - STORMWATER MANAGEMENT	10 OF 11
DETAILS - TYPICAL STORAGE UNITS	11 OF 11

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1		
2		
3		
4		
5		
6		
7		
8		

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

Prepared by:
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716) 754-4256
Fax (716) 754-4252

COVER SHEET

321 Commerce, LLC
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

date: 1-21-2022 | project no.: 21-4768 | sheet: 1 OF 11 | scale: AS NOTED

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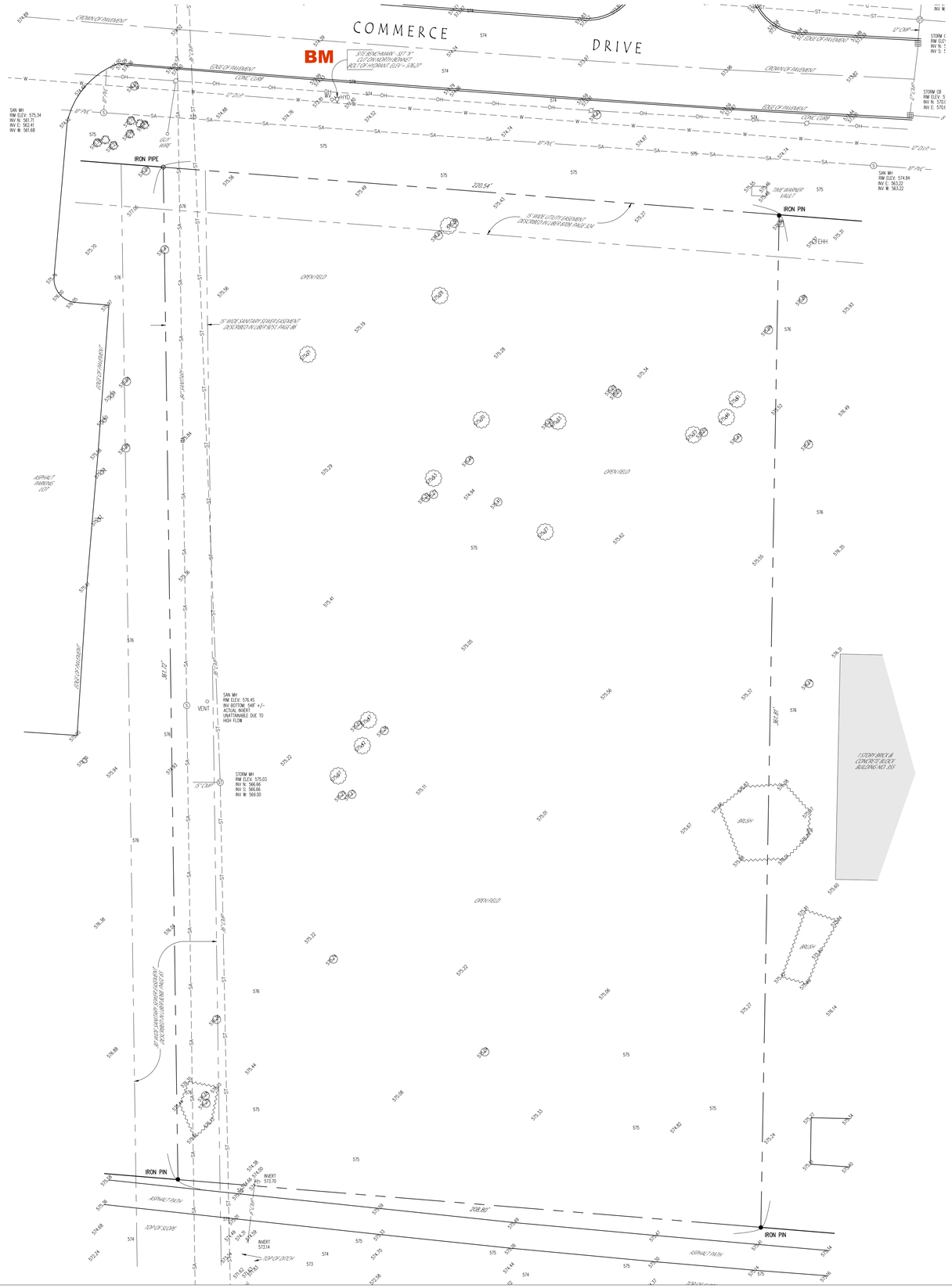
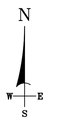
Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)





LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C		UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE

NOTES:

1) NORTH AS SHOWN ON THIS MAP IS TRUE NORTH AT 78°35' MERIDIAN WEST LONGITUDE, BASED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM NAD 83, WEST ZONE 3103, AS ESTABLISHED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REAL TIME NETWORK. (NYSDOT RTN)

2) ELEVATIONS AS SHOWN ON THIS MAP OF SURVEY ARE BASED ON NAVD88 DATUM, AS ESTABLISHED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REAL TIME NETWORK. (NYSDOT RTN)

3) THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM VISIBLE STRUCTURES, SURFACE MARKINGS. TERRA POINTE LAND SURVEYING PLLC DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE ALL OF THE UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES UPON INSTALLATION. EACH CONTRACTOR MUST CALL DIG SAFELY NEW YORK AT 1-800-962-7962 THREE DAYS PRIOR TO ANY EXCAVATION.

4) CONTOUR INTERVAL IS 1.0 FOOT.

5) THE BOUNDARY LINEWORK AND EASEMENT INFORMATION AS SHOWN HEREON WAS TAKEN FROM MAPPING BY NUSSBAUMER & CLARK INC., DATED JULY 24, 2019 AND IDENTIFIED AS JOB NO. 1952-1119

MAP REFERENCE

BOUNDARY AND TOPOGRAPHIC SURVEY OF LANDS OWNED BY BOGART SINATRA DEVELOPMENT, LLC. PREPARED BY TERRA POINTE LAND SURVEYING, PLLC.: DATED OCTOBER 22, 2021 JOB NO: 1311-21

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1		
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5		
6		
7		
8		

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Prepared by
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716)754-4252
Fax (716)754-4252

EXISTING CONDITIONS PLAN

321 Commerce, LLC

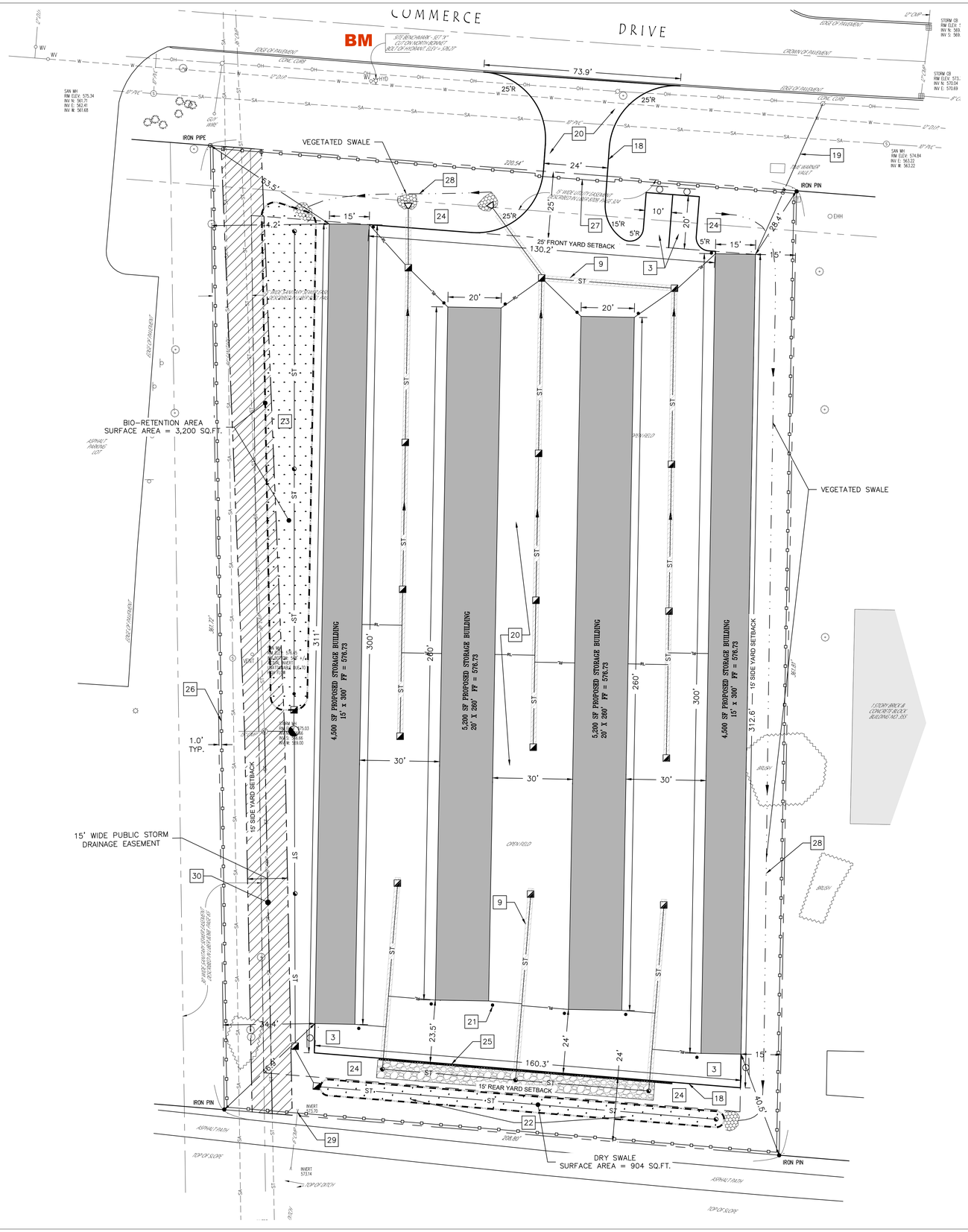
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

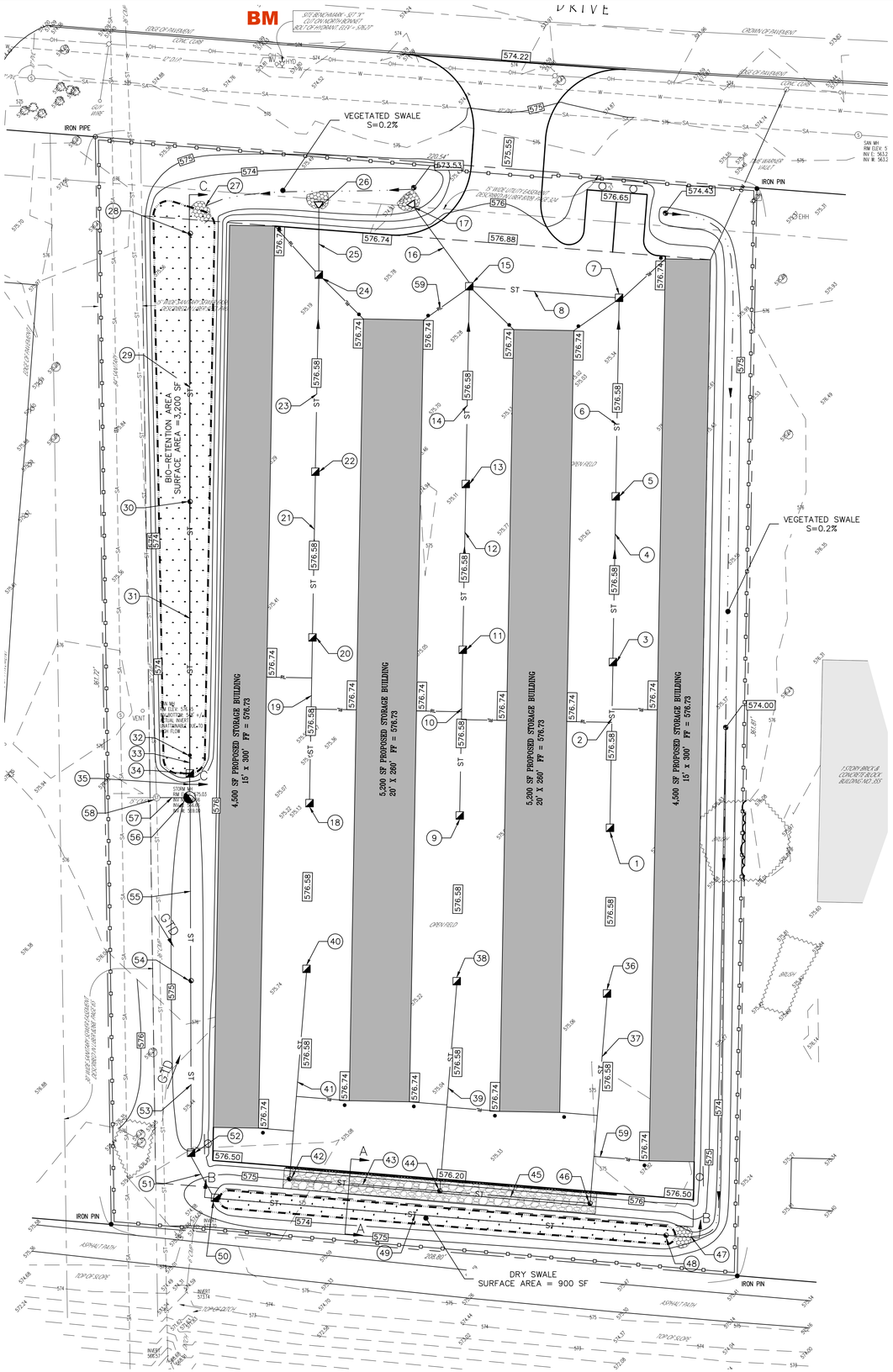
prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale: AS NOTED | date: 1-21-2022 | project no.: 21-4768 | sheet: 2 OF 11

Z:\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG-Layout Plan 1-21-22.dwg

Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)


COMMERCE DRIVE
BM
SITE BENCHMARK - SET "X"
CUT ON KNURLED BOLT
TOP OF HYDRANT, ELEV = 578.37
73.9'
25'R
20
18
19
24'
220.54'
IRON PIPE
VEGETATED SWALE
28
24
25'R
27
15'R
5'R
10'
20'
5'R
15'
IRON PIN
14.2'
15'
25' FRONT YARD SETBACK
130.2'
9
3
ST
20'
20'
BIO-RETENTION AREA
SURFACE AREA = 3,200 SQ.FT.
23
VEGETATED SWALE
4,500 SF PROPOSED STORAGE BUILDING
15' x 300' FF = 576.73
5,200 SF PROPOSED STORAGE BUILDING
20' X 260' FF = 576.73
5,200 SF PROPOSED STORAGE BUILDING
20' X 260' FF = 576.73
4,500 SF PROPOSED STORAGE BUILDING
15' x 300' FF = 576.73
311'
300'
260'
260'
300'
312.6'
15' SIDE YARD SETBACK
30'
30'
30'
1.0' TYP.
26
15' WIDE PUBLIC STORM DRAINAGE EASEMENT
30
1.5' CONCRETE BLOCK & CONCRETE BLOCK BUILDING NO. 1.5
28
9
21
25
23.5'
24'
24'
160.3'
15' REAR YARD SETBACK
3
24
18
22
29
208.80'
DRY SWALE
SURFACE AREA = 904 SQ.FT.
IRON PIN
IRON PIN
ASPHALT PAVING LOT
ASPHALT PATH
TOP OF SLOPE
TOP OF DITCH
INVERT 573.14
INVERT 573.70
SAN MH RIM ELEV: 575.34 INV N: 561.71 INV E: 562.41 INV W: 561.68
SAN MH RIM ELEV: 574.84 INV E: 563.22 INV W: 563.22
STORM CB RIM ELEV: 573. INV N: 570.04 INV E: 570.69
STORM CB RIM ELEV: 573. INV N: 569. INV S: 569.
EDGE OF PAVEMENT
CROWN OF PAVEMENT
CENTERLINE
CROWN OF PAVEMENT
EDGE OF PAVEMENT
CENTERLINE
EDGE OF PAVEMENT



STORM STRUCTURE TABLE

1 CATCH BASIN
RIM=576.30
INV N=574.03 (12")

2 53L.F. 12" HDPE @ S=0.2%

3 CATCH BASIN
RIM=576.30
INV N,S=573.92 (12")

4 53L.F. 12" HDPE @ S=0.2%

5 CATCH BASIN
RIM=576.30
INV N,S=573.81 (12")

6 64L.F. 12" HDPE @ S=0.2%

7 CATCH BASIN
RIM=576.30
INV S,W=573.68 (12")

8 48L.F. 12" HDPE @ S=0.2%

9 CATCH BASIN
RIM=576.30
INV N=573.92 (12")

10 53L.F. 12" HDPE @ S=0.2%

11 CATCH BASIN
RIM=576.30
INV N,S=573.81 (12")

12 53L.F. 12" HDPE @ S=0.2%

13 CATCH BASIN
RIM=576.30
INV N,S=573.71 (12")

14 64L.F. 12" HDPE @ S=0.2%

15 CATCH BASIN
RIM=576.30
INV N,E=573.59 (12")
INV S=573.53 (12")

16 31L.F. 12" HDPE @ S=0.2%

17 12" PIPE OUTLET W/ END SECTION AND ROCK OUTLET PROTECTION
INV=573.53

18 CATCH BASIN
RIM=576.30
INV N=573.83 (12")

19 53L.F. 12" HDPE @ S=0.2%

20 CATCH BASIN
RIM=576.30
INV N,S=573.72 (12")

21 53L.F. 12" HDPE @ S=0.2%

22 CATCH BASIN
RIM=576.30
INV N,S=573.62 (12")

23 63L.F. 12" HDPE @ S=0.2%

24 CATCH BASIN
RIM=576.30
INV N=573.51 (12")
INV S=573.46 (12")

25 21L.F. 12" HDPE @ S=0.2%

26 12" PIPE OUTLET W/ END SECTION AND ROCK OUTLET PROTECTION
INV=573.46

27 VEGETATED SWALE OUTLET TO BIO-RETETNION AREA W/ ROCK PROTECTION
INV=573.40

28 CLEANOUT (6" RISER)
RIM=573.90
INV S=569.65 (6" PERF)

29 87L.F. 6" PERF. HDPE @ S=0.2%

30 CLEANOUT (6" RISER)
RIM=573.90
INV N,S=569.48 (6" PERF)

31 87L.F. 6" PERF. HDPE @ S=0.2%

32 ELBOW ASSEMBLY
INV N=569.30 (6" PERF)
INV S=570.30 (6")

33 5L.F. 6" HDPE @ S=0.2%

34 BIO-RETENTION CATCH BASIN OUTLET
RIM=574.00
INV N=570.29 (6")
INV S=570.29 (12")

35 5L.F. 12" HDPE @ S=0.2%

36 CATCH BASIN
RIM=576.30
INV S=573.40 (6")

37 69L.F. 6" HDPE @ S=0.2%

38 CATCH BASIN
RIM=576.30
INV S=573.40 (6")

39 69L.F. 6" HDPE @ S=0.2%

40 CATCH BASIN
RIM=576.30
INV S=573.40 (6")

41 69L.F. 6" HDPE @ S=0.2%

42 6"X6"X6" HDPE TEE W/ 6" RISER
RIM=574.25
INV=573.25

43 LEVEL SPREADER – SEE DETAIL
50L.F. 6" PERF. HDPE @ S=0.2%

44 6"X6"X6" HDPE TEE W/ 6" RISER
RIM=574.25
INV=573.25

45 LEVEL SPREADER – SEE DETAIL
50L.F. 6" PERF. HDPE @ S=0.2%

46 6"X6"X6" HDPE TEE W/ 6" RISER
RIM=574.25
INV=573.25

47 VEGETATED SWALE OUTLET TO DRY SWALE W/ ROCK PROTECTION
INV=573.40

48 DRY SWALE YARD DRAIN
RIM=573.22
INV=570.65 (4" PERF.)

49 148L.F. 4" PERF. HDPE @ S=0.2%

50 DRY SWALE CATCH BASIN OUTLET
RIM=573.25
INV E=570.37 (4" PERF)
INV NW=570.35 (12")

51 14L.F. 12" HDPE @ S=0.2%

52 YARD CATCH BASIN
RIM=575.00
INV SE,N=570.32 (12")

53 58L.F. 12" HDPE @ S=0.2%

54 YARD DRAIN
RIM=574.72
INV N,S=570.20 (12")

55 58L.F. 12" HDPE @ S=0.2%

56 STORM MANHOLE
RIM=575.00
INV N=570.27 (12")
INV S=570.09 (12")
INV W=570.00 (12")

57 5L.F. 12" HDPE @ S=0.2%

58 EXISTING STORM MANHOLE
RIM=575.03
INV W=569.99 (12")

59 4" HDPE ROOF LEADER – TYP.

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C		UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
SD	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE
	GTD	GRADE TO DRAIN

N

W E

S

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1		
2		
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5		
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7		
8		

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Prepared by:
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
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Lewiston, NY 14092
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Fax (716)754-4252

STATE OF NEW YORK ★ ENGINEER ★ LICENSED PROFESSIONAL ENGINEERING & LAND SURVEYING DESIGN SERVICES

GRADING AND DRAINAGE PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd.
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale:	AS NOTED
date:	1-21-2022
project no.:	21-4768
sheet:	4 OF 11

Z:\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG-Layout Plan 1-21-22.dwg

Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)



PROPOSED PHOTOMETRIC PLAN

SCALE: 1" = 30'-0"

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E,T,C	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W	W	WATER
SA	S	SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
BM		BENCHMARK
		UTILITY POLE
S	SMH	SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV	WV	WATER VALVE
		FENCE

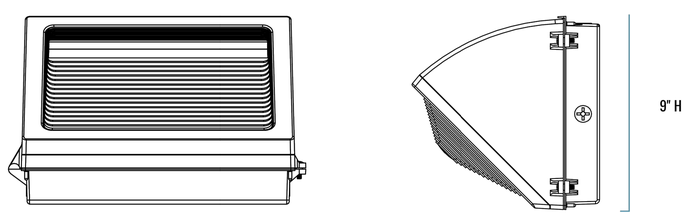
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

[X] NOTES:

1. WALL PACK MOUNTED LIGHTS TO BE INSTALLED ABOVE OVERHEAD DOORS (APPROX. 8' ABOVE FINISHED GRADE) AT LOCATIONS SHOWN ON THE PLAN
2. LIGHTS ARE TO BE DARK SKY FRIENDLY AND POINTED DOWN TO PAVEMENT AREAS
3. TRADITIONAL-STYLE LED WALL PACK WITH GLASS LENS TO BE INSTALLED: C-LITE C-WP-D-TR SERIES 6L OR SIMILAR - SEE LIGHTING SPEC SHEETS
4. WALL PACK LIGHT (TYP.) - NOT SHOWN TO SCALE



TYPICAL WALL PACK DETAIL

N.T.S.

N

W E

S

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1		
2		
3		
4		
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UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716) 754-2256
Fax (716)754-4252

PHOTOMETRIC PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale:	date:	project no.:	sheet:
AS NOTED	1-21-2022	21-4768	5 OF 11

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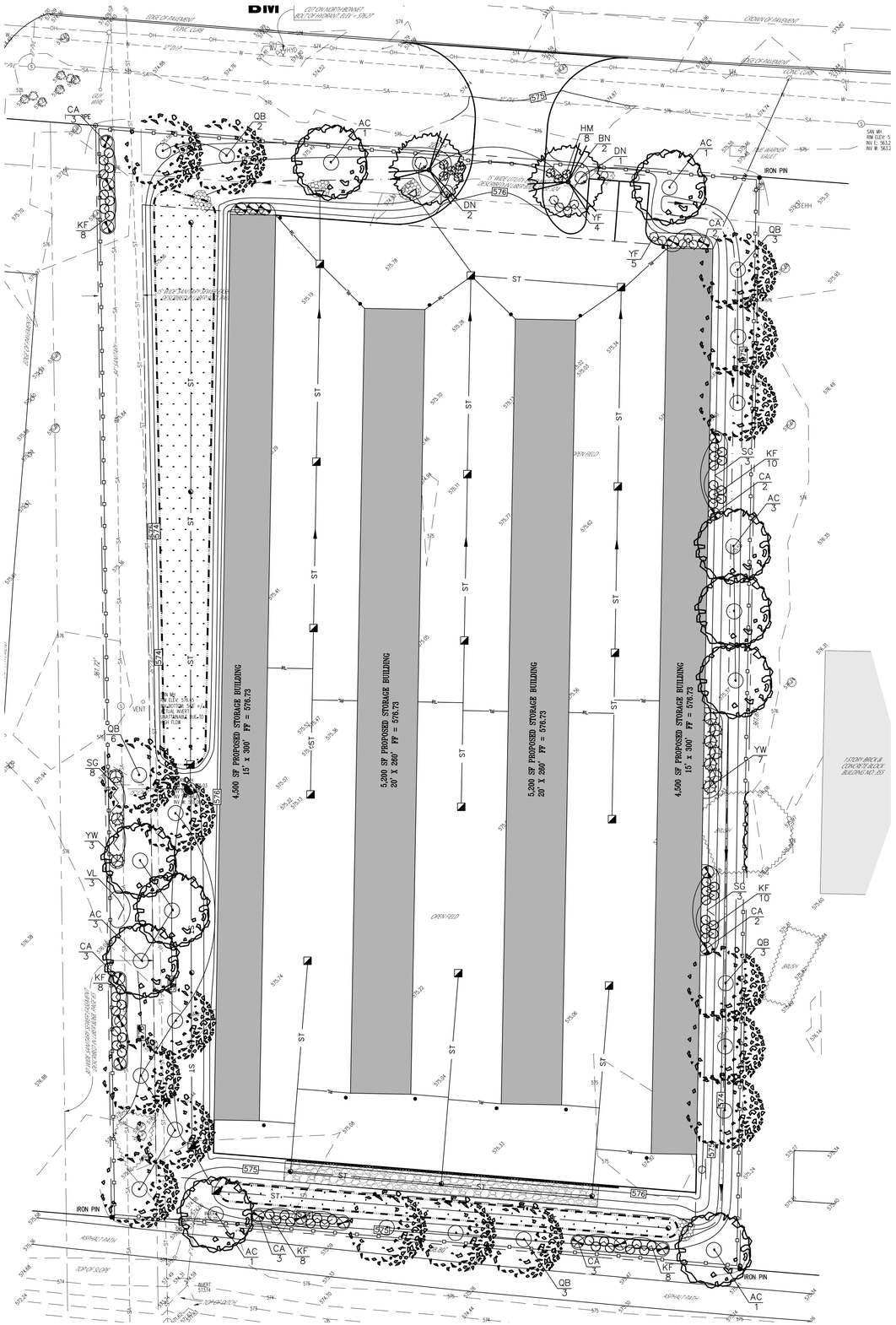
Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)



PLANTING SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
TREE SCHEDULE						
AC	10	Acer x freemanii 'Jeffersred'	AUTUMN BLAZE MAPLE	2-1/2"	B&B	PER PLAN
BN	2	Betula nigra 'Heritage' CLUMP FORM 3 TRUNKS MIN.	HERITAGE RIVER BIRCH	12' HT	B&B	PER PLAN
QB	17	Quercus bicolor	BICOLOR OAK	2-1/2"	B&B	PER PLAN
SHRUB AND PERENNIAL SCHEDULE						
CA	21	Cornus alba 'Bailhalo'	IVORY HALO RED TWIG DOGWOOD	#3	CONTAINER	PER PLAN
DN	3	Physocarpus opulifolius 'Monlo'	DIABLO NINEBARK	#5	CONTAINER	PER PLAN
HM	8	Hydrangea macrophylla 'Glowing Embers'	GLOWING EMBERS HYDRANGEA	#3	CONTAINER	PER PLAN
KF	52	Calamagrostis acutiflora	KARL FOERESTER GRASS	#2	CONTAINER	PER PLAN
SG	14	Spiraea x bumalda 'Goldflame'	GOLDFLAME SPIREA	#3	CONTAINER	PER PLAN
VL	3	Viburnum lantana 'Mohican'	MOHICAN VIBURNUM	#5	CONTAINER	PER PLAN
YF	9	Yucca filamentosa 'Color Guard'	COLOR GUARD YUCCA	#3	CONTAINER	PER PLAN
YW	10	Taxus x media 'Hicksii'	HICKS YEW	48" HT.	B&B	PER PLAN

GENERAL NOTES

1. SITE BASE PROVIDED BY ADVANCED DESIGN GROUP PROFESSIONAL ENGINEERING AND LAND SURVEYING, PC.
2. SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
3. CONTRACTOR SHALL VISIT SITE PRIOR TO BID TO CONFIRM THE EXISTING SITE CONDITIONS & SCOPE OF WORK. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF WORK RELATED DISCREPANCIES FOUND BETWEEN INFORMATION SHOWN ON PLANS & ACTUAL FIELD CONDITIONS THAT MAY AFFECT BID.
4. CONTRACTOR TO LOCATE &/OR VERIFY LOCATION OF UTILITIES IN THE FIELD BEFORE BEGINNING WORK. PRIOR TO REMOVAL & EXCAVATION WORK, CONTRACTOR TO NOTIFY UTILITY COMPANIES REGARDING DISCONNECT OF SERVICES & MARKING EXACT LOCATION OF BURIED UTILITIES.
5. PAVEMENT NOT NOTED TO BE REMOVED, BUT DAMAGED DURING CONSTRUCTION, SHALL BE REPAIRED OR REPLACED, FLUSH WITH EXISTING GRADE @ CONTRACTOR'S EXPENSE.
6. ITEMS NOT NOTED TO BE REMOVED &/OR DEMOLISHED ARE TO REMAIN & TO BE PROTECTED AS NECESSARY. IN PARTICULAR, CONTRACTOR SHALL TAKE EXTRA MEASURES NOT TO INJURE EXISTING TREES.
7. ALL DAMAGED &/OR DISTURBED LAWN AREAS REMAINING, AFTER CONSTRUCTION IS COMPLETED SHALL RECEIVE MIN. 4" TOPSOIL OR AS REQUIRED TO FEATHER INTO SURROUNDING GRADES, BE FINE GRADED, FERTILIZED, SEEDED AND MULCHED. TOPSOIL TO BE: FLUSH WITH PAVEMENT &/OR TOP OF CURB AND SHALL BE "FEATHERED" INTO ADJACENT LAWN AREAS TO CREATE A SMOOTH TRANSITION BETWEEN NEWLY SEEDED AREAS AND EXISTING LAWN.
8. NEW PLANT MATERIAL SHALL CONFORM TO THE CURRENT ISSUE OF THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
9. CONTRACTOR SHALL OBTAIN ANY REQUIRED PERMITS FROM THE TOWN OF AMHERST.
10. CONTRACTOR TO NOTIFY OWNER OR OWNER'S REPRESENTATIVE OF ANY ERRORS OMISSIONS OR CONFLICTS ON THE PLANS PRIOR TO SUBMISSION OF BID.
11. CONTRACTOR TO IRRIGATE ALL PLANT MATERIAL AS NEEDED FOR FIRST MONTH AFTER INSTALLATION. AT THIS POINT MAINTENANCE RESPONSIBILITY TO BE TURNED OVER TO OWNER.
12. CONTRACTOR TO PROVIDE 1 YEAR WARRANTY ON ALL PLANT MATERIAL INSTALLED.
13. LINE SHOWN AROUND SHRUBS AND CIRCLE AROUND TREES IS SHOVEL CUT BED EDGE. ALL BEDS TO RECEIVE 6" MINIMUM DEPTH SHREDDED TOPSOIL LANDSCAPE FABRIC.
14. ALL TREE PLANTINGS AND LANDSCAPE BEDS TO RECEIVE 3" MIN DEPTH NATURAL BROWN SHREDDED HARDWOOD MULCH.
15. LAWN AREAS TO RECEIVE 4" TOPSOIL, FINE GRADE AND HYDROSEED LAWN AREAS WITH A TRIO SUN AND SHADE SEED MIX. PROVIDE AND INSTALL USING MANUFACTURERS RECOMMENDATIONS.

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C		UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE
	GTD	GRADE TO DRAIN

N

W E

S

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch =20 ft.

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1		
2		
3		
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5		
6		
7		
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ADVANCED DESIGN GROUP
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PROPOSED LANDSCAPING PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale: AS NOTED | date: 1-21-2022 | project no.: 21-4768 | sheet: 6 OF 11

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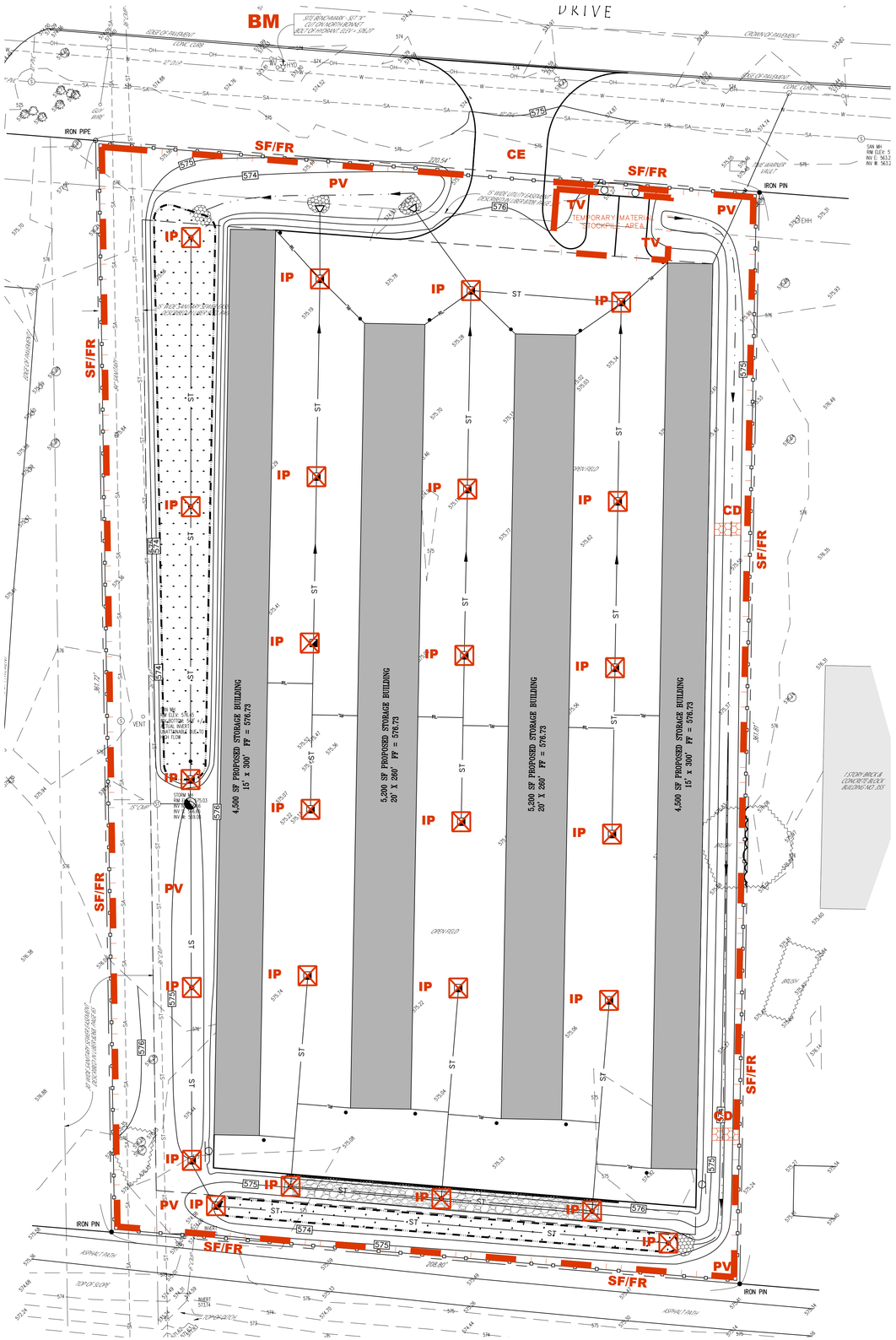
Attachment: SP-2022-01 drawings 031722 (2330 : Sp-2022-01)



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LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C		UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE
	GTD	GRADE TO DRAIN
		TEST PIT
	SF/FR	SILT FENCE/FIBER ROLL
	CE	CONSTRUCTION ENTRANCE
	TV	TEMPORARY VEGETATION
	PV	PERMANENT VEGETATION
	IP	INLET PROTECTION
	CD	CHECK DAM
		STONE DIAPHRAGM

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W E

S

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

EROSION CONTROL NOTES

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH PROJECT DRAWINGS.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 6 INCHES
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED AND PERMANENT VEGETATION MUST BE ESTABLISHED IMMEDIATELY FOLLOWING FINISHED GRADING.

NO.	DATE	REVISIONS
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STATE OF NEW YORK ★ PROFESSIONAL ENGINEER ★ LICENSED PROFESSIONAL ENGINEERING & LAND SURVEYING ★ 087918 ★ LICENSED PROFESSIONAL ENGINEER

EROSION AND SEDIMENT CONTROL PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

project no.: 21-4768
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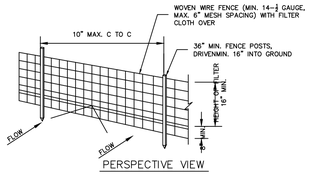
scale: AS NOTED
sheet: 7 OF 11

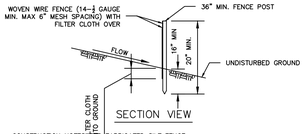
Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)

EROSION CONTROL NOTES

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS".
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 6 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
12. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.



PERSPECTIVE VIEW



SECTION VIEW

CONSTRUCTION NOTES FOR PREFABRICATED SILT FENCE

1.) WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS BY WIRE TIES OR STAPLES.
2.) FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3.) WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4.) MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.

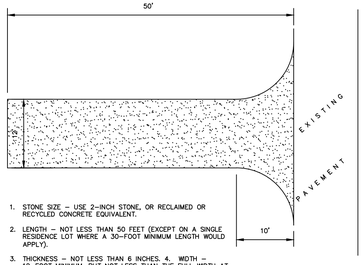
POSTS: Steel either T or U type or 2" hardwood.

FENCE: Woven wire, 14-1/2 Ga. 6" max. mesh opening.

FILTER CLOTH: Filter x, Mirafi 100x, Stabi-Linka TI40N or approved equal.

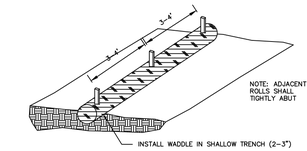
PREFABRICATED UNIT: Geofab, Envirofence, or approved equal.

SILT FENCE DETAIL
N.T.S.

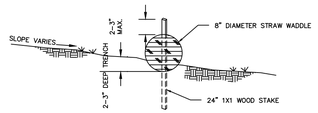


1. STONE SIZE – USE 2-INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30-FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN 6 INCHES. 4. WIDTH – 12-FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24-FOOT IF SINGLE ENTRANCE TO SITE.
4. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
7. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.

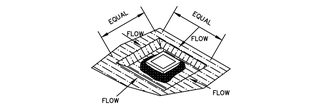


TYPICAL INSTALLATION

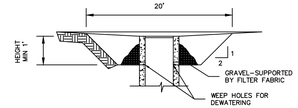


ENTRENCHMENT DETAIL

TYPICAL WADDLE INSTALLATION
N.T.S.

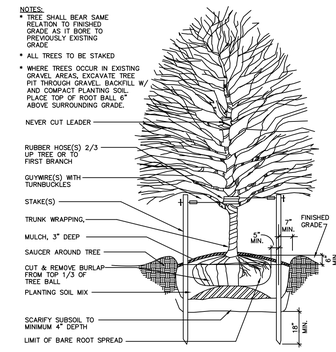


PLAN

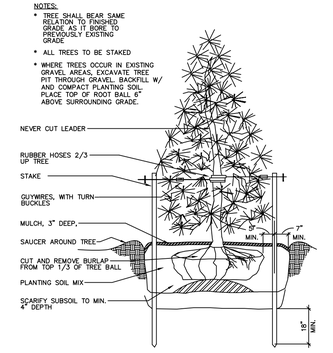


SECTION

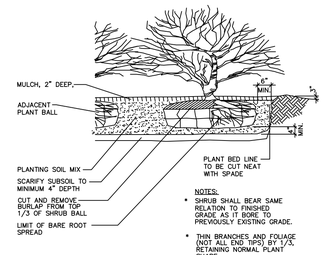
CATCH BASIN INLET PROTECTION
N.T.S.



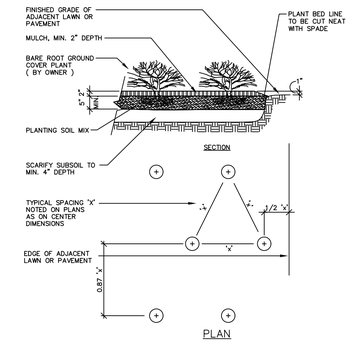
DECIDUOUS TREE PLANTING W/ STAKES



EVERGREEN TREE PLANTING



SHRUB PLANTING

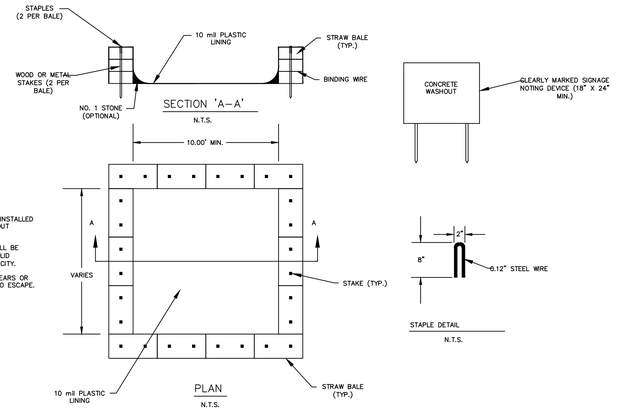


GROUNDCOVER PLANTING

PLANTING DETAIL
N.T.S.

MIXTURE	RATE PER 1,000 SQ.FT. (LBS.)
KENTUCKY BLUEGRASS	0.60
CREEPING RED FESCUE	0.50
PERENNIAL RYEGRASS	0.20

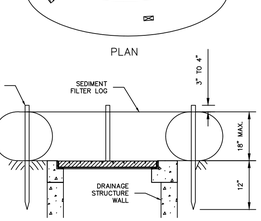
SEED MIXTURE FOR PERMANENT VEGETATION



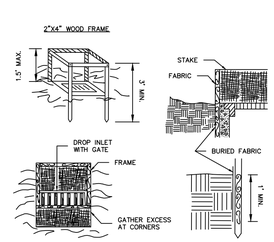
NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY WASHOUT FACILITY.
3. THE CONCRETE WASHOUT STRUCTURE SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURE'S CAPACITY.
4. THE PLASTIC LINING SHALL BE FREE OF TEARS OR HOLES THAT WOULD ALLOW WASHWATER TO ESCAPE.

TYPICAL ABOVE GRADE CONCRETE WASHOUT INSTALLATION DETAIL
N.T.S.



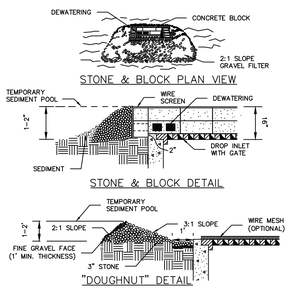
DRAINAGE STRUCTURE INLET PROTECTION – TEMPORARY (SEDIMENT FILTER LOG)
N.T.S.



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY. MAXIMUM DRAINAGE AREA 1 ACRE

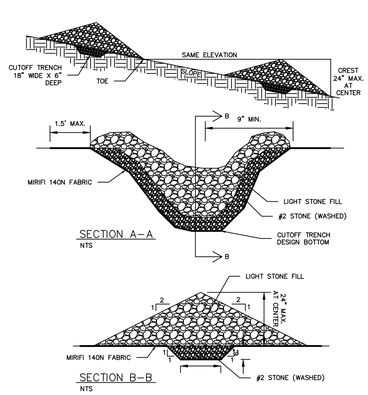
FILTER FABRIC DROP INLET PROTECTION
N.T.S.



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS. MAXIMUM DRAINAGE AREA 1 ACRE

STONE BLOCK DROP INLET PROTECTION
N.T.S.



CHECK DAM DETAIL
N.T.S.

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
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STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ LICENSED LAND SURVEYOR ★ LICENSED DESIGN PROFESSIONAL

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Coyago Street
Lewiston, NY 14092
Phone: (716) 754-4256
Fax (716) 754-4252

DETAILS - EROSION & SEDIMENT CONTROL

321 Commerce, LLC

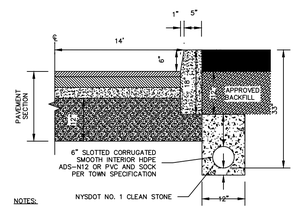
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
8885 Campbell Blvd
North Tonawanda, NY 14120
Project Contact: Advanced Design Group (716) 754-2256

scale:	date:	project no.:	sheet:
AS NOTED	1-21-2022	21-4768	8 OF 11

Z:\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG Details 01-12-22 Working.dwg

Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)

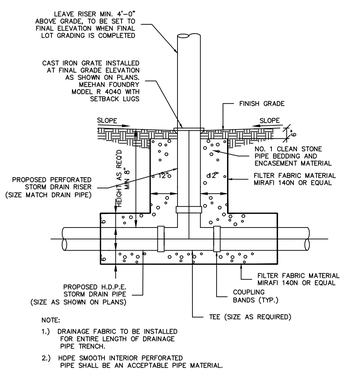


NOTES:

1. FORMED UPRIGHT CONCRETE CURB SHALL BE 4,000 PSI MIX (28 DAY)
2. PROVIDE FINE BROOM FINISH TO EXPOSED PORTION OF CONCRETE CURB

6" UPRIGHT CURB DETAIL

N.T.S.



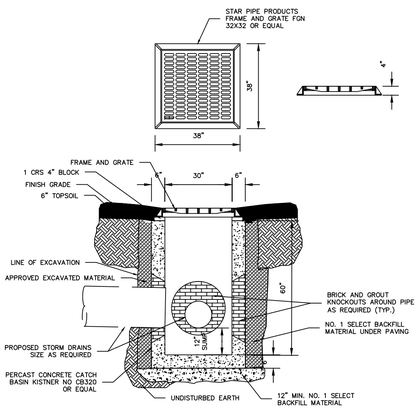
NOTE:

1.) DRAINAGE FABRIC TO BE INSTALLED FOR ENTIRE LENGTH OF DRAINAGE PIPE TRENCH.

2.) HDPE SMOOTH INTERIOR PERFORATED PIPE SHALL BE AN ACCEPTABLE PIPE MATERIAL.

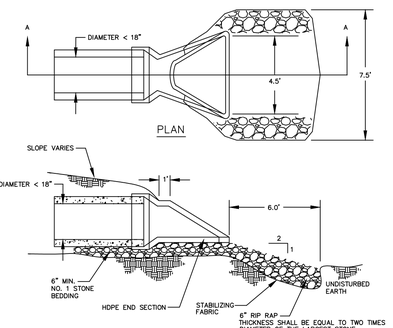
YARD DRAIN DETAIL

N.T.S.



TYPICAL REAR YARD CATCH BASIN

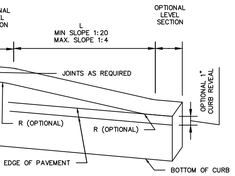
N.T.S.



SECTION "AA"

END SECTION AT DITCH RIP RAP DETAIL

N.T.S.



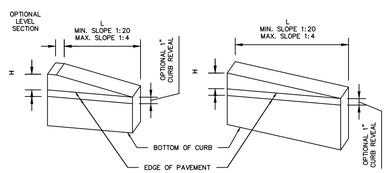
CAST-IN-PLACE CONCRETE CURB TRANSITION

N.T.S.

CURB TRANSITION LENGTHS (L)			
H \ SLOPE	1:4	1:12	1:20
4"	16'	48'	80'
6"	24'	72'	120'

NOTES:

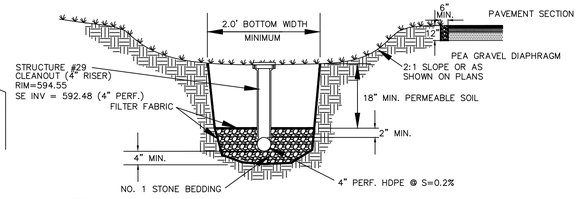
1. USE 1" REVEAL AND CONTINUE CURB ACROSS DRIVEWAY ENTRANCES ONLY IF IN CONTRACT DOCUMENTS OR DIRECTED BY THE ENGINEER AS A FIELD CONDITION
2. TERMINATE CURB, CURB AND GUTTER AND ASPHALT CURB BY TRANSITIONING ON A MAXIMUM SLOPE OF 1:12 TO PAVEMENT SURFACE, EXCEPT WHEN BEHIND GUIDE RAIL
3. EXTEND JOINT FILLER 6" MINIMUM BEHIND CURB IN BOTH SIDES OF CURB BOX. 705-07 NOT NEEDED WHEN VERTICAL FACE CURB WIDTH EQUAL TO WIDTH OF CURB BOX



PRECAST CONCRETE, STONE, AND GRANITE CURB TRANSITION

N.T.S.

CURB TRANSITION LENGTHS (L) WITH CURB REVEAL			
H \ SLOPE	1:4	1:12	1:20
4"	12"	36"	60"
6"	20"	60"	100"

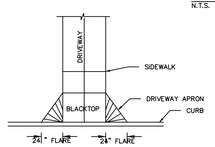


NOTES

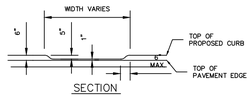
1. THE "PERMEABLE SOIL" SHALL BE CONSISTENT WITH THE NYSDOT STANDARD SPECIFICATIONS ITEM 208.0103 22. THE "PERMEABLE SOIL" SHALL BE A WELL BLENDED MIXTURE OF THREE (3) PARTS SAND AND ONE (1) PART TOPSOIL BY VOLUME. SAND SHALL MEET THE REQUIREMENTS OF SECTION 703-07 "CONCRETE SAND" OF THE NYSDOT STANDARD SPECIFICATIONS. TOPSOIL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 713-01 "TOPSOIL". THE "PERMEABLE SOIL" SHALL HAVE A pH RANGE OF 5.2 TO 7.6 AND AN ORGANIC CONTENT OF 3-7%. SOIL AMENDMENTS TO INCREASE ORGANIC CONTENT SHALL BE PEAT MOSS IN ACCORDANCE WITH SECTION 713-15 "ORGANIC MATERIAL" OF THE NYSDOT STANDARD SPECIFICATIONS. A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR.) IS REQUIRED. THE SOIL SHALL BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER AND VISIBLY FREE OF NOXIOUS WEEDS. THE SOIL SHOULD BE PLACED IN 12" LIFTS AND LOOSELY COMPACTED (TAMPED LIGHTLY WITH A DOZER OR BACKHOE BUCKET).

TYPICAL DRY SWALE

N.T.S.



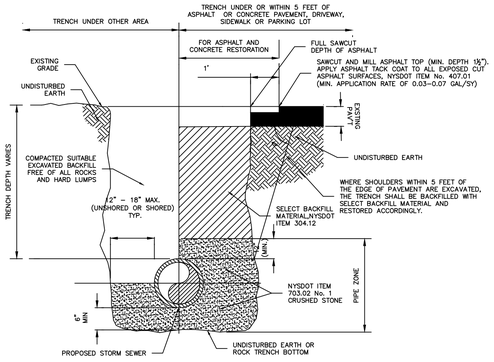
PLAN



SECTION

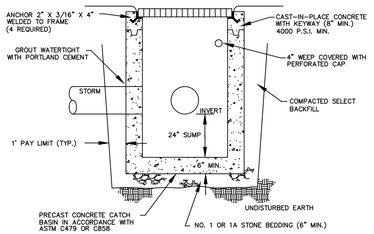
TYPICAL DRIVEWAY CURB-CUT DETAIL

N.T.S.



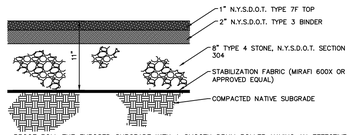
STORM SEWER TRENCH DETAIL

N.T.S.



CATCH BASIN DETAIL

N.T.S.



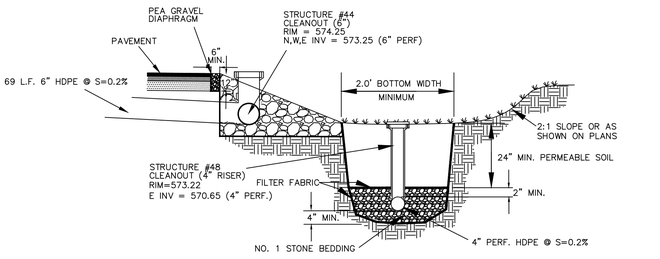
PROOF ROLL THE EXPOSED SUBGRADE WITH A SMOOTH DRUM ROLLER HAVING AN EFFECTIVE FOR OF AT LEAST 600LBS/LI. ANY AREAS EXHIBITING WEAVING, YIELDING, RUTTING, OR BOILING SHOULD BE REWORKED BY OVER EXCAVATED AND REPLACEMENT WITH STRUCTURAL FILL COMPACTED TO 95% MP

COMPACT FOUNDATION COURSE WITH A MINIMUM OF 5 PASSES OF A SMOOTH DRUM ROLLER HAVING AN EFFECTIVE WEIGHT OF AT LEAST 600LBS/LI. THE FINISHED SURFACE SHOULD BE UNIFORM AND DENSE AND COMPACTED TO 95% MP, WITHIN A MOISTURE RANGE OF 2% OF OPTIMUM CONTENT

* OWNER/CONTRACTOR RESPONSIBLE FOR REVIEW OF GEOTECHNICAL REPORT AND ANY DEVIATION FROM RECOMMENDED PAVEMENT SECTION.

STANDARD DUTY PAVEMENT

N.T.S.



CROSS SECTION "A-A" - LEVEL SPREADER OUTLET TO SOUTH DRY SWALE

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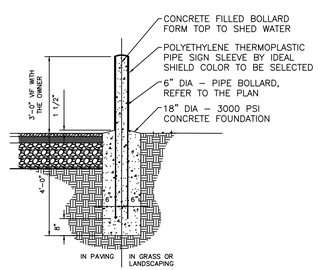

SEE PLANS FOR QUANTITIES AND LOCATIONS.

TYPICAL BOLLARD SECTION

NTS

NOTES

1. THE "PERMEABLE SOIL" SHALL BE CONSISTENT WITH THE NYSDOT STANDARD SPECIFICATIONS ITEM 208.0103 22. THE "PERMEABLE SOIL" SHALL BE A WELL BLENDED MIXTURE OF THREE (3) PARTS SAND AND ONE (1) PART TOPSOIL BY VOLUME. SAND SHALL MEET THE REQUIREMENTS OF SECTION 703-07 "CONCRETE SAND" OF THE NYSDOT STANDARD SPECIFICATIONS. TOPSOIL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 713-01 "TOPSOIL". THE "PERMEABLE SOIL" SHALL HAVE A pH RANGE OF 5.2 TO 7.6 AND AN ORGANIC CONTENT OF 3-7%. SOIL AMENDMENTS TO INCREASE ORGANIC CONTENT SHALL BE PEAT MOSS IN ACCORDANCE WITH SECTION 713-15 "ORGANIC MATERIAL" OF THE NYSDOT STANDARD SPECIFICATIONS. A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR.) IS REQUIRED. THE SOIL SHALL BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER AND VISIBLY FREE OF NOXIOUS WEEDS. THE SOIL SHOULD BE PLACED IN 12" LIFTS AND LOOSELY COMPACTED (TAMPED LIGHTLY WITH A DOZER OR BACKHOE BUCKET).

2. THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS, SUCH AS WEED SEEDS, SOIL, ROOTS, ETC. THE MULCH SHOULD BE APPPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

BIO-RETENTION AREA - TYPICAL SECTION

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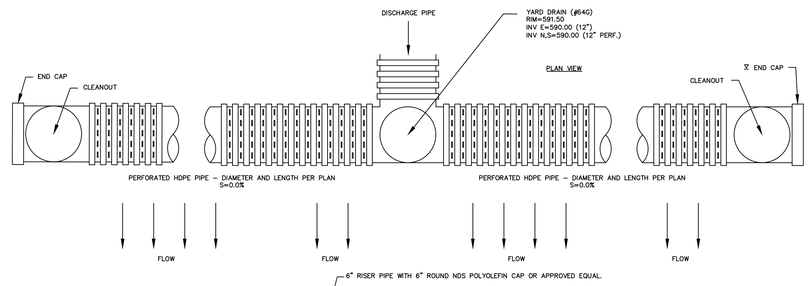

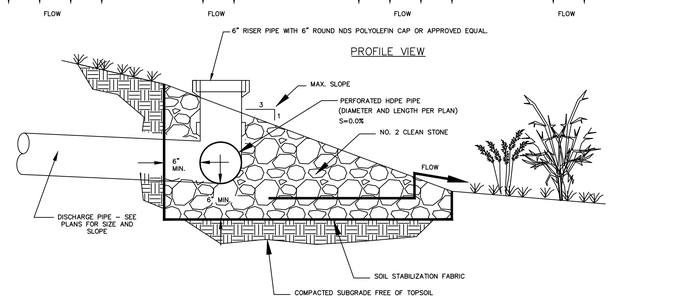

TYPICAL LEVEL SPREADER DETAIL

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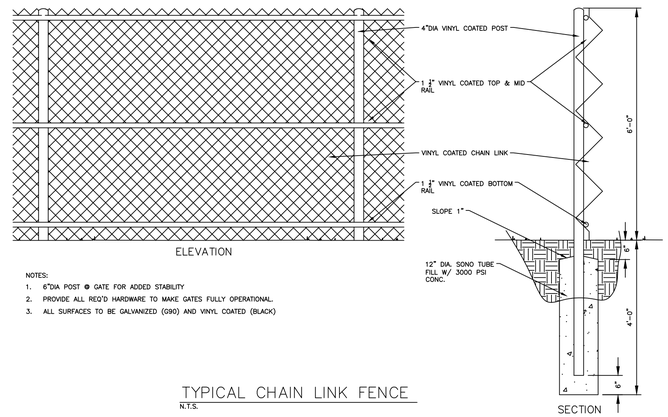

NOTES:

1. 6"DIA POST @ GATE FOR ADDED STABILITY
2. PROVIDE ALL REQ'D HARDWARE TO MAKE GATES FULLY OPERATIONAL.
3. ALL SURFACES TO BE GALVANIZED (G90) AND VINYL COATED (BLACK)

TYPICAL CHAIN LINK FENCE

N.T.S.

NO.	DATE	REVISIONS
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STATE OF NEW YORK - LICENSED PROFESSIONAL ENGINEER - LAND SURVEYING, P.C. - ENGINEERING & LAND SURVEYING DESIGN

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716)754-4256
Fax (716)754-4252

DETAILS - PAVING & DRAINAGE

321 Commerce, LLC

321 Commerce Drive
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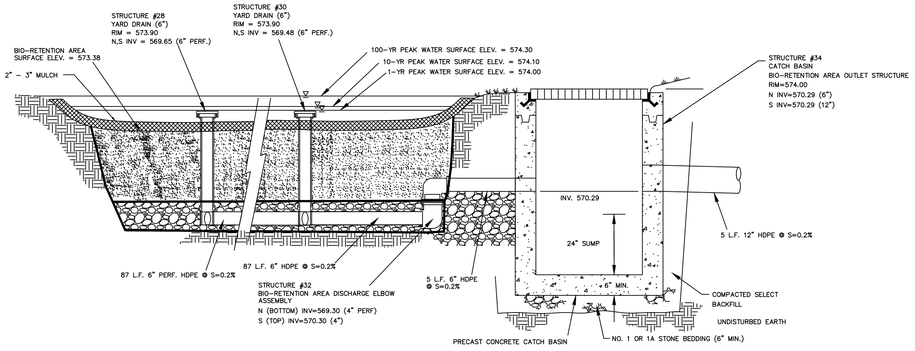
prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale:	date:	project no.:	sheet:
AS NOTED	1-21-2022	21-4768	9 OF 11

Z:\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG Details 01-12-22 Working.dwg

Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)



CROSS SECTION "C-C" - BIO-RETENTION AREA & OUTLET STRUCTURE

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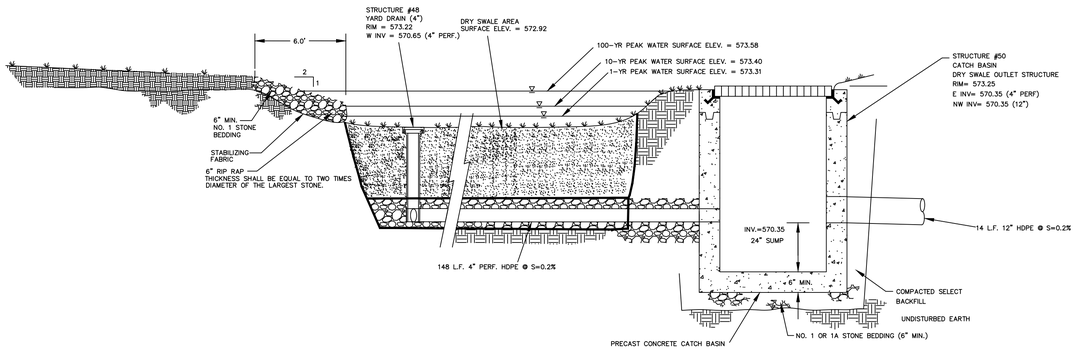
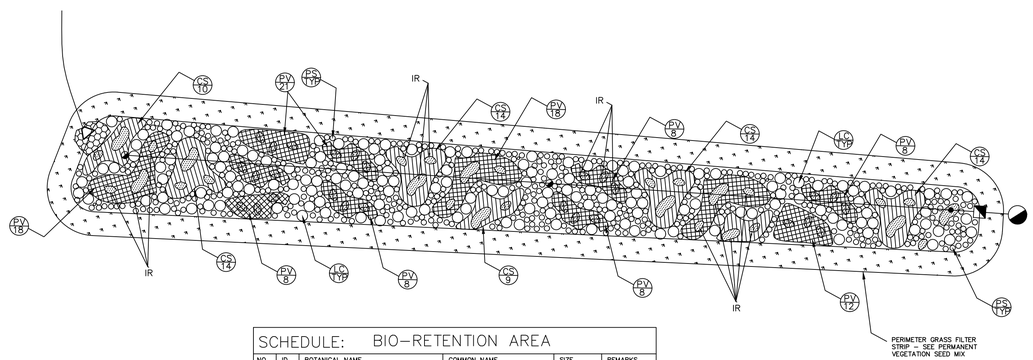


CROSS SECTION "B-B" - DRY SWALE & OUTLET STRUCTURE

N.T.S.



SCHEDULE: BIO-RETENTION AREA					
NO.	ID	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
36	PV	PANICUM VIRGATUM	SWITCHGRASS	2" PLUG	2 FT. O.C.
36	CS	CAREX SPP.	SEDGES	2" PLUG	2 FT. O.C.
96	PS	POLYGONUM SPP.	SMARTWEED	2" PLUG	2 FT. O.C.
34	LC	LOBELIA CARDINALIS	CARDINAL FLOWER	2" PLUG	2 FT. O.C.
39	IR	IRIS VERSICOLOR	NORTHERN BLUE FLAG IRIS	2" PLUG	2 FT. O.C.

BIO-RETENTION AREA SAMPLE PLANTING PLAN

N.T.S.

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STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ ADVANCED DESIGN GROUP ENGINEERING & LAND SURVEYING, P.C.

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Coyne Street
Lewiston, New York 14092
Phone (716)754-2255
Fax (716)754-4252

DETAILS - STORMWATER MANAGEMENT

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716)754-2256

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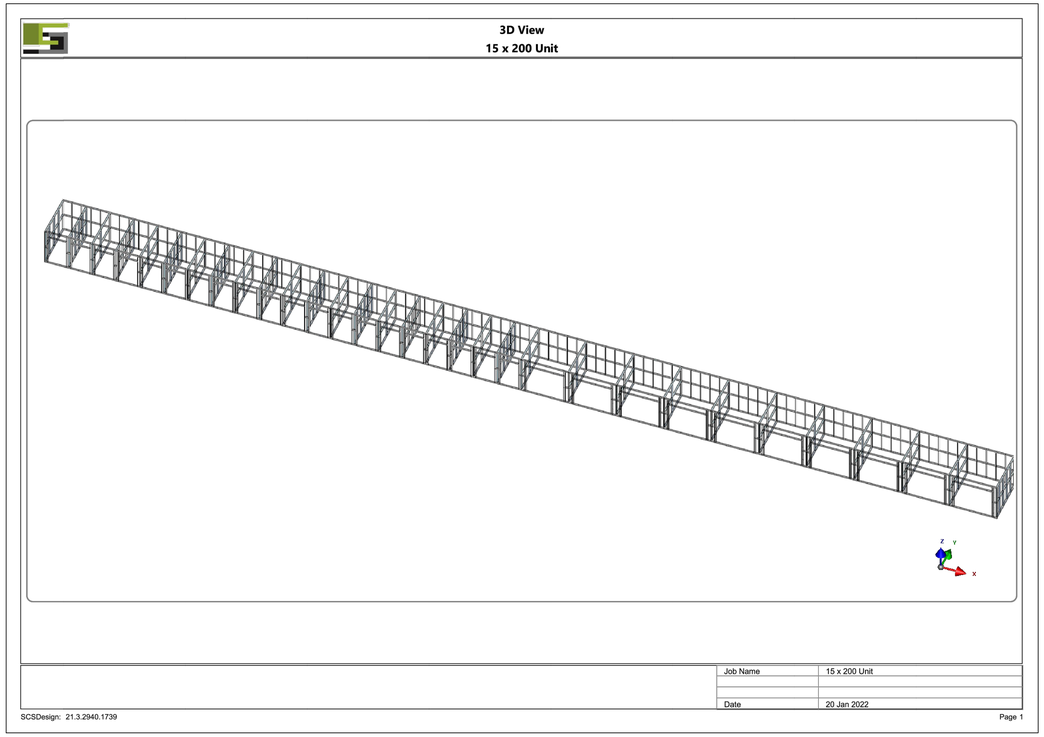
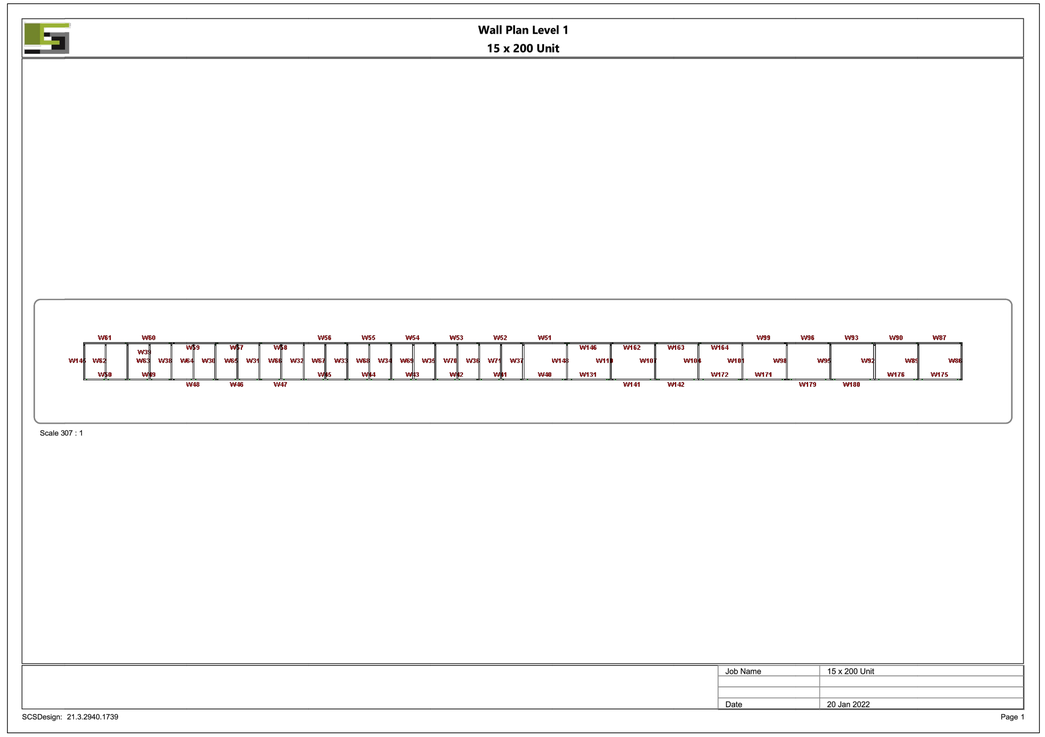
Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)



TYPICAL SELF-STORAGE UNIT



TYPICAL 3-D VIEW OF STORAGE UNIT FRAMING



TYPICAL SELF-STORAGE UNIT FLOOR PLAN

NO.	DATE	REVISIONS
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STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ ADVANCED DESIGN GROUP ENGINEERING & LAND SURVEYING, P.C. ARCHITECTURAL DESIGN DIVISION

Prepared by:

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Professional Engineering & Land Surveying, PC
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Lewiston, New York 14092
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Fax (716) 754-4252

DETAILS - TYPICAL STORAGE UNITS

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prepared for:
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Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)

C-WP-D-TR Series

Traditional-Style LED Wall Pack with Glass Lens

Replaces up to 400W PSMH

C-LITE LED LIGHTING

PACK UP THIS ONE

Our dimmable cULus Listed Traditional-Style LED Wall Pack has a glass lens, delivers up to 23,400 lumens, is available in 4000K and 5000K, and comes with a 5-year limited warranty. It also features four ½" NPS tapped conduit knockouts for flexibility with mounting options.



PRODUCT SPECIFICATIONS

OVERVIEW

- Max. Delivered Lumens: Up to 23,400 Lumens
- CRI: ≥ 80 **(4L, 6L, 9L & 14L),** ≥ 70 **(18L & 23L)**
- CCT: 4000K or 5000K
- Input Power: 30W **(4L)**, 45W **(6L)**, 67W **(9L)**, 106W **(14L)**, 136W **(18L)**, 166W **(23L)**
- Estimated L_{70} Lifetime @ 25˚C: > 100,000 Hours
- Power Factor: > 0.9 at full load
- Total Harmonic Distortion: <20% at full load
- Limited Warranty: 5-Year*
- Replaces: 100W PSMH **(4L)**, 150W PSMH **(6L)**, 250W MH **(9L)**, 320W PSMH **(14L)**, 400W MH **(18L)**, 400W PSMH **(23L)**

FEATURES	RECOMMENDED USE	INPUT VOLTAGE
• Borosilicate prismatic glass lens • 0-10V Dimming to 10% • Extremely efficient with over 130LPW on every fixture • Easy installation • FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions	• Entryways • General Area Lighting • Perimeter Lighting • Storage Facilities	• Universal (120V - 277V)

CERTIFICATIONS:

c UL us LISTED · DLC PREMIUM · RoHS COMPLIANT · WET LOCATION SUITABLE · DIMMABLE · 5 YEAR WARRANTY

CA RESIDENTS WARNING: Cancer and Reproductive Harm – www.p65warnings.ca.gov

For informational purposes only. Content is subject to change. *See creelighting.com/resources/warranties

Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)

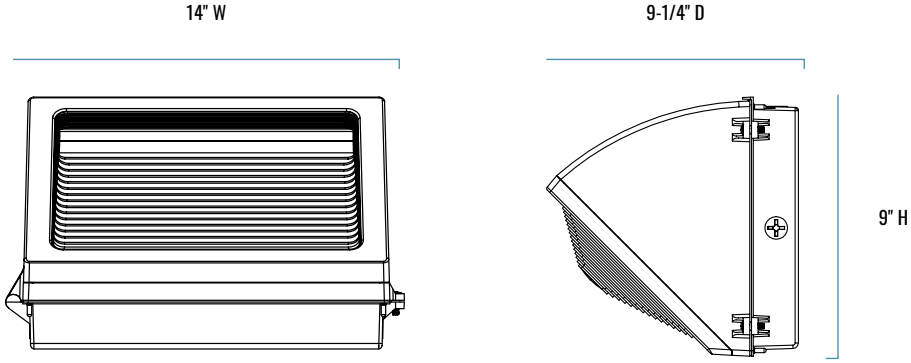
C-WP-D-TR Series

ORDERING INFORMATION

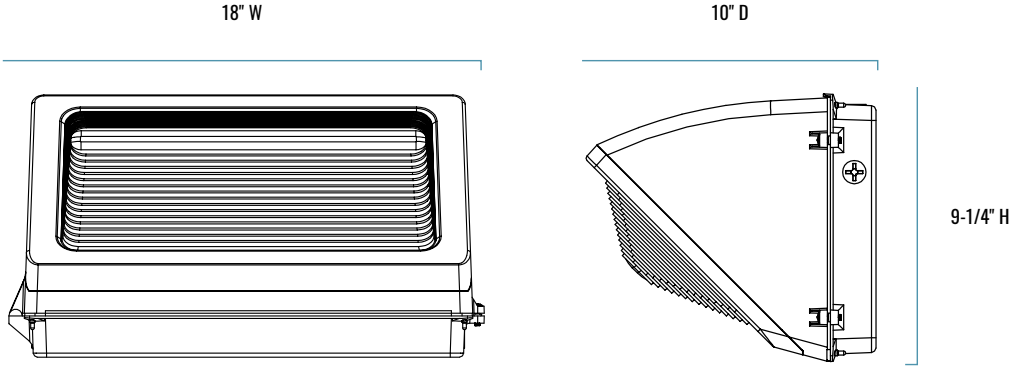
Example SKU: C-WP-D-TR-4L-40K-UL-BZ

C-WP	D	TR				UL	BZ
PRODUCT	**SERIES**	**STYLE**	**LUMEN PACKAGE**			**COLOR TEMP**	**VOLTAGE**	**HOUSING COLOR**
C-WP	**D**	**TR** Traditional-Style	**4L** 4300 (4000K) 4200 (5000K) 30W **6L** 6200 (4000K) 6400 (5000K) 45W	**9L** 9100 (4000K) 9200 (5000K) 67W **14L** 14,000 (4000K) 14,300 (5000K) 106W	**18L** 18,600 (4000K) 18,700 (5000K) 136W **23L** 22,600 (4000K) 23,400 (5000K) 166W	**40K** Neutral White (4000K) **50K** Cool White (5000K)	**UL** Universal (120-277V)	**BZ** Dark Bronze

C-WP-D-TR-4L, 6L, 9L & 14L



C-WP-D-TR-18L & 23L



SERIES OVERVIEW

DIMENSIONS	PRODUCT WEIGHT	MOUNTING HEIGHT	SPACING
9-1/4" D x 14" W x 9" H **(4L, 6L, 9L & 14L),** 10" D x 18" W x 9-1/4" H **(18L & 23L)**	8.4 lbs. **(4L),** 9.08 lbs. **(6L),** 10.05 lbs. **(9L),** 10.34 lbs. **(14L),** 15.92 lbs. **(18L),** 17.4 lbs. **(23L)**	10 to 15 feet **(4L)** & 20 to 25 feet **(6L, 9L, 14L, 18L, 23L)**	2 to 3 times the mounting height

Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)

For informational purposes only. Content is subject to change. *See creelighting.com/resources/warranties

C-WP-D-TR Series

FIXTURE SPECIFICATIONS

HOUSING	Heavy-duty dark bronze die-cast aluminum
LENS ASSEMBLY	Borosilicate prismatic glass lens
MOUNTING	Four 1/2" NPS tapped conduit knockouts for flexibility with mounting options

LUMINAIRE AND ELECTRICAL PERFORMANCE

OPERATING TEMPERATURE RANGE	ESTIMATED L_{70} LIFETIME @ 25°C (77°F)	POWER FACTOR	TOTAL HARMONIC DISTORTION
-40°F to 104°F (-40°C to 40°C)	> 100,000 Hours	> 0.9 at full load	<20% at full load

SKU	REPLACES	LUMEN OUTPUT	BUG RATINGS*	SYSTEM WATTS	CURRENT DRAW (AMPS)			
					120V	208V	240V	277V
C-WP-D-TR-4L-40K-UL-BZ	100W PSMH	4300 L	B1-U3-G3	30W	0.251	0.15	0.132	0.117
C-WP-D-TR-4L-50K-UL-BZ		4200 L						
C-WP-D-TR-6L-40K-UL-BZ	150W PSMH	6200 L	B1-U3-G4	45W	0.384	0.227	0.20	0.176
C-WP-D-TR-6L-50K-UL-BZ		6400 L						
C-WP-D-TR-9L-40K-UL-B	250W MH	9100 L	B2-U4-G3	67W	0.57	0.35	0.31	0.30
C-WP-D-TR-9L-50K-UL-BZ		9200 L	B2-U4-G4					
C-WP-D-TR-14L-40K-UL-BZ	320W PSMH	14,000 L	B3-U4-G4	106W	0.89	0.53	0.46	0.42
C-WP-D-TR-14L-50K-UL-BZ		14,300 L	B2-U4-G5					
C-WP-D-TR-18L-40K-UL-BZ	400W MH	18,600 L	B3-U4-G4	136W	1.20	0.67	0.59	0.52
C-WP-D-TR-18L-50K-UL-BZ		18,700 L						
C-WP-D-TR-23L-40K-UL-BZ	400W PSMH	22,600 L	B3-U5-G5	166W	1.43	0.83	0.73	0.63
C-WP-D-TR-23L-50K-UL-BZ		23,400 L						

* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt.

Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)

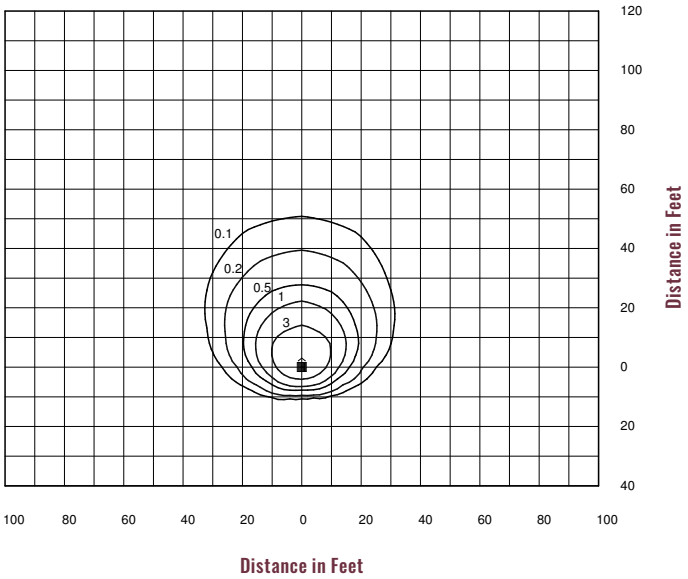
For informational purposes only. Content is subject to change. *See creelighting.com/resources/warranties

C-WP-D-TR Series

ISO PLOT CHARTS

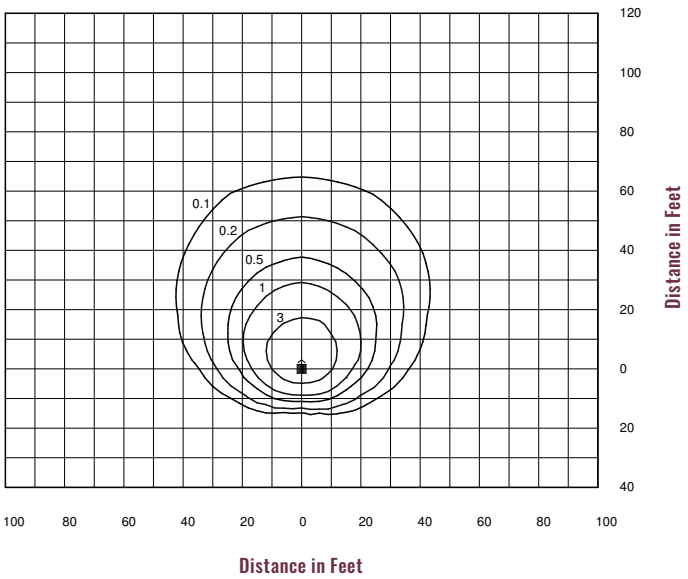
C-WP-D-TR-4L-50K

Mounting Height: 10'



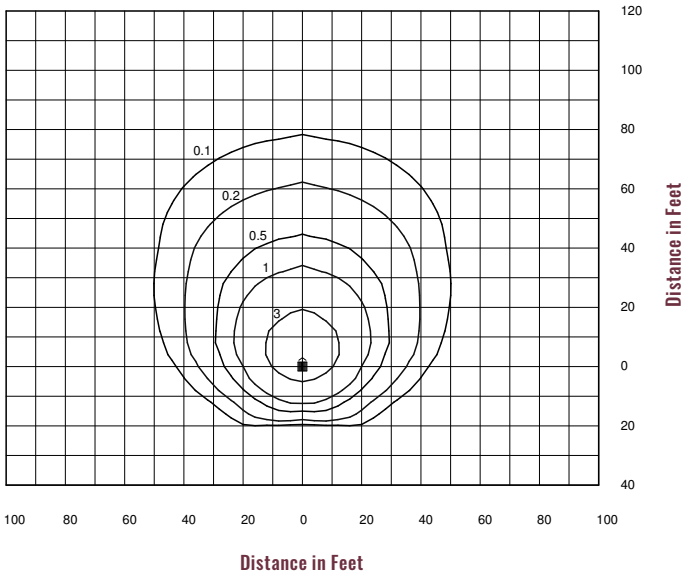
C-WP-D-TR-6L-50K

Mounting Height: 15'



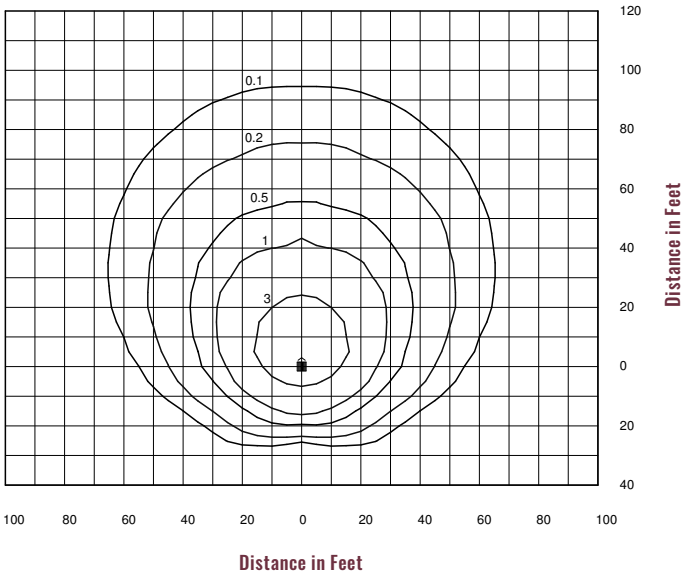
C-WP-D-TR-9L-50K

Mounting Height: 20'



C-WP-D-TR-14L-50K

Mounting Height: 25'



Note: All published photometric testing performed to IES LM-79 standards. Fixture photometry was completed on a single representative fixture. Foot candle levels are noted inside graph.

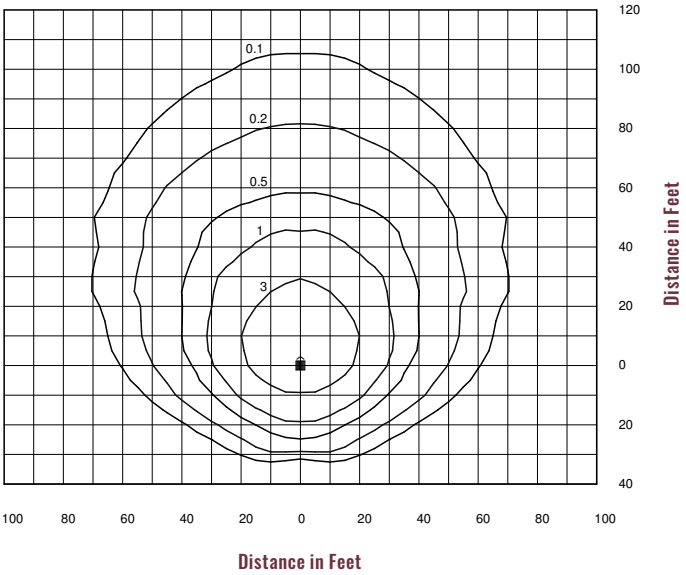
Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)

C-WP-D-TR Series

ISO PLOT CHARTS

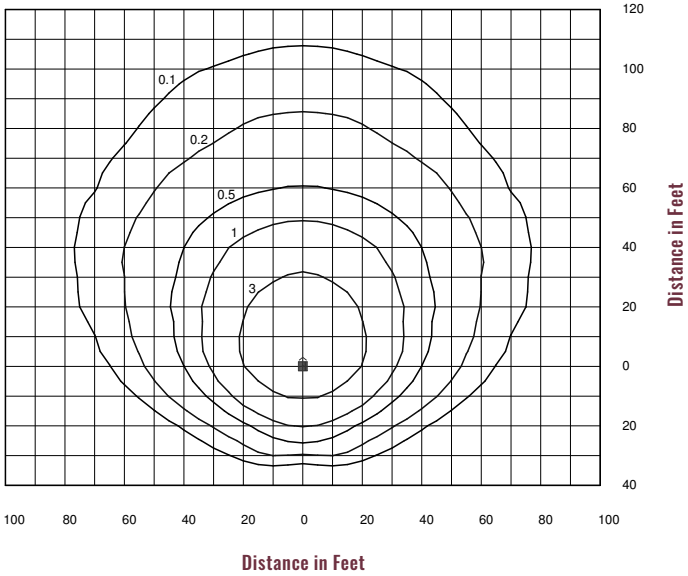
C-WP-D-TR-18L-50K

Mounting Height: 25'



C-WP-D-TR-23L-50K

Mounting Height: 25'



Note: All published photometric testing performed to IES LM-79 standards. Fixture photometry was completed on a single representative fixture. Foot candle levels are noted inside graph.

WARRANTY AND CERTIFICATIONS

WARRANTY	cULus LISTED	DLC
5-Year Warranty*	Wet Listed	5.1 Premium Refer to https://www.designlights.org/search/ for most current information.

ACCESSORIES



UNIVERSAL BUTTON PHOTOCELL (120V-277V)

SKU: **CCR-PHC-0306-GC**
USE: Photocell is field installed and drilling of the back box is required. 500W Max.



UNIVERSAL BUTTON PHOTOCELL (120V-277V)

SKU: **JL-423CZ**
USE: Photocell is field installed and drilling of the back box is required. 1000W Max.

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Attachment: SP-2022-01 drawings 031722 (25330 : Sp-2022-01)

DRAFT

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency:	Town of Amherst Planning Board	**Project:**	SP-2022-01
Address:	5583 Main Street Williamsville, NY 14221 (716) 631-7051	**Date:**	March 21, 2022

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review - 321 Commerce Drive

SEQR Status: Unlisted Action

Description of Action: A proposed self-storage facility consisting of four single-story structures totaling approximately 19,400 s.f. of commercial space as well as stormwater management facilities to the west and south sides. Project includes the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 321 Commerce Drive, Amherst, Erie County

Petitioner: 321 Commerce LLC

Attachment: SP-2022-01_draft neg dec_031722 (25330 : Sp-2022-01)

Reasons Supporting This Determination

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on March 4 reviewed the Grading and Drainage Plans submitted on February 28, 2022, Engineer's Report, and Erosion Control Plan submitted on January 21, 2022.

   The Stormwater Pollution Prevention Plan (SWPPP) submitted on January 21, 2022 was also reviewed. Based on its review of these documents, the Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on February 28, 2022 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of January 31, 2022 and the Planning Department in their review of March 4, 2022 has reviewed the application documents, and determined that the subject project has or will have met all International Building Code – 2015 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. The NYS Office of Parks, Recreation and Historic Preservation has reviewed the project and, as stated in their letter of January 11, 2022 determined that there will be no impact on these resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the Research and Development (RD) zoning district; neighboring uses are industrial and also zoned RD; therefore, the project is consistent with surrounding land use.

6. The proposed subject development will include a self-storage facility which will not cause a major change in the use of either the quantity or type of energy.

Attachment: SP-2022-01_draft neg dec_031722 (25330 : Sp-2022-01)

7. The project will not create any hazard to human health. The Fire Chief's Association on February 4, 2022 has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency have or will have been met.

8. The project will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The 19,400 s.f. of commercial space will be consistent with the scale of surrounding land uses.

9. The function of the proposed self-storage facility will not significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated February 3, 2022, indicates that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on February 2, 2022, Assessor on March 2, 2022, Plumbing Division on February 2, 2022 and Right-of-Way Agent on February 3, 2022. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Seconded by: Ayes; Noes Absent

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

GP/ac
X:\Current_Planning\Files\Site Plans\2022\SP-2022-01_(321_Commerce_Dr)_2022\SP-2022-01_draft neg dec_031722.doc
cc: Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDEC (type 1's)
NYSDOT (if on state hwy.)
321 Commerce LLC, 6885 Campbell Blvd., N. Tonawanda, NY 14120
Advanced Design Group, 761 Cayuga St., Lewiston, NY 14092

Attachment: SP-2022-01_draft neg dec_031722 (25330 : Sp-2022-01)

DRAFT (3/17/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-01

PETITIONER

321 Commerce, LLC
6885 Campbell Blvd.
N. Tonawanda, NY 14120

PROPERTY LOCATION

321 Commerce Drive

WHEREAS, the Town of Amherst Planning Board on Thursday, March 17, 2022 held a public hearing on a Site Plan for a 19,400 square foot self-storage facility, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived since hydric / potentially hydric soils have not been identified on the parcel.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

NOW THEREFORE BE IT FURTHER RESOLOVED that the Planning Board, in accordance with Part II, Chapter 83, Part IX, Section 1-2 of Town Law waives sidewalks required along Commerce Drive until required at some future time by the Town Board, and

Attachment: SP-2022-01_draft resolution_031722 (25330 : Sp-2022-01)

DRAFT (3/17/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-01

PETITIONER	PROPERTY LOCATION
321 Commerce, LLC	321 Commerce Drive

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance approves said Site Plan subject to the following conditions:

1. Final site plan to be submitted for stamped approval adequately address the remaining comments and revisions from the Zoning Enforcement Officer and the Planning Department in their review letter dated March 4, 2022; Fire Chiefs' Association in the letter dated February 4, 2022; Stormwater Management Officer in the letter dated March 7, 2022; and New York State Department of Environmental Conservation in the letter dated February 17, 2022.

2. An alternative parking plan be approved by the Zoning Enforcement Officer in accordance with the requirements §203-7-1-7 of Town Code.

3. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

4. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

5. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

GP/ac
X:\Current_Planning\Files\Site Plans\2022\SP-2022-01_(321_Commerce_Dr)_2022\SP-2022-01_draft resolution_031722.doc
cc: Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
321 Commerce LLC, 6885 Campbell Blvd., N. Tonawanda, NY 14120
Advanced Design Group, 761 Cayuga St., Lewiston, NY 14092

Approved Plan: _____
Received _____

Attachment: SP-2022-01_draft resolution_031722 (25330 : Sp-2022-01)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

March 24, 2022

321 Commerce, LLC
6885 Campbell Blvd.
North Tonawanda, NY 14120

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-2022-01**; PROPOSED SELF-STORAGE FACILITY; PROPERTY LOCATED AT **321 COMMERCE DRIVE**.

Dear Sir/Madam:

At its meeting of March 17, 2022 the Planning Board voted to adjourn the subject site plan at your request.

This request will be placed on the Planning Board agenda for the April 21, 2022 meeting.

Please submit revised plans or required materials by March 28, 2022 so they may be reviewed prior to the meeting.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\2022\SP-2022-01_(321_Commerce_Dr)_2022\SP-2022-01_Adjournment Letter_031722.doc
cc: Advanced Design Group, 761 Cayuga St., Lewiston, NY 14092

Attachment: SP-2022-01 adjournment letter 031722 (25330 : Sp-2022-01)

TOWN OF AMHERST

APPLICATION & REVIEW PROCEDURE

MAJOR SITE PLAN

MATERIALS MUST BE PROVIDED IN AN ELECTRONIC FORMAT THAT CONTAINS PDF FILES OF THE APPLICATION, EAF, SITE PLAN DRAWING SET, SURVEY, LANDSCAPE PLAN, PRELIMINARY BUILDING FLOOR PLANS / ELEVATIONS & ANY OTHER SUPPORTING INFORMATION. THIS MUST BE SUBMITTED WITH YOUR APPLICATION. APPLICATIONS WILL NOT BE TRANSMITTED WITHOUT THIS ELECTRONIC INFORMATION.

THIS ALSO APPLIES TO REVISED MATERIALS THAT ARE SUBMITTED.

This application package includes the following:

- Application Procedures
- Application Form & Checklist
- Stormwater Pollution Prevention Plan Checklist
- Appendix A Town of Amherst EAF Addendum
- Appendix B Criteria for Required 8½" x 11" Sketches
- Appendix C Erie Sewer District No. 5 – Commercial / Industrial New & Existing Buildings Requirements

- IMPORTANT-

1. A pre-submittal consultation with Planning Department staff is *strongly recommended* prior to submitting an application. The pre-submittal meeting gives the applicant an opportunity to discuss with staff such items as:
   - classifying the action as a major site plan, minor site plan, or minor site plan adjustment;
   - determining what specific information will be required to be submitted with the application;
   - identifying and discussing issues that must be addressed as part of the SEQR review;
   - identifying any potential variances required to implement the project as proposed.

   An appointment is required for all meetings with Planning Department staff.

2. This site plan petition is subject to the requirements of 6 NYCRR Part 617, State Environmental Quality Review Act (SEQR), and Chapter 104 of the Town of Amherst Code, as amended. The Planning Board cannot make a SEQR determination unless a complete Environmental Assessment Form (EAF), including Town of Amherst EAF Addendum, and any required supplementary information such as traffic impact studies, archaeological reports, wetland delineations or geotechnical reports, are submitted. SEQR issues may be discussed with Planning Department staff at a recommended pre-submittal meeting. Unlisted Actions require a Short EAF; Type I Actions require a Full EAF. The following is a link to the NYSDEC website and fillable forms with instructions: http://www.dec.ny.gov/permits/6191.html.

3. **Review by the Town Design Advisory Board (DAB) is required for Major Site Plans located in the following Mixed-Use zoning districts:**

   Traditional Infill 2.5 (TI-2.5)
   Traditional Infill 4 (TI-4)
   Shallow Corridor 3 (SC-3)
   Deep Corridor 3 (DC-3)
   Deep Corridor 5 (DC-5)
   Center 2.5 (CTR-2.5)
   Center 5 (CTR-5)
   Center 8 (CTR-8)

   The application for DAB review is required to be filed in conjunction with the major site plan application.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

4. The application shall be executed or consented to in writing by the owner of the property.

5. **Any variances from the Zoning Board of Appeals, or any decision from the Town Board (e.g. removal of deed restrictions) must be obtained prior to action by the Planning Board on a Site Plan application.**

6. Submittal of an application grants permission to Town staff and Planning Board members to access the parcel(s) under consideration.

7. All site plan drawings must be prepared by a Registered Architect, Professional Engineer, Landscape Architect, or Land Surveyor (as applicable) licensed to practice in New York State.

8. If you wish to include a Coordinated Sign Plan application with the site plan petition, a separate application must be completed. Contact the Planning Department for a copy of a Coordinated Sign Plan application package.

9. All drawings should be no larger than 24 in. x 36 in. If site characteristics warrant larger plan sheets, they may be accepted subject to Planning Department concurrence. All drawings must also reserve a 4 in. x 6 in. area in the lower right hand corner for official Town use.

APPLICATION PROCEDURES

1. Applicant secures application package from the Planning Department, 5583 Main Street, Williamsville, NY 14221. (716) 631-7051. Forms are also available online at: www.amherst.ny.us, (keyword: Planning).

2. Applicant prepares information as required on the Site Plan Submittal Checklist, attached. NOTE: Some proposals may not require all items on the checklist; please verify with the Planning Department.

3. Applicant schedules an appointment with the Planning Department to review the following:
   - a complete set of site plan drawings, preliminary building elevations and floor plans (no larger than 24" x 36" in size)
   - Environmental Assessment Form (EAF) & Town EAF Addendum
   - any supporting reports and materials
   - verification from the Town Assessor that the address in the application is correct

4. Applicant schedules an application submittal appointment with the Planning Department. NO SITE PLAN WILL BE ACCEPTED FOR REVIEW WITHOUT A PRE-SET SUBMITTAL APPOINTMENT.

5. At the submittal appointment, applicant provides fourteen (14) complete and collated sets of drawings and application information to the Planning Department **(materials will not be accepted unless folded into 9" x 12" in size),** including:
   - application form
   - Environmental Assessment Form (EAF)
   - supporting reports / materials
   - complete set of site plan drawings, preliminary building elevations and floor plans (**at least one (1) set of drawings must bear a raised or wet seal and signature of the design professional** who prepared the plans; the remaining copies may be submitted with a facsimile of the seal and signature)
   - digital files of all materials in pdf format
   - an 8½" x 11" reduction of the sketch plan or plat drawing (see Appendix B)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

6. After approval for filing by the Planning Department, applicant submits all necessary fees to the Town Clerk. **(See Schedule of Fees on first page of application and make checks payable to: Town of Amherst.)**

7. The applicant returns a copy of the filing receipt to the Planning Department.

8. The Planning Department transmits remaining thirteen (13) copies of the application and supporting materials to:
   - Assessor
   - Commissioner of Building
   - Town Engineer
   - Superintendent of Highways
   - Traffic/Safety Board
   - Fire Chiefs' Association
   - Plumbing Division
   - Right-of-Way Agent
   - Police Department (if applicable)
   - Zoning Enforcement Officer
   - Other Town and outside agencies, as applicable

9. Within 30 days of its receipt of the complete application for Site Plan approval, each agency completes its review and notifies the Planning Department in writing of its comments or recommendations as required by Ordinance.

10. The applicant may be required to submit revised plans, reports, or materials to address review agency comments. The procedures for submittal of revised plans are as follows:

    - A cover letter addressing all comments received to date is required.
    - "Highlight" the area of change on the drawings and provide a notation describing the change.
    - Revised plans/materials are required. Planning staff should be contacted to determine the number of sets needed.
    - All revised plans and materials must also be provided in an electronic format that contains pdf files of the revised information.

11. The Planning Board reviews the EAF to determine whether a Draft Environmental Impact Statement (DEIS) is required. The petitioner will be advised in the event that a DEIS is required and afforded the opportunity to prepare it. If the petitioner declines, the Planning Board will prepare the DEIS at the petitioner's expense. The public hearing will be held on the DEIS concurrently with the Planning Board hearing on the application.

12. Planning Board Meeting Procedures:

    The applicant or representative presents the project at the public hearing before the Planning Board and is available to answer any questions. The Planning Board may take any of the following actions:

    - Adjourn the hearing to a future Planning Board meeting (hearing remains open).
    - Close the hearing and table action on the site plan to a future Planning Board meeting. (The Planning Board may remove the item from the agenda until such time as all required information is provided.)
    - Close the hearing and make a decision on the site plan.

    All determinations on matters before the Planning Board are made after all public hearings on that meeting's agenda are completed.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

13. A copy of the Planning Board's determination will be provided to the applicant, his / her representative, the Building Commissioner and the Town Clerk approximately 1 week following the Planning Board meeting at which it was heard.

14. If the Planning Board approves a Site Plan with conditions, the Planning Department will work with the applicant to ensure that all conditions of the approval are satisfactorily addressed. When all conditions are satisfied, the applicant submits **seven (7) final copies** of the complete set of all site plan drawings, folded into 9" x 12". For site plans in the Mixed-Use zoning districts, building elevations will also be required.

    All 7 sets must have original wet seals and include the required 4 in. x 6 in area in the lower right hand corner for official Town use. These drawings will be stamped and signed "Approved" by the Planning Director and transmitted to Town Departments for their files and use.

15. A building permit will not be issued by the Building Department until the stamped and signed Site Plan is issued by the Planning Director.

NOTE: Please check with the Planning Department to determine the deadline date for filing applications. Due to the public hearing notice requirements and department reviews, no site plan application will be placed on the Planning Board agenda after the deadline for filing has closed. Scheduling may be delayed if an application is incomplete.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: _____ **Acreage** _____ **Fee $** _____

Address Verified by Assessor's Office _____ VERIFIED BY DATE

Materials Received by Planning Department _____ RECEIVED BY DATE

Fee Paid to Town Clerk _____ RECEIVED BY DATE

Site Plan Review		**Fill In Applicable Fees**
1 acre or less	$1,250.00	_____
Each additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Site Plans	$1,200.00	_____
Request for Relief of / Change to Conditions of Site Plan Approval	$1,200.00	_____
Request for Extension of Site Plan Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1 - 4.99 Acres	$ 500.00	_____
5 - 10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
	TOTAL FEE:	$_____

To Be Completed By Applicant

Petitioner:

Name: 321 Commerce, LLC

Address: 6895 Campbell Blvd

North Tonawanda (city) NY (state) 14120 (zip code)

Phone: 716-807-2388 Fax: _____

E Mail: bogartlandscape@yahoo.com

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

MAJOR SITE PLAN APPLICATION (con't) — *Page 2*

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Name: Advanced Design Group

Address: 761 Cayuga Street

Lewiston (city) NY (state) 14092 (zip code)

Phone: 716-754-2256 Fax: _____

E Mail: kristin.sevard@adgengineers.com

Project Location (must be verified by Town Assessor's Office):

Address: 321 Commerce Drive, Amherst, NY 14228

SBL No(s): 40.07-3-2.112

Project Name: 321 Commerce, LLC

Project Description: Four (4) single story slab on grade self-storage buildings will be constructed for a total of 19,400 ft² of available storage space. Four parking spaces will be provided on-site as well as a storm drainage management system which will be SPDES compliant.

Two Buildings → 15' x 300'

Two Buildings w/ units on both sides → 20' x 260'

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

	existing	proposed	total
Gross Floor Area (non-residential):	0	19,400 ft²	19,400 ft²
Gross Floor Area Residential:	—	—	—
Number of Residential Units:	—	—	—
Number of Parking Spaces:	0	4	4

Acreage of Parcel: 1.78 acres

(list each parcel separately)

Frontage on Public Roads: 220.54 feet on Commerce Drive

(list each road separately)

Existing Zoning District(s) RD - Research and Development

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Site Plan Submittal Requirements and Checklist

The following checklist outlines the information required by the Planning Department to accept a Site Plan application for review. ***It is strongly recommended that you make an appointment with Planning Staff to determine which items apply to your application***.

Item No.	Item	Submitted	Official use
I Basic Drawing Information			
1.0	**Drawing size not to exceed 24" x 36"**	✓	
2.0	**Title of Drawing**	✓	
3.0	**Name and address of Applicant**	✓	
4.0	**Name of person preparing drawing**	✓	
5.0	**Wet seal/raised seal and signature of NYS licensed architect, engineer, landscape architect, or surveyor (as applicable)**	✓	
6.0	**Project address**	✓	
7.0	**Zoning of subject property and adjacent parcels**	✓	
8.0	**North point, scale, date, and revision date(s)**	✓	
9.0	**4" x 6" reserved area in lower right hand corner for official Town use**	✓	
II Structures, Paved Areas, & Open Space			
1.0	**Existing and Proposed Streets**	✓	
1.1	Names of all existing and proposed streets	✓	
1.2	Width and radii of proposed curb-cuts	✓	
1.3	Existing curb-cuts on adjacent and opposite properties	✓	
1.4	Show ROW width, pavement dimensions, lane widths, pavement markings, and proposed signage on proposed streets	✓	
1.5	Show proposed ROW consistent with planned NYSDOT, Erie County, or Town road projects (if applicable)	✓	
1.6	Show location of proposed cross access to adjacent parcels along with a draft easement	✓NA	
1.7	Designation of Fire Lanes (if applicable)	NA	
1.8	Fire apparatus access roads	NA	
1.9	Label any proposed roads as public or private	NA	
1.10	Location and dimensions of sidewalks	NA	
1.11	Typical cross sections and profiles of proposed streets, pedestrian walkways, and bikeways	NA	
2.0	**Proposed Structures**		
2.1	Location and complete dimensions of proposed structures	✓	
2.2	Setback dimensions of structure(s) to all property lines	✓	
2.3	Proposed use of structures	✓	
2.4	Gross square feet area of each structure	✓	
2.5	Location of all building entrances	NA	
2.6	Indicate type of roof construction/materials	✓	
2.7	Location, height, and design detail of existing and proposed fences and walls	✓	
2.8	Location of light standards and building mounted lights	✓	
2.9	Location of dumpster and detail of dumpster enclosure with gate	NA	
2.10	Layout and dimensions of the lot(s) proposed for development	✓	

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.	Item	Submitted	Official use
II Structures, Paved Areas, & Open Space (cont'd)			
3.0	**Floor Plans with individual rooms and spaces labeled** (fully dimensioned)	✓	
4.0	**Building elevations with height dimensions from finished grade to the highest point of the roof and to midpoint of gable or hip of a pitched roof.** (fully dimensioned)	✓	
4.1	Show screening of mechanical equipment	NA	
5.0	**Parking/Loading/Stacking Areas**	✓	
5.1	Location and complete dimensions of all paved areas	✓	
5.2	Setback dimensions of all paved areas to property lines	✓	
5.3	Dimension of typical parking space and drive aisles	✓	
5.4	Location and layout of handicapped parking spaces & access aisles	NA	
5.5	Detail of vertical signage for handicapped parking and access aisles	NA	
5.6	Indicate minimum parking requirement & number of spaces provided	✓	
5.7	Proposed signage for directing and guiding traffic	✓	
5.8	Curb cut permits from NYS, Erie County, or Town (if applicable)	✓	
5.9	Pedestrian connections (from proposed structures to public sidewalk network)	NA	
6.0	**Location and proposed development of all open spaces, including parks, playgrounds, and open reservations**	NA	
III Utilities and Drainage			
1.0	**Engineers Report** (bound separately from the Stormwater Pollution Prevention Plan [SWPPP])	✓	
1.1	Stamped/sealed and signed by NYS licensed architect or professional engineer	✓	
1.2	Proposed water service sizing, RPZ pressure and fire safety flow and pressure calculations	NA	
1.3	Proposed sanitary sewer facility load calculations (avg. & peak flows) including calculation of the peaking factor	NA	
1.4	Proposed storm drainage facility calculations (see information included with this application)	✓	
2.0	**Grading Plan**	✓	
2.1	Existing and proposed grades indicated (proposed grades may not exceed 1 on 3)	✓	
3.0	**Water Service**	✓ NA	
3.1	Location, size and material of existing and proposed facilities	NA	
3.2	Location of existing and proposed fire hydrant location(s)	NA	
3.3	Indicate use of sprinklers, location of Fire Department connection, and proposed fire protection systems	NA	
3.4	Existing and proposed meter/RPZ size and location	NA	
3.5	Applicable construction details	NA	
4.0	**Sanitary Sewers**	NA	
4.1	Locations, sizes, slopes, inverts, and materials of all existing and proposed facilities	NA	

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Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
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Item No.		Submitted	Official use
III Utilities and Drainage (cont'd)			
4.2	Applicable construction details	NA	
4.3	Proposed water/oil/grease interceptor sizing calculations by a professional engineer (if applicable)	NA	
5.0	**Storm Drainage**	✓	
5.1	Locations, sizes, slopes, inverts, and materials of existing and proposed storm drainage facilities	✓	
5.2	Connection of roof drains to proposed drainage system	✓	
5.3	Applicable Town Standard construction details	✓	
5.4	Existing and proposed swales and ditches	✓	
5.5	Detention area cross-section and high-level elevations	✓	
5.6	County and State approval for tie-in to existing sewers	✓ NA	
6.0	**Stormwater Pollution Prevention Plan (SWPPP) as applicable** (bound separately from the Engineer's Report) **See attached checklist.**	✓	
7.0	**Natural Gas Service**	NA	
8.0	**Location of transformers, generators and other mechanical equipment; include detail drawings (if applicable)**	NA	
9.0	**Downstream Sanitary Capacity Analysis (DSCA) Report** (must be submitted if proposed average flows are greater than 2,500 gallons per day)	NA	
9.1	The DSCA Report must include a detailed downstream sewer capacity analysis and the calculations of and commitment to (via Developer commitment letter) the required financial contribution to the Town's I/I mitigation fund based on peak flow conditions. The contribution must be based on $250 per gallon per minute of mitigated flow	NA	
IV Lighting Plan			
1.0	**Photometric plan showing light spread in foot candles at property lines**	✓	
1.1	Detail of all light standards, including dimension of height from finished grade	✓	
1.2	Detail of all exterior lighting fixtures	✓	
V Landscape Plan			
1.0	**Wet/raised seal and signature of a licensed Landscape Architect**	✓	
2.0	**Provide a calculation of the total Parking area and a calculation of interior parking area in square feet and as a percentage**	✓	
3.0	**Indicate location, size, number and type of proposed landscape materials**	✓	
4.0	**Indicate location, type and size of <u>all</u> existing trees 4" caliper or larger and indicate which will be removed or retained**	✓	
VI Other Required Information/General Requirements			
1.0	**Complete boundary survey that includes all existing structures, acreage, legal description with reference to a property line, street, or other known feature, and easements plotted to scale by a NYS licensed land surveyor**	✓	

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.		Submitted	Official Use
VI Other Required Information/General Requirements (cont'd)			
1.1	Copies of all easements, reciprocal access agreement or similar leag documents	✓	
2.0	**Topographic Survey with a 30 ft. buffer outside all property lines by a NYS licensed land surveyor**	✓	
3.0	**Draft of any deed restrictions, covenants, provisions for home associations and common ownership, and reciprocal easement agreements (as applicable).**	NA	
4.0	**For assessment purposes, state intent to apply for condominium status (if applicable).**	NA	
5.0	**Completed and signed Environmental Assessment Form**	✓	
5.1	Soil boring report and geotechnical report prepared by a qualified Professional Engineer (if applicable)	✓ To be submitted	
5.2	Traffic Impact Study (if applicable)	NA	
5.3	Archaeological survey (if applicable	NA	
5.4	Wetland Delineation report (if applicable)	NA	
6.0	**Show existing zoning(s) of both the subject property and adjacent parcels on the Site Plan and the Landscape Plan**	✓	
7.0	**Location of NYSDEC wetlands (including buffer area) and/or federal wetlands; indicate jurisdictional status**	NA	
8.0	**Location of Floodway and floodplain** (if applicable)	NA	
9.0	**Documentation pertaining to any conditions of zonings, including copies of required deed restrictions; indicate date of rezoning and the parcel address under which it was rezoned (if applicable)**	✓	
10.0	**Documentation related to any required variances granted by the ZBA**	NA	
11.0	**For residential site plans, provide a statement from the appropriate school district that adequate school sites and facilities are available.**	NA	
12.0	**8 1/2" X 11" reduction of primary site plan drawing (see appendix "B" of application package for specifications)**	✓	
13.0	**A CD containing a PDF of all site plan drawings (Must also be provided with revised drawings)**	✓	
VII Additional Required Information for Projects in the Mixed Use Districts			
1.0	**Design Advisory Board Application**	NA	
1.1	Required for Major Site Plan		
1.2	Required at the Planning Directors Discretion for Minor Site Plans		
2.0	**Block & Street Network Plan**		
2.1	Designation of Core, Local & Alley streets		
2.2	Dimensions of Blocks		
3.0	**Block Usage Plan (as applicable)**		
3.1	Designation of site usage for each block including open space areas		
4.0	**Phasing Plan**		

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
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For official use only:

_____
Approved/Date

X:\Current_Planning\Application Forms 2013 Working Doc\Major Site Plan\Site Plan Submittal Requirements and Checklist (3).doc

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Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

TOWN OF AMHERST
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
-- ADDENDUM --

1. For each applicable category of proposed new structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Cv - Cosad Loamy Fine Sand				Very Limited	
Ge - Getzville Silt Loam				Very Limited	

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   X Geotechnical report attached — To Be Submitted Later _____ Not applicable

3. Is your property located: On Youngs Road between Dodge and Klein Roads? ☐ Yes ☒ No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? ☐ Yes ☒ No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? ☐ Yes ☒ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:

   _____

   _____

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: ☐ Yes ☒ No

   Describe _____

   _____

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project 3- am, 3- pm, 41 total day
   Source: ITE Tip Generation Rates 8th Edition - Code 151

8. Will blasting occur during construction? ☐ Yes ☒ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ☐ Yes ☒ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    N/A average flow N/A peak flow.

    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? ☐ Yes ☒ No

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Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: 321 Commerce, LLC (Self-Storage)		
Project Location (describe, and attach a general location map): 321 Commerce Drive, Amherst, NY 14228		
Brief Description of Proposed Action (include purpose or need): New industrial development (approx. 164 self-storage unit rentals) on 1.78 +/- acre parcel located on the south side of Commerce Drive zoned RD, Research and Development. Four single story, slab on grade, buildings will be constructed sized to accommodate 10'x10' and 10'x15' units. Stormwater management controls are to be installed and will be SPDES compliant including a Bio-retention area and Dry Swale.		
Name of Applicant/Sponsor: 321 Commerce, LLC	Telephone: (716) 807-2388 E-Mail: BogartLandscape@yahoo.com	
Address: 6885 Campbell Blvd		
City/PO: North Tonawanda	State: New York	Zip Code: 14120
Project Contact (if not same as sponsor; give name and title/role): Advanced Design Group (Kristin L. Savard, PE - Owner/President)	Telephone: (716) 754-2256 E-Mail: kristin.savard@adgengineers.com	
Address: 761 Cayuga Street		
City/PO: Lewiston	State: New York	Zip Code: 14092
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

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PLANNING DEPT.

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B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Amherst Town Board Site Plan and SEQR Approval	Jan 2022
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Amherst Planning Board Site Plan and SEQR (Recommending Body)	Jan 2022
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☐Yes ☑No		
e. County agencies ☑Yes ☐No	Erie County Planning Site Plan and SEQR (Recommending body)	Jan 2022
f. Regional agencies ☐Yes ☑No		
g. State agencies ☐Yes ☑No		
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐Yes ☑No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

NYS Heritage Areas:West Erie Canal Corridor

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Classified as RD - Research and Development

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home Central School District, New York

b. What police or other public protection forces serve the project site?
Amherst Town Police Department

c. Which fire protection and emergency medical services serve the project site?
Ellicott Creek Fire Company

d. What parks serve the project site?
Ellicott Creek Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? New industrial development - Self-storage rental units

b. a. Total acreage of the site of the proposed action? 1.78 +/- acres
b. Total acreage to be physically disturbed? 1.78+/- acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 1.78 +/- acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)

ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 12 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____ year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase ma determine timing or duration of future phases: _____

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f. Does the project include new residential uses? ☐Yes ☑No
If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑Yes ☐No
If Yes,
i. Total number of structures 4
ii. Dimensions (in feet) of largest proposed structure: 9 height; 20 width; and 260 length
iii. Approximate extent of building space to be heated or cooled: 0 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐Yes ☑No
If Yes,
i. Purpose of the impoundment:
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify:
iii. If other than water, identify the type of impounded/contained liquids and their source.
iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres
v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐Yes ☑No
If Yes:
i. What is the purpose of the excavation or dredging?
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards):
- Over what duration of time?

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes ☐No
If yes, describe.
v. What is the total area to be dredged or excavated? _____ acres
vi. What is the maximum area to be worked at any one time? _____ acres
vii. What would be the maximum depth of excavation or dredging? _____ feet
viii. Will the excavation require blasting? ☐Yes ☐No
ix. Summarize site reclamation goals and plan:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐Yes ☑No
If Yes:
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description):

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ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

_____

_____

_____

_____

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☐No

If Yes, describe: _____

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☐No

If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____
- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

_____

c. Will the proposed action use, or create a new demand for water? ☐Yes ☑No

If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐Yes ☐No

If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No
- Do existing lines serve the project site? ☐Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No

If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

_____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐Yes ☑No

If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

_____

_____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐Yes ☐No

If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No

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- Do existing sewer lines serve the project? ☐Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 1.17 acres (impervious surface)

_____ Square feet or 1.78 acres (parcel size)

ii. Describe types of new point sources. Pavement drive and four storage buildings, two 5,200 sq. ft. and two 4,500 sq. ft.

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Stormwater runoff will be directed through vegetated swales, pipes, dry swales, and bio-retention areas to the existing stormwater manhole on the west side of the property and out to Ellicott Creek.

- If to surface waters, identify receiving water bodies or wetlands: Ellicott Creek
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☑No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

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h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐Morning ☐Evening ☐Weekend ☐Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 07:00 AM to 07:00 PM
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: 07:00 AM to 07:00 PM
- Saturday: 07:00 AM to 07:00 PM
- Sunday: 07:00 AM to 07:00 PM
- Holidays: 07:00 AM to 07:00 PM

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m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Heavy equipment operations, deliveries of material, construction traffic, and select components of construction will produce noise that will exceed the existing ambient noise levels (only during construction hours).

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☑ Yes ☐ No

Describe: Land clearing will occur as part of the project. Proper buffer zones will be maintained.

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Wall Packs, between proposed storage buildings, 10 feet high, directed at ground 45 degrees from buildings, 55 feet to KOM Automation, Inc.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☑ Yes ☐ No

Describe: Land clearing will occur as part of the project. Proper buffer zones will be maintained.

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

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s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☑ Industrial ☑ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☑ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

There is both industrial and commercial near the project site as it is zoned research and development. Ellicott Creek is to the south of the project area

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0.0	1.17	+1.17
• Forested	0.0	0.0	0.0
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	1.78	0.61	-1.17
• Agricultural (includes active orchards, field, greenhouse etc.)	0.0	0.0	0.0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.0	0.0	0.0
• Wetlands (freshwater or tidal)	0.0	0.0	0.0
• Non-vegetated (bare rock, earth or fill)	0.0	0.0	0.0
• Other Describe: _____			

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c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐Yes ☑No
If Yes,
i. Identify Facilities:

e. Does the project site contain an existing dam? ☐Yes ☑No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No
If Yes:
i. Has the facility been formally closed? ☐Yes ☐ No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes ☑ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☑No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes ☑No
If yes, provide DEC ID number(s): _____
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

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v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? > 6.5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %

c. Predominant soil type(s) present on project site:

Cosad Loamy Fine Sand	66 %
Getzville Silt Loam	34 %
	%

d. What is the average depth to the water table on the project site? Average: 0.75 feet

e. Drainage status of project site soils:
☐ Well Drained: _____ % of site
☐ Moderately Well Drained: _____ % of site
☑ Poorly Drained 100 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 100 % of site
☐ 10-15%: _____ % of site
☐ 15% or greater: _____ % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☑ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name Ellicott Creek Classification fourth order
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

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m. Identify the predominant wildlife species that occupy or use the project site:
Woodland Wildlife

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation):
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☑No
If Yes:
i. Species and listing (endangered or threatened):

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑Yes ☐No
If Yes:
i. Species and listing:
Spiny Softshell

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No
i. If Yes: acreage(s) on project site?
ii. Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

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e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: Ellicott Creek Park

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): Park

iii. Distance between project and resource: 0.19 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name 321 Commerce, LLC Date 1/21/2022

Signature [signature] Title Owner

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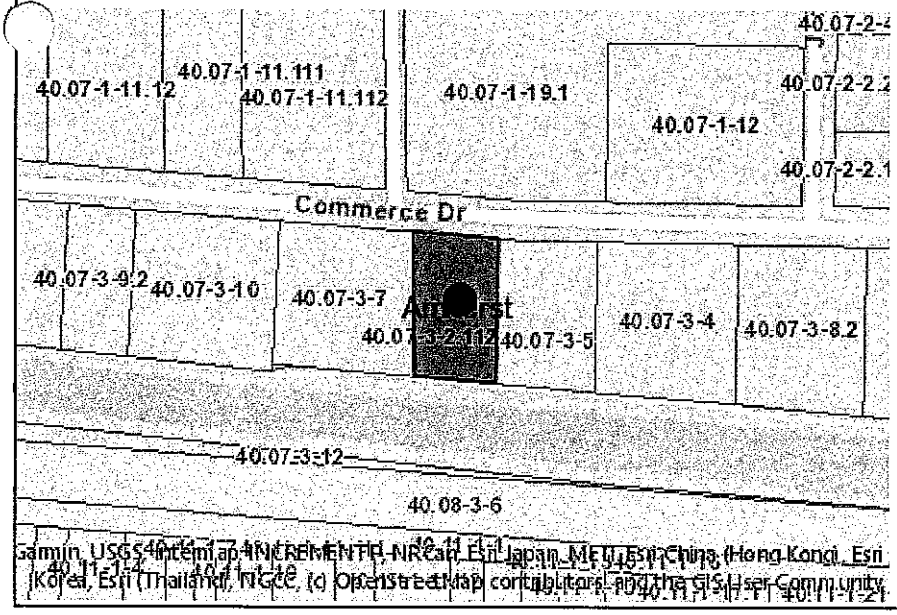
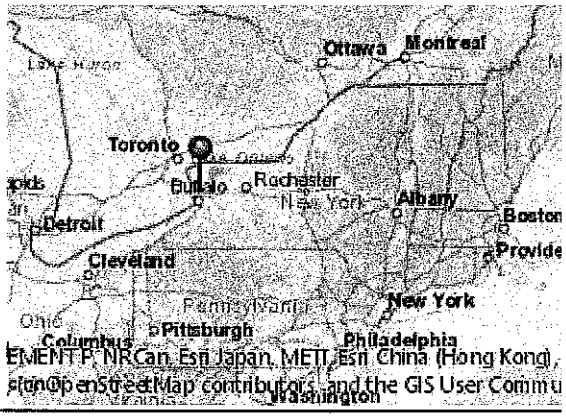
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

EAF Mapper Summary Report

Tuesday, August 3, 2021 2:21 PM



Disclaimer: The EAF Mapper is a screening tool intended to ass project sponsors and reviewing agencies in preparing an environmer assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Althou the EAF Mapper provides the most up-to-date digital data available t DEC, you may also need to contact local or other data sources in or to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

E.2.p. [Rare Plants or Animals - Name]	Spiny Softshell
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

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TOWN OF AMHERST
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
-- ADDENDUM --

1. For each applicable category of proposed new structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Cv - Cosad Loamy Fine Sand				Very Limited	
Ge - Getzville Silt Loam				Very Limited	

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   X Geotechnical report attached — To Be Submitted Later _____ Not applicable

3. Is your property located: On Youngs Road between Dodge and Klein Roads? ☐ Yes ☒ No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? ☐ Yes ☒ No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

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PLANNING DEPT.

4. Are there alternative locations on the site for this project? ☐ Yes ☒ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   _____
   _____

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: ☐ Yes ☒ No

   Describe _____
   _____

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project 3- am, 3- pm, 41 total day
   Source: ITE Tip Generation Rates 8th Edition - Code 151

8. Will blasting occur during construction? ☐ Yes ☒ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ☐ Yes ☒ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    N/A average flow N/A peak flow.

    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? ☐ Yes ☒ No

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

ERIE COUNTY CLERK'S OFFICE

County Clerk's Recording Page

Return to:
BOX 145

Party 1:
EWE II LLC

Party 2:
355 PROPERTIES LLC

Book Type: D Book: 11349 Page: 6748
Page Count: 4
Doc Type: DEED
Rec Date: 09/10/2019
Rec Time: 04:34:32 PM
Control #: 2019194899
UserID: Sharon
Trans #: 19149337
Document Sequence Number
TT2019003112

Recording Fees:

RECORDING	$40.00
COE CO $1 RET	$1.00
COE STATE $14.25 GEN	$14.25
COE STATE $4.75 RM	$4.75
RP5217 CNTY $9	$9.00
RP5217 ST-NON RES $241	$241.00
TP584	$10.00

Consideration Amount: 775000.00

BASIC MT	$0.00
SONYMA MT	$0.00
ADDL MT/NFTA	$0.00
SP MT/M-RAIL	$0.00
NY STATE TT	$3,100.00
ROAD FUND TT	$3,875.00

Total: $7,295.00

STATE OF NEW YORK
ERIE COUNTY CLERK'S OFFICE

WARNING – THIS SHEET CONSTITUTES THE CLERK'S ENDORSEMENT REQUIRED BY SECTION 319&316-a (5) OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH. THIS IS NOT A BILL.

Michael P. Kearns
Erie County Clerk

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Box 145

BS/Dw/Cov(Corp.)

BARGAIN & SALE DEED

THIS INDENTURE, made the 9th day of September, 2019,

BETWEEN **EWE II, LLC**, a New York limited liability company having its office at 60 Buttonwood Court, East Amherst, New York 14051, (the **"Grantor"**), and

355 PROPERTIES LLC, a New Jersey limited liability company, having its office at 28 Fox Hill Drive, Tabernacle, New Jersey 08088, (the **"Grantee"**).

WITNESSETH, that the Grantor, in consideration of ONE AND MORE DOLLARS ($1.00 & more), lawful money of the United States, paid by the Grantee, does hereby grant and release unto the Grantee, the successors and assigns of the Grantee forever,

Parcel "A": **ALL THAT TRACT OR PARCEL OF LAND**, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 82, Township 12, Range 7 of the Holland Land Company's Survey, described as follows: Beginning at a point in the southerly boundary line of Commerce Drive (Commerce Drive being 100.0 feet wide) at a distance of 235.54 feet S 86° 36′ 49″ E, measured along the southerly boundary of Commerce Drive from its intersection with the westerly line of Lot No. 82; thence S 86° 36′ 49″ E along the southerly boundary of Commerce Drive, a distance of 36.01 feet, thence N 90° 00′ 00″ E along the southerly boundary of Commerce Drive, a distance of 214.05 feet; thence S 00° 00′ 00″ E, a distance of 376.68 feet to the northerly line of the lands acquired by the New York State Department of Environmental Conservation for the Ellicott Creek Flood Protection Project as shown on Map No. 28, Parcel No. 34 of said project; thence N 85° 39′ 14″ W along the northerly line of said acquired land, a distance of 86.09 feet; thence continuing along the northerly line of said acquired lands, N 86° 20′ 53″ W, a distance of 164.49 feet; thence N 00° 00′ 00″ W, a distance of 361.81 feet to the point of beginning.

Parcel "B": **ALL THAT TRACT OR PARCEL OF LAND**, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 82, Township 12, Range 7 of the Holland Land Company's Survey, described as follows: Beginning at a point in the southerly boundary line of Commerce Drive (Commerce Drive being 100.00 feet wide) at a distance of 235.54 feet S 86° 36′ 49″ E, measured along the southerly boundary of Commerce Drive from its intersection with the westerly line of Lot 82, said point of beginning being the northwesterly corner of the lands conveyed to B.G. Sulzle, Inc., Sulzle Marketing, Inc. and Sulzle Eye Suturing Needles, Inc. by deed recorded in

194899
775,000 2P AmH
Deed-3

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

the Erie County Clerk's Office in liber 9519 of Deeds at page 430; thence S 00° 00′ 00″ E along the westerly line of the said Sulzle, a distance of 361.81 feet to a point in the northerly line of the lands acquired by the New York State Department of Environmental Conservation for the Ellicott Creek Flood Protection Project as shown on Map No. 28, Parcel No. 34 of said project; thence N 86° 20′ 53″ W along the northerly line of said acquired land, a distance of 208.80 feet to its intersection with the easterly line of the lands conveyed to the Town of Amherst Industrial Development Agency by deed recorded in Erie County Clerk's Office in liber 9188 of Deeds at page 576; thence N 01° 52′ 00″ W along the easterly line of said Development Agency, a distance of 361.72 feet to the northeasterly corner thereof; thence S 86° 36′ 49″ E along the southerly boundary line of Commerce Drive a distance of 220.54 feet to the point of beginning.

TOGETHER with the appurtenances and all the estate and rights of the Grantor in and to said premises, and

TOGETHER with the ownership and rights, if any, of the Grantor to land lying in the bed or any street or highway, adjoining said premises to the center line thereof; and

SUBJECT to easements, agreements, rights of way and restrictions of record, if any.

TO HAVE and to hold the premises herein granted unto the Grantee, the successors and assigns of the Grantee forever.

AND the Grantor covenants that it has not done or suffered anything whereby the said premises have been encumbered in any way whatever.

THE Grantor, in compliance with Section 13 of the Lien Law, covenants that the Grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

IN WITNESS WHEREOF, the Grantor has caused these presents to be signed by its duly authorized officer the day and year first above written.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

EWE II, LLC

By: Angela Sue Lamb
Name: Angela Sue Lamb
Title: Sole Member

STATE OF NEW YORK)
) SS:
COUNTY OF ERIE)

On the 9th day of September in the year 2019, before me, the undersigned, personally appeared Angela Sue Lamb, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public

PATRICK THOMAS FITZGERALD
No. 02FI6371635
Notary Public, State of New York
Qualified in Erie County
My Commission Expires 3/5/20 22

Record and Return to:
==========
Colligan Law LLP
Attn: Robert Townsley, Esquire
12 Fountain Plaza, Suite 600
Buffalo, NY 14202
==========

Doc #4161026.1

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

INSTRUCTIONS(RP-5217-PDF-INS): www.orps.state.ny.us

FOR COUNTY USE ONLY

C1. SWIS Code 1,4,2,2,8,9

C2. Date Deed Recorded 9 / 10 / 19 (Month / Day / Year)

C3. Book 11349 C4. Page 6748

New York State Department of **Taxation and Finance**

Office of Real Property Tax Services

RP- 5217-PDF

Real Property Transfer Report (8/10)

PROPERTY INFORMATION

1. Property Location: 321 & 355 (* STREET NUMBER) Commerce Drive (* STREET NAME)
Amherst (* CITY OR TOWN) (VILLAGE) 14228 (* ZIP CODE)

2. Buyer Name: 355 Properties LLC (* LAST NAME/COMPANY) (FIRST NAME)
(LAST NAME/COMPANY) (FIRST NAME)

3. Tax Billing Address: Indicate where future Tax Bills are to be sent if other than buyer address(at bottom of form) (LAST NAME/COMPANY) (FIRST NAME)
(STREET NUMBER AND NAME) (CITY OR TOWN) (STATE) (ZIP CODE)

4. Indicate the number of Assessment Roll parcels transferred on the deed: 2 # of Parcels OR ☐ Part of a Parcel

5. Deed Property Size: (* FRONT FEET) X (* DEPTH) OR 3.88 (*ACRES)

6. Seller Name: EWE II, LLC (* LAST NAME/COMPANY) (FIRST NAME)
(LAST NAME/COMPANY) (FIRST NAME)

*7. Select the description which most accurately describes the use of the property at the time of sale:
F. Commercial

(Only if Part of a Parcel) Check as they apply:
4A. Planning Board with Subdivision Authority Exists ☐
4B. Subdivision Approval was Required for Transfer ☐
4C. Parcel Approved for Subdivision with Map Provided ☐

Check the boxes below as they apply:
8. Ownership Type is Condominium ☐
9. New Construction on a Vacant Land ☐
10A. Property Located within an Agricultural District ☐
10B. Buyer received a disclosure notice indicating that the property is in an Agricultural District ☐

SALE INFORMATION

11. Sale Contract Date: 06/26/2019

* 12. Date of Sale/Transfer: 09/10/19

*13. Full Sale Price: 775,000.00

(Full Sale Price is the total amount paid for the property including personal property. This payment may be in the form of cash, other property or goods, or the assumption of mortgages or other obligations.) *Please round to the nearest whole dollar amount.*

14. Indicate the value of personal property included in the sale: 0.00

15. Check one or more of these conditions as applicable to transfer:
☐ A. Sale Between Relatives or Former Relatives
☐ B. Sale between Related Companies or Partners in Business.
☐ C. One of the Buyers is also a Seller
☐ D. Buyer or Seller is Government Agency or Lending Institution
☐ E. Deed Type not Warranty or Bargain and Sale (Specify Below)
☐ F. Sale of Fractional or Less than Fee Interest (Specify Below)
☐ G. Significant Change in Property Between Taxable Status and Sale Dates
☐ H. Sale of Business is Included in Sale Price
☐ I. Other Unusual Factors Affecting Sale Price (Specify Below)
☒ J. None

Comment(s) on Condition:

ASSESSMENT INFORMATION - Data should reflect the latest Final Assessment Roll and Tax Bill

16. Year of Assessment Roll from which information taken(YY): 19

*17. Total Assessed Value: 710,000

*18. Property Class: 449

*19. School District Name: Sweet Home

*20. Tax Map Identifier(s)/Roll Identifier(s) (If more than four, attach sheet with additional identifier(s))
40.07-3-2.112 40.07-3-5

CERTIFICATION

I Certify that all of the items of information entered on this form are true and correct (to the best of my knowledge and belief) and I understand that the making of any willful false statement of material fact herein subject me to the provisions of the penal law relative to the making and filing of false instruments.

SELLER SIGNATURE

SELLER SIGNATURE DATE

BUYER SIGNATURE

BUYER SIGNATURE DATE

BUYER CONTACT INFORMATION

(Enter information for the buyer. Note: If buyer is LLC,society, association, corporation, joint stock company, estate or entity that is not an individual agent or fiduciary, then a name and contact information of an individual/responsible party who can answer questions regarding the transfer must be entered. **Type or print clearly**.)

355 Properties LLC (* LAST NAME) (FIRST NAME)
(*AREA CODE) (*TELEPHONE NUMBER (Ex: 9999999))
28 (* STREET NUMBER) Fox Hill Drive (* STREET NAME)
Tabernacle (*CITY OR TOWN) NJ (*STATE) 08088 (*ZIP CODE)

BUYER'S ATTORNEY

Townsley (LAST NAME) Robert (FIRST NAME)
(716) (AREA CODE) 885-1150 (TELEPHONE NUMBER (Ex: 9999999))

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

INSTRUCTIONS(RP-5217-PDF-INS): www.orps.state.ny.us

FOR COUNTY USE ONLY

C1. SWIS Code: 142289

C2. Date Deed Recorded: 9 / 10 / 19 (Month / Day / Year)

C3. Book: 11349 C4. Page: 6748

New York State Department of Taxation and Finance

Office of Real Property Tax Services

RP- 5217-PDF

Real Property Transfer Report (8/10)

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(LAST NAME/COMPANY) (FIRST NAME)

3. **Tax Billing Address**: Indicate where future Tax Bills are to be sent if other than buyer address(at bottom of form) (LAST NAME/COMPANY) (FIRST NAME)
(STREET NUMBER AND NAME) (CITY OR TOWN) (STATE) (ZIP CODE)

4. **Indicate the number of Assessment Roll parcels transferred on the deed**: 2 # of Parcels OR ☐ Part of a Parcel

5. **Deed Property Size**: ____ (* FRONT FEET) X ____ (* DEPTH) OR 3.88 (*ACRES)

(Only if Part of a Parcel) **Check as they apply:**

4A. Planning Board with Subdivision Authority Exists ☐

4B. Subdivision Approval was Required for Transfer ☐

4C. Parcel Approved for Subdivision with Map Provided ☐

6. **Seller Name**: EWE II, LLC (* LAST NAME/COMPANY) (FIRST NAME)
(LAST NAME/COMPANY) (FIRST NAME)

*7. **Select the description which most accurately describes the use of the property at the time of sale:**
F. Commercial

Check the boxes below as they apply:

8. Ownership Type is Condominium ☐

9. New Construction on a Vacant Land ☐

10A. Property Located within an Agricultural District ☐

10B. Buyer received a disclosure notice indicating that the property is in an Agricultural District ☐

SALE INFORMATION

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* 12. **Date of Sale/Transfer**: 09/10/2019

*13. **Full Sale Price**: 775,000.00

(Full Sale Price is the total amount paid for the property including personal property. This payment may be in the form of cash, other property or goods, or the assumption of mortgages or other obligations.) *Please round to the nearest whole dollar amount.*

14. **Indicate the value of personal property included in the sale**: 0.00

15. Check one or more of these conditions as applicable to transfer:

- ☐ A. Sale Between Relatives or Former Relatives
- ☐ B. Sale between Related Companies or Partners in Business.
- ☐ C. One of the Buyers is also a Seller
- ☐ D. Buyer or Seller is Government Agency or Lending Institution
- ☐ E. Deed Type not Warranty or Bargain and Sale (Specify Below)
- ☐ F. Sale of Fractional or Less than Fee Interest (Specify Below)
- ☐ G. Significant Change in Property Between Taxable Status and Sale Dates
- ☐ H. Sale of Business is Included in Sale Price
- ☐ I. Other Unusual Factors Affecting Sale Price (Specify Below)
- ☒ J. None

Comment(s) on Condition:

ASSESSMENT INFORMATION - Data should reflect the latest Final Assessment Roll and Tax Bill

16. **Year of Assessment Roll from which information taken(YY)**: 19

*17. **Total Assessed Value**: 710,000

*18. **Property Class**: 449

*19. **School District Name**: Sweet Home

*20. **Tax Map Identifier(s)/Roll Identifier(s) (If more than four, attach sheet with additional identifier(s))**
40.07-3-2.112 40.07-3-5

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SELLER SIGNATURE

Angela Sweeney 9.10.19
SELLER SIGNATURE DATE

BUYER SIGNATURE

BUYER SIGNATURE DATE

BUYER CONTACT INFORMATION

(Enter information for the buyer. Note: If buyer is LLC,society, association, corporation, joint stock company, estate or entity that is not an individual agent or fiduciary, then a name and contact information of an individual/responsible party who can answer questions regarding the transfer must be entered. **Type or print clearly.**)

355 Properties LLC (* LAST NAME) (FIRST NAME)
(*AREA CODE) (*TELEPHONE NUMBER (Ex: 9999999))
28 (* STREET NUMBER) Fox Hill Drive (* STREET NAME)
Tabernacle (*CITY OR TOWN) NJ (*STATE) 08088 (*ZIP CODE)

BUYER'S ATTORNEY

Townsley (LAST NAME) Robert (FIRST NAME)
(716) (AREA CODE) 885-1150 (TELEPHONE NUMBER (Ex: 9999999))

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

TOWN OF AMHERST PLANNING DEPARTMENT

SIDEWALK WAIVER PROCEDURE

This application package includes the following:

- Application Procedure
- Application Form

-IMPORTANT-

The waiver of a required sidewalk may be requested from the Town Board or the Planning Board as follows:

- ***Planning Board***: **The Planning Board may waive sidewalks if they were required as part of an approved site plan or subdivision.**

- ***Town Board:*** **The Town Board may waive required sidewalks at any location.**

APPLICATION PROCEDURE:

1. Fill out the attached application and indicate from which Board you are requesting relief.

2. Provide three (3) copies of the application and any attachments along with the required fee to the **Town Clerk** to begin processing your application. Upon review by Town departments, your application will be heard and reviewed by the requested Board for a determination on the application.

Town of Amherst Planning Department - 5583 Main Street, Williamsville NY,14221
(716) 631-7051; Fax: (716) 631-7153; Web: www.amherst.ny.us

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Sidewalk Waiver

Fee: $100.00

File Name/No. _____

Material accepted by Town Clerk and Fee Paid

_____
received by date

Materials received by Planning Department

_____
received by date

To Be Completed By Applicant

APPLICANT: Name 321 Commerce, LLC

Address 6885 Campbell Blvd. North Tonawanda 14120
street city zip code

Phone (716)807-2388 Fax _____ E-Mail bogartlandscape@yahoo.com

REQUESTED ADDRESS: 321 Commerce Drive, Amherst, NY 14228 40.07-3-2.112
street city SBL No.

REQUESTED FROM: _X_ TOWN BOARD _X_ PLANNING BOARD

REASON FOR REQUEST: There are no existing side walks along Commerce Drive or adjacent propoerties

Town of Amherst Planning Department, 5583 Main Street Williamsville New York 14221
(716) 631-7051 Fax (716) 631-7153 Web www.amherst.ny.us

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Advanced Design Group
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716)754-2256
Fax (716)754-4252

March 15th, 2022

Town of Amherst Planning Department
c/o Daniel Ulatowski – Assistant Planning Director/ZEO
5583 Main Street
Williamsville, New York 14221

Subject: Parking Requirement Waiver
321 Commerce, LLC
321 Commerce Drive, Amherst, New York 14228
Town of Amherst Project Number: #SP-2022-01
ADG Project No. 21-4768

Mr. Ulatowski:

The Applicant requests that an alternate parking study, per section Standards § 7-1-7A, be done to waive the parking requirement of Town code: Part VII General Development Standards § 7-1-6A, 1 parking space per 5,000 sq.ft. of area devoted to storage.

The proposed project consists of the construction of four self-storage buildings with a gross floor area of 19,000 sq.ft. No office will be located on site, and it is estimated that there will be a total of 160 storage units (10'x15' and 10'x10'). The total number of units may be reduced if larger storage units (ex. 10'x20') are implemented in either of the two interior buildings. It is anticipated that customers will drive up to their storage unit and unload/load any items they may have. The drive lanes are to be 30 feet wide, providing enough clearance on either side of the vehicles to not prohibit flow through the site. For this reason, the project proposes no addition of off-street parking spaces.

The off-street parking, loading, and stacking requirements listed in § 7-1-6A of the Town Code classifies the proposed project under Commercial Uses as Self-Service Storage. The code requirement and number of parking spaces required for our project are displayed in Table 1 below.

Development Type	Code Requirement	Gross Floor Area (GFA)	Required Parking Spaces
Self Service Storage	1 Parking Space per 5,000 sq.ft. of area devoted to storage	19,000 sq. ft.	4

Table 1: Parking Requirements

As shown in Table 1, the required number of parking spaces per the Town Code is 4. Our proposed project does not meet this requirement.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Trip generation rates published by the Institution of Transportations Engineers (ITE) Trip Generation Manual (11th Edition) were used to estimate the parking demand for the proposed project.

The ITE Trip Generation Manual has provided the total number of trips in a given peak hour for weekdays, Saturday, and Sunday as well as the number of trips entering and exiting the storage site for said given peak hour. The trips were generated using industrial code 151: Mini-warehouse, and that the site is located in a general urban/suburban setting. The average total, entering, and exiting number of trips based on the GFA for a weekday, Saturday, and Sunday are displayed in Table 2. Table 3 includes the same information; however, the number of trips are based on 160 storage units as opposed to the GFA. The data in Table 4 was taken from a curve that has been fitted from the average date provided in Table 3. No fitted curve was provided for the GFA averages or the Saturday and Sunday unit-based averages.

Peak Hour			
	Weekday	Saturday	Sunday
Trips	3	3	4
Entering	2	2	2
Exiting	1	1	2

Table 2: Average Peak Hour Trips for GFA

Peak Hour			
	Weekday	Saturday	Sunday
Trips	3	4	3
Entering	2	2	1
Exiting	1	2	2

Table 3: Average Peak Hour Trips for Number of Units

Peak Hour			
	Weekday	Saturday	Sunday
Trips	6	N/A	N/A
Entering	3	N/A	N/A
Exiting	3	N/A	N/A

Table 4: Fitted Peak Hour Trips for Number of Units

The data above shows that in any given peak hour, on average, there are no more than 2 vehicles entering and exiting the site to access the self-storage units. The fitted curve adjusts this number to 3 vehicles entering and exiting during the weekday peak hour. With this limited number of vehicles accessing the site, the 30' proposed drive lanes between buildings, and the anticipation that users will drive up to their storage units, it is our professional opinion that no parking spaces are necessary for this site and its future use.

Please see the attached graphs provided by ITE as reference to the data shown in the tables above.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

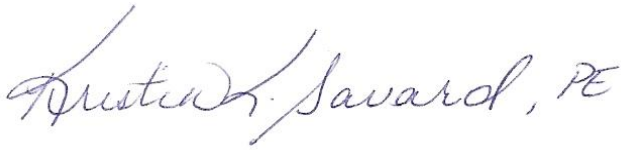
Project Contacts:

Applicant:	321 Commerce, LLC Eric Bogart BogartLandscape@yahoo.com (716) 807-2388
Project Civil Engineer:	Advanced Design Group Professional Engineering & Land Surveying (ADG) Kristin L. Savard, PE – President/Owner ADG kristin.savard@adgengineers.com (716) 754-2256

Please contact one of the Project Contacts provided above with any comments and/or questions regarding this request.

Thank you and as always, we are looking forward to working with the Town on this request.

Sincerely,



Kristin L. Savard, P.E.

Advanced Design Group Professional Engineering & Land Survey, P.C.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Mini-Warehouse
(151)

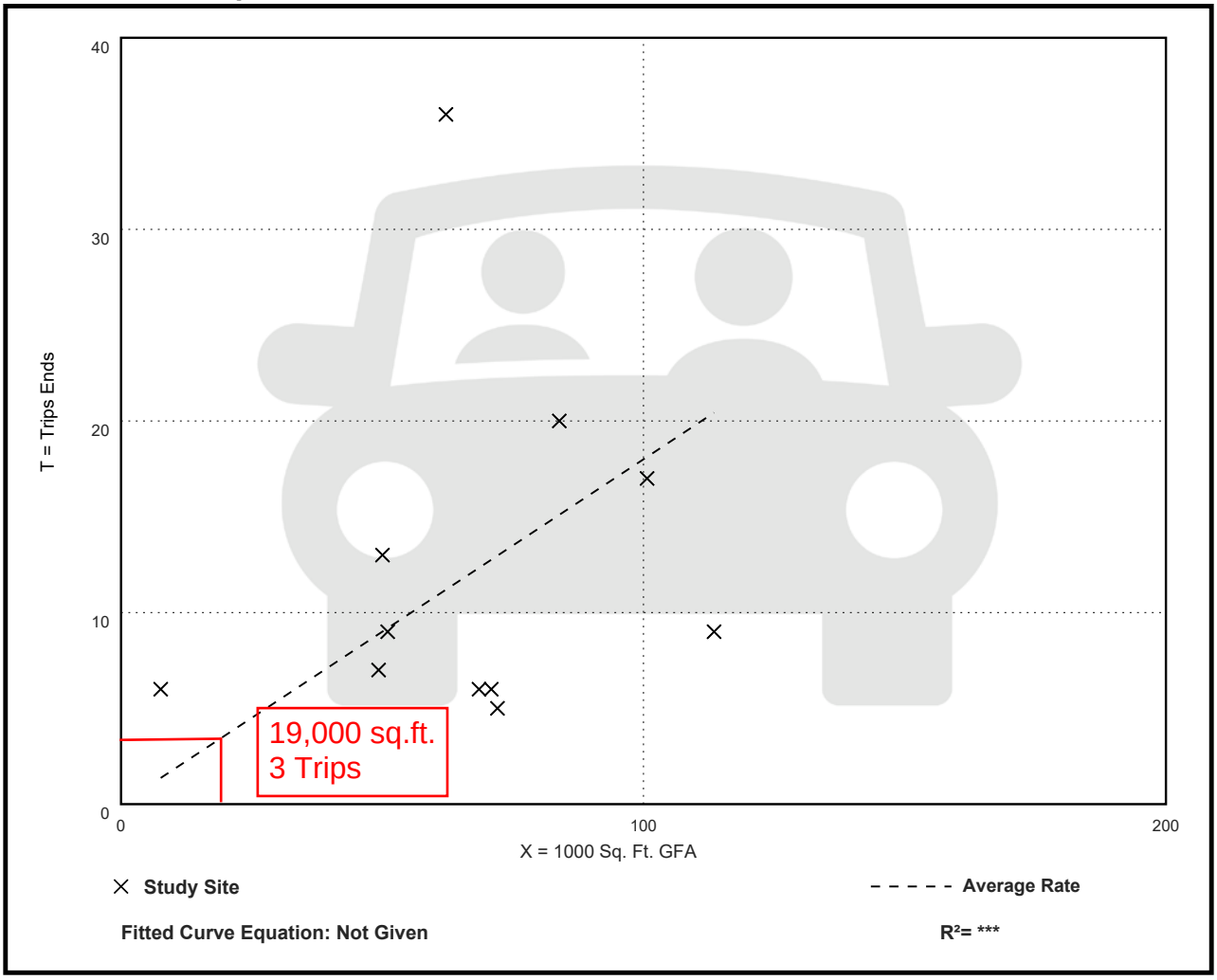
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 11
Avg. 1000 Sq. Ft. GFA: 66
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.18	0.07 - 0.79	0.16

Data Plot and Equation



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Mini-Warehouse
(151)

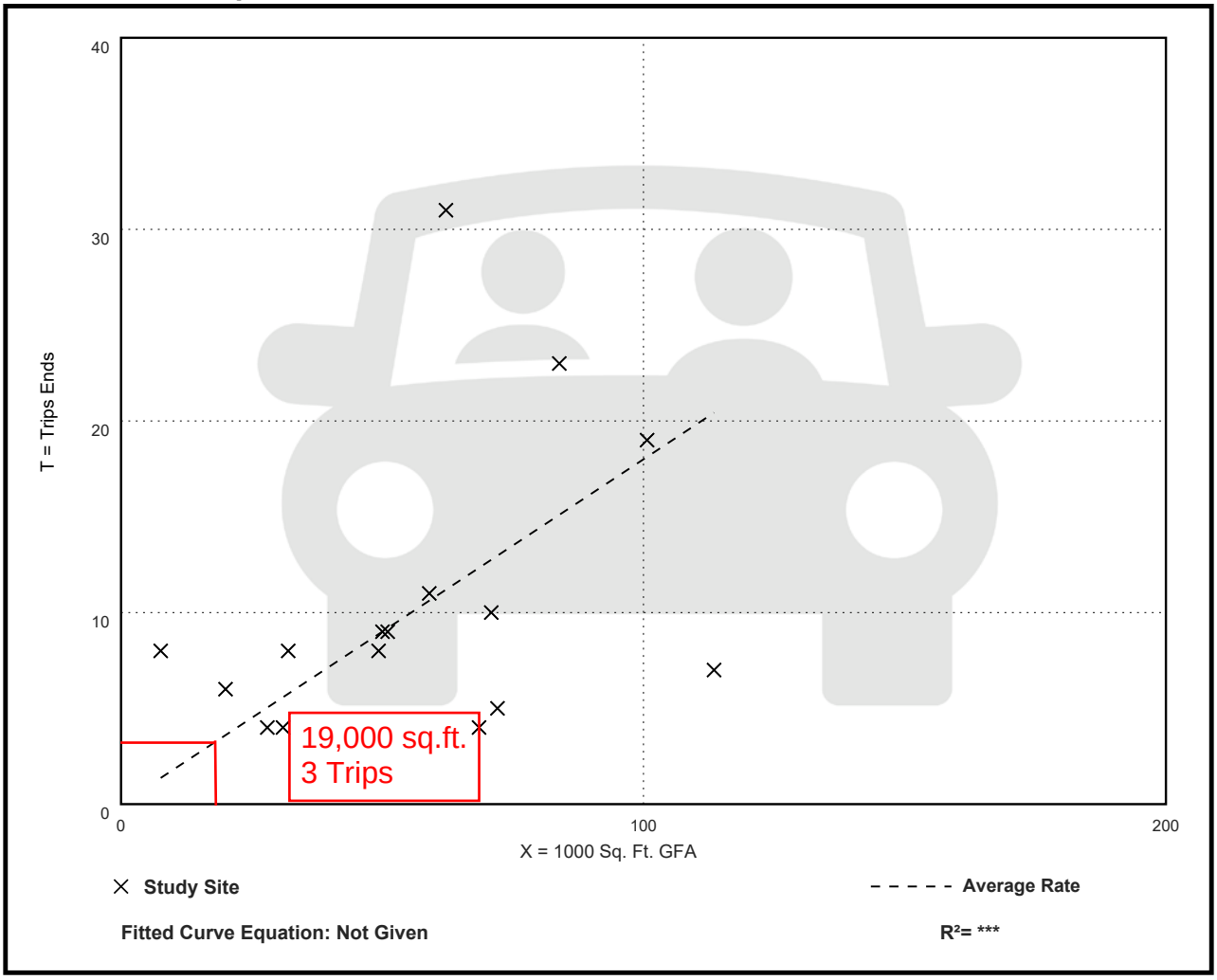
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 16
Avg. 1000 Sq. Ft. GFA: 56
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.18	0.06 - 1.05	0.14

Data Plot and Equation



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Mini-Warehouse
(151)

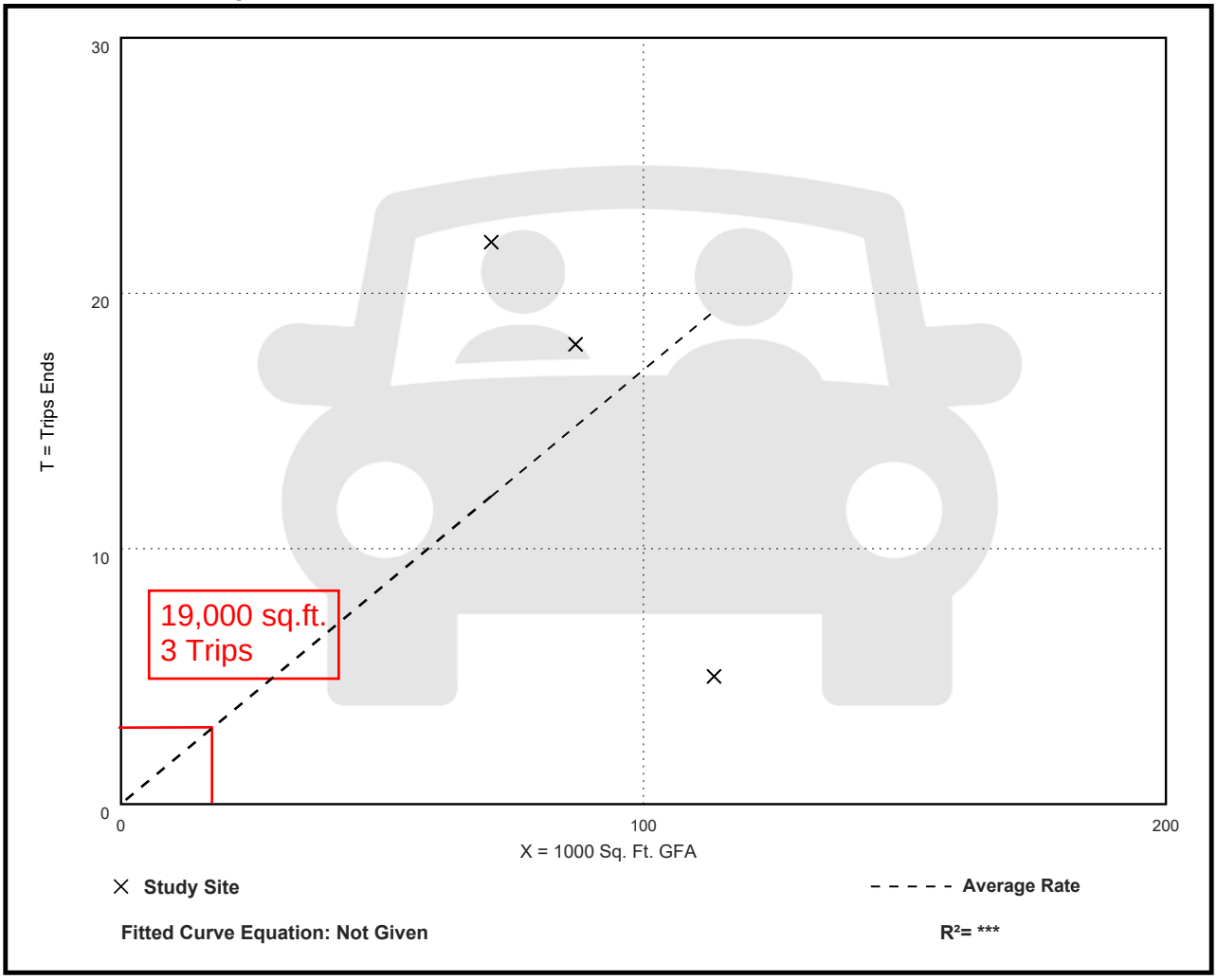
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 3
Avg. 1000 Sq. Ft. GFA: 90
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.04 - 0.31	0.14

Data Plot and Equation



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Mini-Warehouse
(151)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Sunday, Peak Hour of Generator

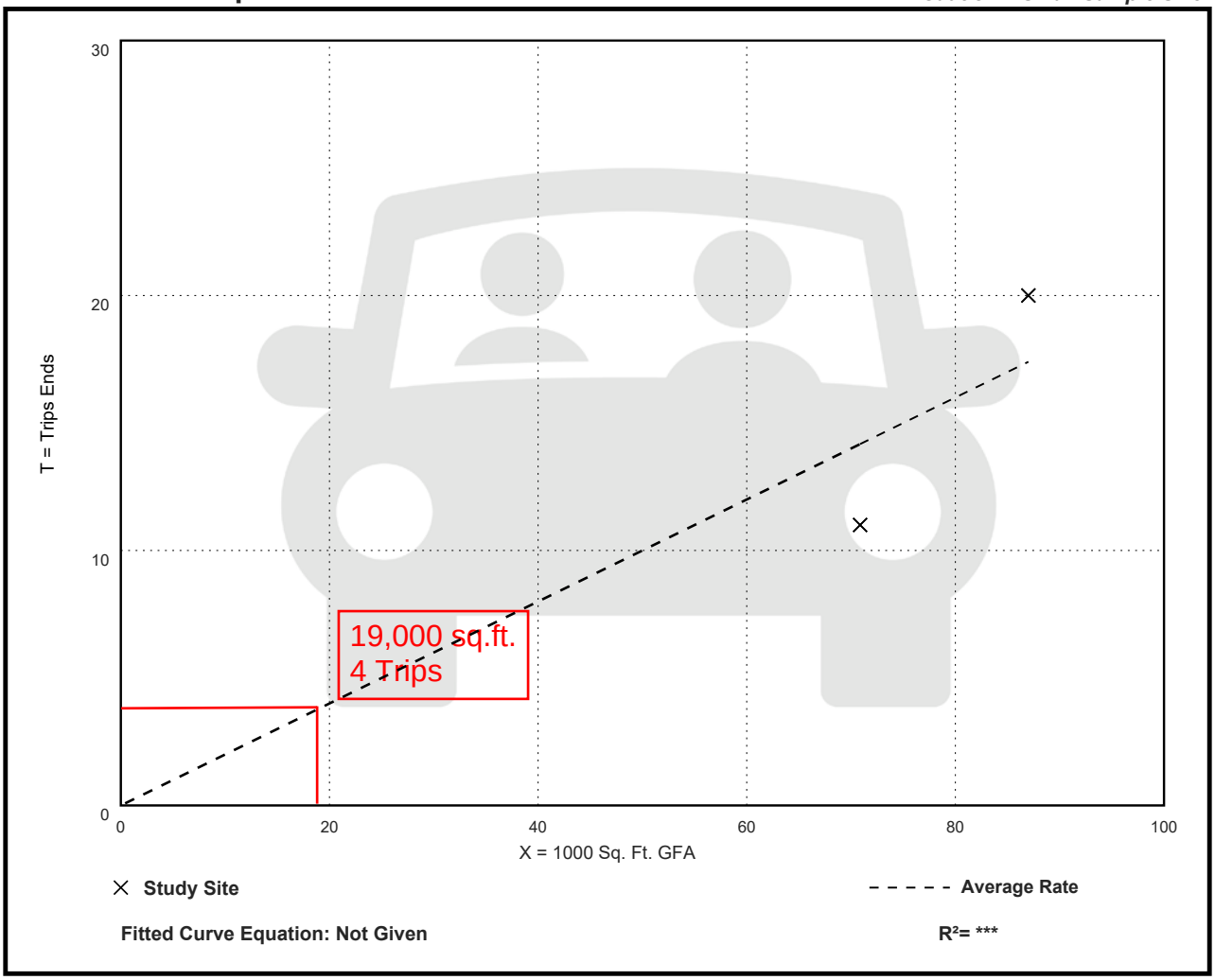
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 79
Directional Distribution: 45% entering, 55% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.20	0.16 - 0.23	***

Data Plot and Equation

Caution – Small Sample Size



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Mini-Warehouse
(151)

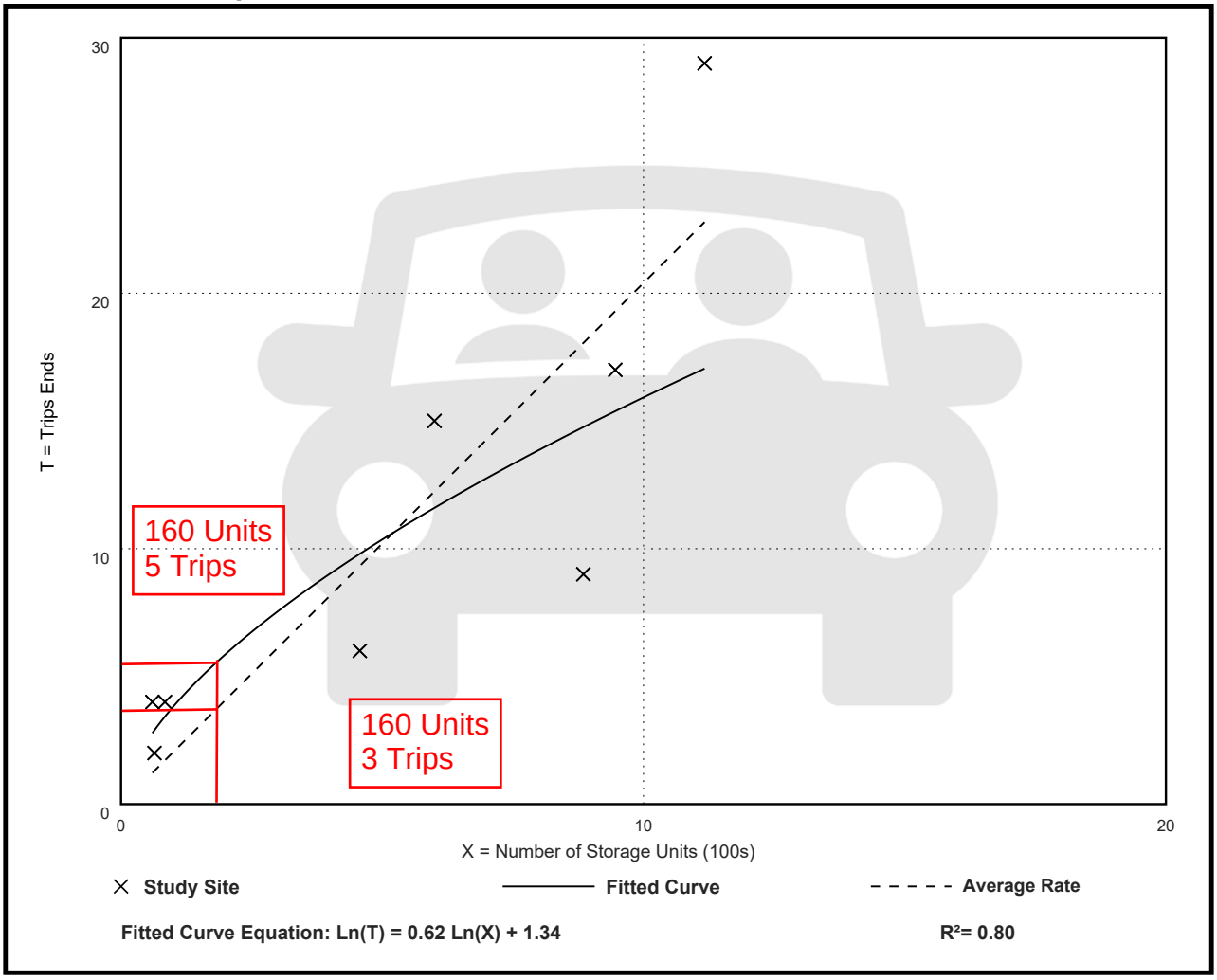
Vehicle Trip Ends vs: Storage Units (100s)
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 8
Avg. Num. of Storage Units (100s): 5
Directional Distribution: 58% entering, 42% exiting

Vehicle Trip Generation per Storage Unit (100s)

Average Rate	Range of Rates	Standard Deviation
2.04	1.02 - 6.67	1.00

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.62 Ln(X) + 1.34

R^2= 0.80

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Mini-Warehouse
(151)

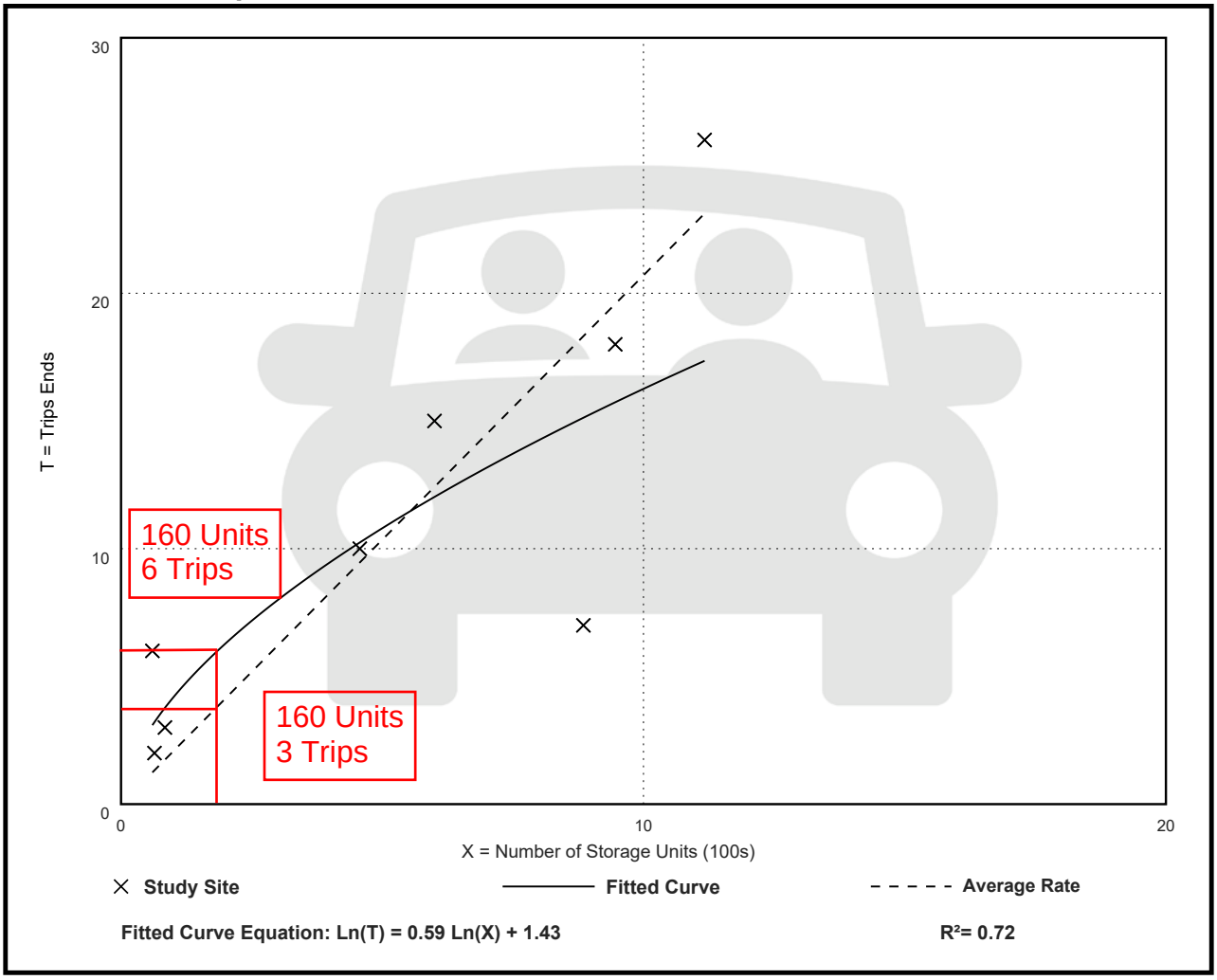
Vehicle Trip Ends vs: Storage Units (100s)
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 8
Avg. Num. of Storage Units (100s): 5
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per Storage Unit (100s)

Average Rate	Range of Rates	Standard Deviation
2.07	0.79 - 10.00	1.24

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.59 Ln(X) + 1.43

R^2= 0.72

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Mini-Warehouse
(151)

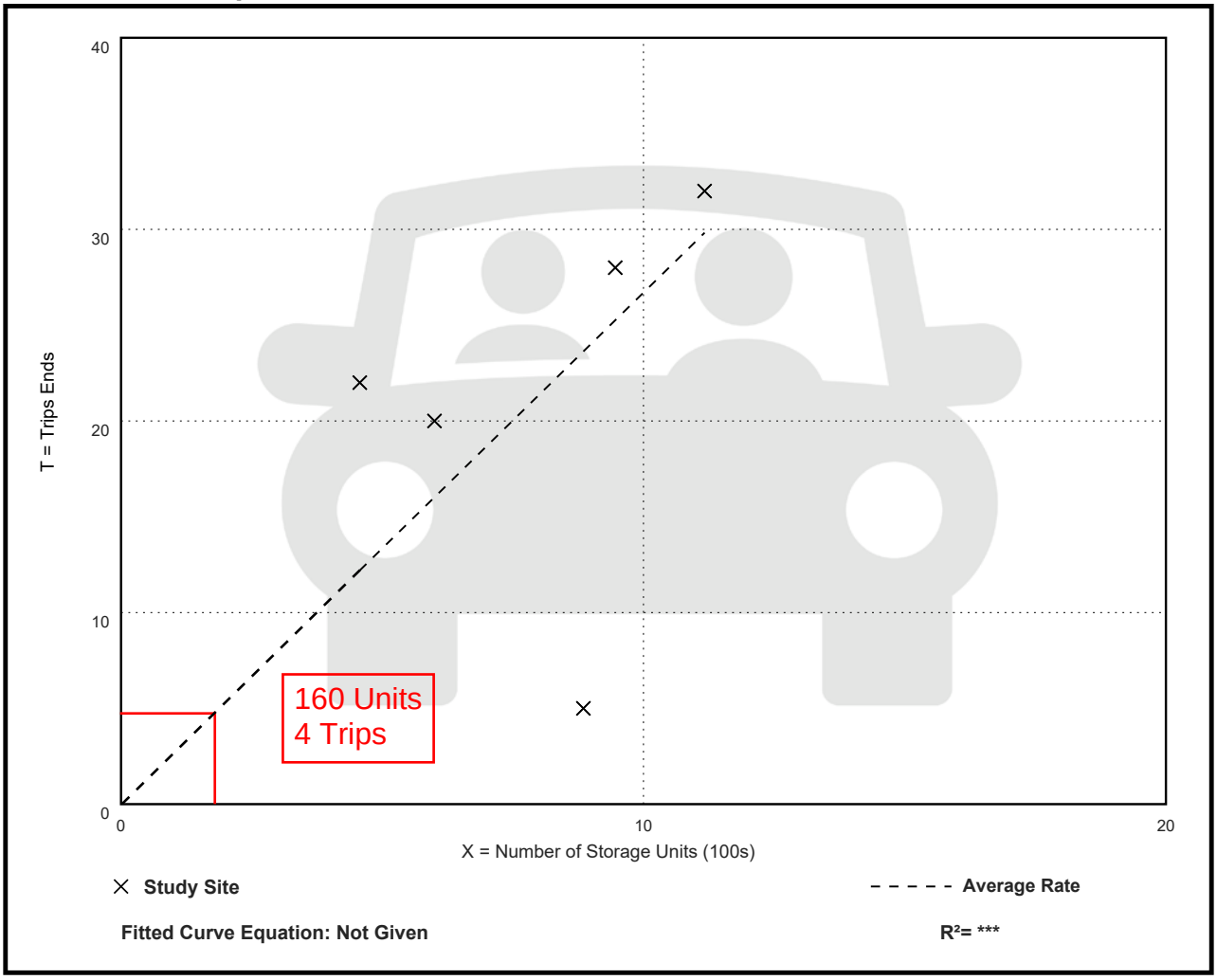
Vehicle Trip Ends vs: Storage Units (100s)
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. Num. of Storage Units (100s): 8
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Storage Unit (100s)

Average Rate	Range of Rates	Standard Deviation
2.67	0.56 - 4.81	1.41

Data Plot and Equation



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Mini-Warehouse
(151)

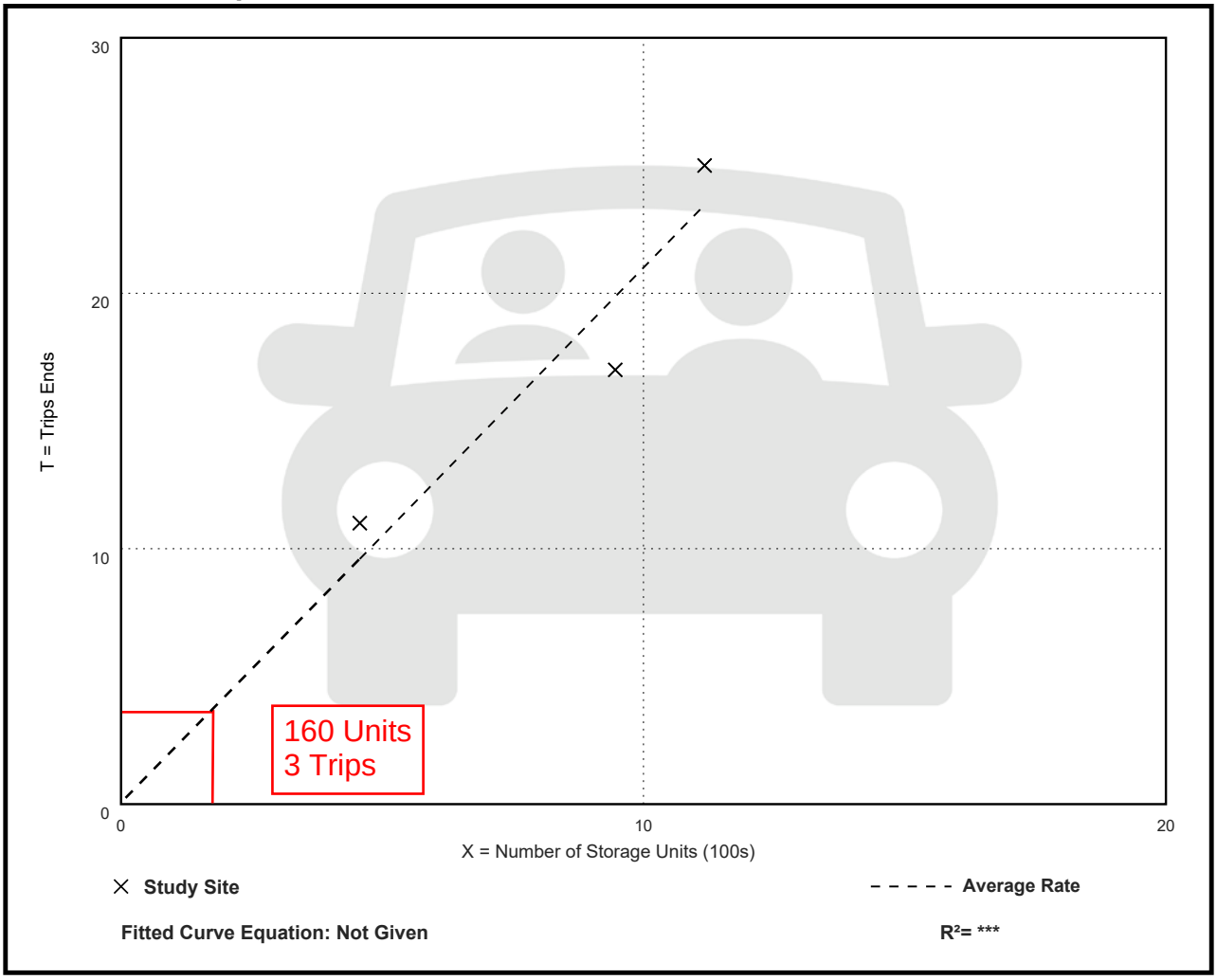
Vehicle Trip Ends vs: Storage Units (100s)
On a: Sunday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 3
Avg. Num. of Storage Units (100s): 8
Directional Distribution: 45% entering, 55% exiting

Vehicle Trip Generation per Storage Unit (100s)

Average Rate	Range of Rates	Standard Deviation
2.10	1.80 - 2.41	0.30

Data Plot and Equation



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Town of Amherst

STORMWATER CONTROL FACILITY
MAINTENANCE AGREEMENT

Whereas, the Town of Amherst ("Town") and 321 COMMERCE LLC ("facility owner") want to enter into an agreement to provide for the long term maintenance and continuation of stormwater control measures approved by the Town for the below named project, and

Whereas, the Town and the facility owner desire that the stormwater control measures be built in accordance with the approved project plans and thereafter be maintained, cleaned, repaired, replaced and continued in perpetuity in order to ensure optimum performance of the components. Therefore, the Town and the facility owner agree as follows:

1. This agreement binds the Town and the facility owner, its successors and assigns, to the maintenance provisions depicted in the approved project plans which are attached as Schedule A of this agreement.

2. The facility owner shall maintain, clean, repair, replace and continue the stormwater control measures depicted in Schedule A as necessary to ensure optimum performance of the measures to design specifications. The stormwater control measures shall include, but shall not be limited to, the following: drainage ditches, swales, dry wells, infiltrators, drop inlets, pipes, culverts, soil absorption devices and retention ponds.

3. The facility owner shall be responsible for all expenses related to the maintenance of the stormwater control measures and shall establish a means for the collection and distribution of expenses among parties for any commonly owned facilities.

4. The facility owner shall provide for the periodic inspection of the stormwater control measures, not less than once in every five-year period, to determine the condition and integrity of the measures. Such inspection shall be performed by a Professional Engineer licensed by the State of New York. The inspecting engineer shall prepare and submit to the Town within 30 days of the inspection, a written report of the findings including recommendations for those actions necessary for the continuation of the stormwater control measures.

5. The facility owner shall not authorize, undertake or permit alteration, abandonment, modification or discontinuation of the stormwater control measures except in accordance with written approval of the Town.

6. The facility owner shall undertake necessary repairs and replacement of the stormwater control measures at the direction of the Town or in accordance with the recommendations of the inspecting engineer.

7. The facility owner shall provide to the Town within 30 days of the date of this agreement, a security for the maintenance and continuation for the stormwater control measures in the form of (a Bond, letter of credit or escrow account).

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

8. This agreement shall be recorded in the Office of the County Clerk, County of Erie together with the deed for the common property and shall be included in the offering plan and/or prospectus approved pursuant to _____.

9. If ever the Town determines that the facility owner has failed to construct or maintain the stormwater control measures in accordance with the project plan or has failed to undertake corrective action specified by the Town or by the inspecting engineer, the Town is authorized to undertake such steps as reasonably necessary for the preservation, continuation or maintenance of the stormwater control measures and to affix the expenses thereof as a lien against the property.

10. The agreement is effective _____.

	321 COMMERCE LLC
Town of Amherst	Facility Owner

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Design Report &

STORMWATER POLLUTION PREVENTION PLAN

for

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, New York 14228

Prepared for:

321 Commerce, LLC
6885 Campbell Blvd
North Tonawanda, New York 14120

Date:

January 21, 2022



Prepared by:

Advanced Design Group
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716)754-2256
Fax (716)754-4252

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

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APPENDICES

Appendix A Drainage Calculations

- A-1 Existing Conditions
- A-2 Proposed Conditions
- A-3 WQv, RRv, Q_{WQv} and CPv Calculations

Appendix B *New York State Department of Environmental Conservation SPDES General Permit fo Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001.

Appendix C Copy of Completed and Signed MS4 SWPPP Acceptance Form and Notice of Intent (NOI) Form

- C-1 MS4 SWPPP Acceptance Form
- C-2 Notice of Intent (N.O.I.)

Appendix D Blank copy of Notice of Termination (NOT) Form

Appendix E Contractor Certification Forms

Appendix F NYSDEC Phase II SPDES Permit Letter (envelope to store future letter)

Appendix G Soil Erosion & Sediment Control Details and Specifications

Appendix H Inspection Forms, Checklists and Maintenance Guidelines

Appendix I Environmental Assessment Form (Long Form EAF)

Appendix J NYS Stormwater Management Design Manual Appendix H

Appendix K Project Correspondence

Appendix L Project Drawings

Appendix M Stormwater Maintenance Agreement

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

DESIGN REPORT & STORMWATER POLLUTION PREVENTION PLAN
(The Stormwater Management and Erosion Control Plan)

This Design Report & Stormwater Pollution Prevention Plan (SWPPP) has been prepared to address construction activities associated with the site clearing, preparation and construction of the Briar Oaks Estates subdivision project. This document is intended to be a dynamic document which will be amended, as necessary, to reflect any changes occurring as part of the construction process.

This Stormwater Pollution Prevention Plan (hereafter to be called "The Plan") has been prepared in conformance with the requirements set forth in the *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001 (see Appendix B). The Plan has been designed to address:

1. Impacts to surface water quality caused by soil erosion and sedimentation during construction and immediately following construction

2. Post-construction increases in stormwater runoff

3. Stormwater pollution caused by the use of the site after construction is complete

4. Green Infrastructure per NYSDEC Phase 2 permit requirements

The Plan must do the following:

Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

(i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;
(ii) Control stormwater *discharge*s to *minimize* channel and streambank erosion and scour in the immediate vicinity of the *discharge* points;
(iii) *Minimize* the amount of soil exposed during *construction activity*;
(iv) *Minimize* the disturbance of *steep slopes*;
(v) *Minimize* sediment *discharge*s from the site;
(vi) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;
(vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted; and
(viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover.

A complete copy of The Plan shall be kept on site throughout the duration of the project.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

The permittee shall be responsible to comply with the requirements and conditions as described in The Plan and in the *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001.

A complete copy of The Plan includes the following items:

1. Drainage Calculations for the design of the stormwater management system to meet the Phase II SPDES regulations – see Appendix A.

2. A copy of the *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001 – see Appendix B.

3. A copy of the signed "MS4 SWPPP Acceptance" form – See Appendix C.

4. A copy of the signed and filed Notice of Intent – See Appendix C.

5. Contractor Certification Forms – see Appendix E.

6. Document referred to hereafter as the Project Drawings (see Appendix L for an 11" x 17" set):

   Latest revision of the drawing set of construction plans (as filed with the Town of Amherst):

321 Commerce, LLC
Prepared for:
321 Commerce, LLC
6885 Campbell Blvd
North Tonawanda, New York 14120

The intent of The Plan is to:

- Provide background information about the scope of the project.

- Provide a statement of stormwater management objectives.

- Compare post-development stormwater runoff conditions with pre-development conditions.

- Describe proposed structural and vegetative stormwater measures to ensure that the quantity, temporal distribution and quality of stormwater runoff during and after development are not substantially altered from pre-development conditions.

- Identify the type and frequency of maintenance required by the stormwater management and erosion control facilities utilized.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Owner/Operator Contact Information:

Contact Person:	Eric Bogart
Mailing Address:	6885 Campbell Blvd North Tonawanda, NY 14120
Email Address:	bogartlandscape@yahoo.com
Phone Number:	(716) 807-2388

Engineer of Record Information:

Firm:	Advanced Design Group Professional Engineering & Surveying, P.C.
Contact Person:	Kristin L. Savard, P.E.
Mailing Address:	761 Cayuga Street Lewiston, New York 14092
Email Address:	kristin.savard@adgengineers.com
Phone Number:	(716) 754-2256

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

I. PROJECT DESCRIPTION

The 321 Commerce, LLC storage facility will be situated on a 1.78+/- acre parcel in the Town of Amherst, Erie County, New York. The site is located at 321 Commerce Drive (SBL 40.07-3-2.112) on the south side of the roadway, approximately 1350’ east of Woodridge Drive. The site is currently vacant land with minimal brush and small tree cover.

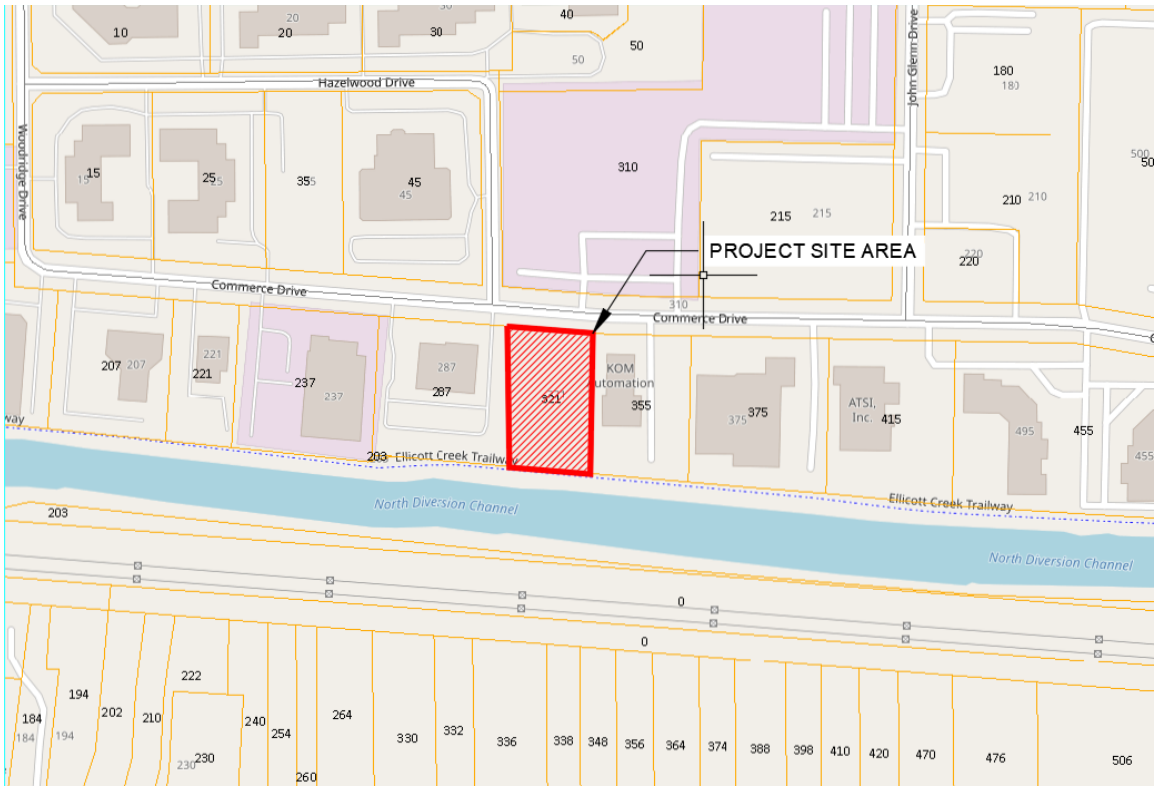
The project will consist of four single-story buildings, the buildings along the east and west property lines will be 15’x300’ with the interior buildings being 20’x260’. A variety of individual storage units of various sizes will be available for a total of 19,400 sq.ft. An overhead door will be provided for each unit. The buildings will be located roughly perpendicular to Commerce Drive while spaced 30’ apart.

Access to the proposed development will be provided by a single 24’ wide drive on Commerce Drive located at about 27 feet to the right of the midpoint of the parcel. The interior of the site will be paved to allow maneuverability and access to the individual units. The project will be constructed in one phase.

A NYSDEC SPDES compliant stormwater management system will be installed consisting of vegetated swales, a level spreader, bio-retetnion area and a dry swale to service the proposed layout. Regrading and establishment of permanent vegetation and landscaped areas will also be included.

All work shall conform to the Town of Amherst and NYSDEC SPDES requirements.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)



Site Location Map



Site Location Map w/ Aerial

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II. DESCRIPTION OF SITE CONDITIONS AND UTILITY IMPROVEMENTS

Note: See the Project Drawings for additional information on site conditions

A. SOILS INFORMATION

There are three predominant soil types at the project site:

Cosad Loamy Fine Sand, 0 – 3% slopes	(Cv – Hydrologic Soil Group "C/D"); 58.9% +/- of the site
Getzville Silt Loam, 0 – 3% slopes	(Ge– Hydrologic Soil Group "B/D") 41.1% +/- of the site

See Appendix A – Drainage Calculations for a copy of the soil survey map and soils information obtained from the USDA Natural Resources Conservation Service Web Soil Survey National Cooperative Soil Survey.

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B. STORMWATER MANAGEMENT

The project site is generally flat, but is divided into 2 drainage sub-areas (see Appendix A – Drainage Calculations - for the Existing and Proposed Drainage Maps), as follows:

- Drainage Area Overland to North Offsite
- Drainage Area Overland to Existing 6" Culvert to Ellicott Creek

a. EXISTING CONDITIONS

The entire project area is composed of grass, brushland, and some trees. A six inch culvert exists in the southwestern corner of the property that is piped under the bike path and ultimately drains into Ellicott Creek. There is a storm sewer along the west property line, but there are no features from the site draining into it. The majority of the project area eventually drains to the existing six inch culvert leaving the property following some ponding. The northern portion of the property drains overland offsite to the north. Therefore, the entire project area can be divided into 2 main catchment areas; overland to the North and overland to the existing 6" culvert discharging to Ellicott Creek.

Drainage Area Overland to North (0.36+/- acres): Approximately 15,540+/- sq.ft. of the northerly portion of the site drains overland to the northwestern corner of the property off-site.

Overland to the Existing 6" Culvert to Ellicott Creek (1.57+/- acres): The entire drainage area to the 6" culvert discharging to Ellicott Creek can be divided into five (5) subcatchment areas due to ponding, as follows:

Drainage Area Overland to East: 9,090+/- sq.ft. located around the middle of the eastern property line drains overland and ponds within the lot.

Drainage Area Overland to South East: The area towards the center of the property and the south east corner (22,050+/- sq.ft.) drains overland and ponds at about 58 feet to the north west of the south east corner.

Drainage Area Overland to South West: The southwesterly portion of the site (11,430+/- sq.ft.) drains overland and field inlets to a six inch culvert under the Ellicott Creek Trailway, spilling overland into Ellicott Creek.

Drianage Area Overland to West: 18,737+/- sq.ft. along the west property line drains overland to a ponding area about 50 feet north of the existing storm manhole.
Drianage Area Overland to Center: Just north of the center of the property is a 7,210+/- sq.ft. drainage area that drains overland and ponds about 110 feet from the middle of the frontage.

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b. PROPOSED CONDITIONS

Under the proposed conditions, the entire 1.78+/- acre project area will be disturbed during this project. All stormwater flows will be directed through a stormwater management system connecting to the existing storm sewer manhole along the west property line discharging into Ellicott Creek. The entire proposed project area will ultimately discharge to Ellicott Creek, eliminating the overland flows offsite to the North, and can be broken into five (5) subcatchment areas, as follows:

- *Area to Front Vegetated Swale (0.89+/- acres):* All the proposed building roof leaders will be piped to the storm system within the pavement areas between the buildings. The pavement areas will be graded and sloped to provide positive drainage overland to the catch basins. Flows from the pavement and building roof leaders will be conveyed through pipes discharging to the vegetated swale at the Northwestern portion of the site. The overland area surrounding the swale will be graded to direct flows to the swale. The swale will ultimately discharge through rock protection onto the surface of the bio-retention area.

- *Area to Bio-Retention Area (0.21+/- acres):* A 3,200+/- square foot bio-retention area will receive flows from the front vegetated swale and the area surrounding it. Flows will filter through soil media and enter a perforated 6" HDPE pipe before discharging through a catch basin to a proposed manhole along the Western property line.

- *Area to East Vegetated Swale (0.14+/- acres):* A 362 L.F. vegetated swale will convey overland flows to the Southwestern portion of the site along the Eastern property line. The swale will ultimately discharge through rock protection onto the surface of the dry swale.

- *Area to the Dry Swale (0.57+/- acres):* A 900+/- square foot dry swale will receive flows from the East vegetated swale and from the southern portion of the pavement areas. Three catch basins will be utilized to collect a portion of the overland flows from the pavement areas and pipe them to the level spreader discharging onto the surface of the dry swale. The remaining pavement area will be graded to drain flows overland to the dry swale. At the edge of the pavement area a 6-inch wide pea gravel diaphragm will be utilized to pre-treat the flows before going into the dry swale. Stormwater flows will filter through the soil media before collecting in a 4-inch perforated HDPE pipe discharging through a catch basin to a 12-inch HDPE pipe coveying the flows to the proposed manhole along the Western property line.

- *Area Overland to Yard Drain (0.12+/- acres):* A 6-inch yard drain at the Southwestern portion of the site will collect overland flows coveying them to the enclosed 12-inch HDPE pipe discharging to the proposed manhole.

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All flows will enter the proposed storm manhole before discharging to the existing manhole along the Western property line.

The following table indicates a composite summary of the site discharging to the four design points under both existing and proposed conditions for the 1, 10, 25 and 100-year design storms, as well as a cumulative total site discharge.

Design Point	**Design Storm**							
	1-year		10-year		25-year		100-year	
	Existing Q_{peak} (cfs)	Proposed Q_{peak} (cfs)	Existing Q_{peak} (cfs)	Proposed Q_{peak} (cfs)	Existing Q_{peak} (cfs)	Proposed Q_{peak} (cfs)	Existing Q_{peak} (cfs)	Proposed Q_{peak} (cfs)
Area Overland to the North Offsite	0.3	0	0.8	0	1.1	0	1.7	0
Area to Ellicott Creek	0.4	0.6	2.3	1.6	2.8	2.6	5.9	3.1
Total Site Discharge	0.6	0.6	2.5	1.6	3.7	2.6	7.5	3.1

- **WATER QUALITY VOLUME (WQ_v) and GREEN INFRASTRUCTURE TECHNIQUES**

The Water Quality volume (WQv) for the proposed development has been calculated to be 0.097 ac-ft. (see Appendix A – Drainage Calculations for the WQv calculations). The New York State Stormwater Management Design Manual requires the incorporation of green infrastructure techniques and standard stormwater management practices (SMPs) with Runoff Reduction Volume (RRv) capacity. As described on the following page, the minimum RRv requirement for the proposed development, based on an increase in impervious cover of 1.19 acres, has been calculated to be 0.019 ac-ft.

The Manual requires that Green Infrastructure techniques be incorporated in the site design to allow for micro management of runoff, promote groundwater recharge, increase losses through evapotranspiration and emulate the preconstruction hydrology, resulting in reduced water quality treatment volume and thereby providing a Runoff Reduction Volume (RRv). (See below for RRv requirements.) Green Infrastructure techniques utilize the natural features of the site and promote runoff reduction.

By utilizing a combination of Runoff Reduction Techniques and standard SMPs with runoff reduction capacity, the Green Infrastructure requirements can be met. A Bio-Retention Area (standard SMP with RRv Capacity) and a Dry Swale (standard SMP

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with RRv Capacity) will be constructed. The Dry Swale will be grassed lined and constructed with a permeable soil layer and a 4" perforated underdrain in a gravel layer. The Bio-Retention Area will be constructed with a planting soil bed, mulch layer and surface ponding area, along with an underdrain. Both systems will be utilized to provide a portion of peak flow attenuation, filter flow and promote infiltration.

According the Table 3.5 in the NYS Stormwater Management Design Manual (the Manual), Dry Swales can utilize 20% of the WQv provided by the practice towards meeting the RRv requirement. The dry swale will be constructed to help address the WQv and RRv requirements for the development. The dry swale will provide a WQv of 0.019 ac-ft and a RRv of 0.004 ac-ft.

According the Table 3.5 in the NYS Stormwater Management Design Manual (the Manual), Bio-Retention Areas can utilize 40% of the WQv provided by the practice towards meeting the RRv requirement. The bio-retention area will be constructed to help address the WQv and RRv requirements for the development. The bio-retention area will provide a WQv of 0.081 ac-ft and a RRv of 0.032 ac-ft.

Pretreatment for the stormwater runoff to the Dry Swale will be provided by a pea-gravel diaphragm along the edge of the pavement area to treat sheet flow prior to entering the Dry Swale. A level spreader will also be utilized to provide pre-treatment for the piped flows from the pavement area before discharging to the Dry Swale. Pretreatment for the bio-retention area will be provided by a vegetated swale collecting flows prior to discharging to the bio-retention area. Calculations for the Water Quality flowrates can be found in Appendix A – Drainage Study – Proposed Conditions.

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- **RUNOFF REDUCTION VOLUME (RR_v)**

The current NYSDEC Stormwater Management Design Manual (Manual) was adopted in August, 2010 to address stormwater runoff reduction and to provide planning, design and implementation of green infrastructure techniques for new construction. The regulations are intended to control the quality and flow-rate of stormwater runoff from a developed site and to control the volume of runoff from a developed site (runoff reduction). The Manual promotes that the runoff reduction requirement is to be achieved through the use or re-use and infiltration of the runoff. The Manual requires the incorporation of green infrastructure techniques and standard stormwater management practices (SMPs) with Runoff Reduction Volume (RRv) capacity.

Eleven Green Infrastructure Techniques are allowed by the N.Y.S.D.E.C. Stormwater Management Design Manual to provide the required RRv, as follows:

1. Conservation of Natural Areas
2. Sheetflow to Riparian Buffers or Filter Strips
3. Vegetated Swale
4. Tree Planting/Tree Pit
5. Disconnection of Rooftop Runoff
6. Stream Daylighting
7. Rain Gardens
8. Green Roofs
9. Stormwater Planters
10. Rain Barrels and Cisterns
11. Porous Pavement

Each of these Techniques has been reviewed for implementation at the site with the following results:

1. Conservation of Natural Areas

   There are no significant natural areas on the site.

2. Sheetflow to Riparian Buffers or Filter Strips

   There are no riparian buffer areas on the site.

3. Vegetated Swale

   Vegetated swales will be utilized to increase the time of concentration, reduce the peak discharge, provide pre-treatment and provide infiltration.

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4. Tree Planting/Tree Pit

   The runoff reduction for tree planting is limited to the pervious area in which the trees are planted. The size and type of development, as well as potential utility conflicts preclude any significant runoff reduction by this method.

5. Disconnection of Rooftop Runoff

   There is no significant advantage to disconnecting the roof leaders due to the treatment areas being provided.

6. Stream Daylighting

   There are no previously culverted/piped streams on the site.

7. Rain Gardens

   This technique cannot be used for infiltration when used in HSG D soils and must have an underdrain and an overflow for larger storm events, both connected to a conveyance system (storm sewer). Runoff reduction in poor soils is limited to 40% of the WQv for the contributing area.

8. Green Roofs

   Green roofs are most effective in commercial, industrial and multifamily housing uses in urban areas; however, given the time frame for construction of the proposed facility, green roofs are not considered a feasible alternative and have not been utilized in the project.

9. Stormwater Planters

   This technique is used for filtration only in poor soils and must have an underdrain system and overflow connected to a conveyance system (storm sewer). The technique is geared toward urban sites. Stormwater planters have not been utilized in the project.

10. Rain Barrels and Cisterns

    Overflow discharge must be provided and operation during cold weather conditions is difficult. The facility has no significant re-use for retained water, therefore the technique has not been utilized.

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11. Porous Pavement

    Porous pavement on poor soils cannot be utilized for infiltration and must have an underdrain system connected to a conveyance system (storm sewer). There are no advantages for using porous pavement on this project.

As indicated, the New York State Stormwater Management Design Manual requires the incorporation of green infrastructure techniques and standard stormwater management practices (SMPs) with Runoff Reduction Volume (RRv) capacity. The Runoff Reduction volume required for the increase in impervious cover (1.19+/- ac.) at the site has been calculated to be 0.019 ac-ft. (see Appendix A-3 – Drainage Calculations for RRv calculations). The RRv requirement will be met utilizing the dry swale and bio-retetnion areas (Standard SMPs with RRv Capacity). An RRv of 0.036 ac-ft will be provided.

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- **STREAM CHANNEL PROTECTION VOLUME REQUIREMENTS (Cp_v)**

  Stream Channel Protection Volume Requirements are designed to protect stream channels from erosion. This is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event. The Cp_v requirement has been calculated to be 0.049 ac-ft. A CPv of 0.063 ac-ft will be provided by the vegetated swales, bio-retetnion area, and dry swale (see Appendix A – Drainage Calculations - for the Stream Channel Protection Volume Calculations).

- **OVERBANK FLOOD CONTROL CRITERIA (Q_p)**

  Overbank Flood Control requires storage to attenuate the post development 10-year, 24 –hour peak discharge rate (Qp) to predevelopment rates. The site discharges meet this requirement – see table above and Appendix A - Drainage Calculations.

- **EXTREME FLOOD CONTROL CRITERIA (Q_f)**

  Extreme Flood Control requires storage to attenuate the post development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The proposed site discharges meet this requirement – see table above and Appendix A - Drainage Calculations. Both the Qp and Qf requirements have been met through detaining flows onsite within the retention pond as well as adjusting site slopes and routing flow through vegetated areas, thereby increasing the time the flow is on site.

A ten-year design recurrence has been used as design criteria for storm system sizing for the site. The Project Drawings depict the overall drainage improvements for the site. Appendix A-1 and A-2 – Drainage Calculations – contains the overall storm drainage hydraulic analysis for the 1, 10, 25 and 100-year storm events for the Existing and Proposed conditions, respectively.

The storm drainage system will be constructed to the Town of Amherst standards. A private entity will be created to assume the responsibility and maintenance for the bio-retention area and dry swale.

The completed Notice of Intent will be submitted to the NYSDEC upon receipt of the signed MS4 Acceptance Form (See Appendix C).

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C. UTILITIES

The proposed buildings will be served by National Grid (electricity). Existing overhead utility lines run along the south side of Commerce Drive which will be used for connection.

D. ARCHAEOLOGICAL

The site is located within an area designated as a potentially archaeologically sensitive area on the on-line mapping provided by the New York State Office of Parks, Recreation and Historic Preservation (SHPO) (see Appendix I for the Full Environmental Assessment Form). NYSHPO has deemed that the proposed project will have no impact on archaeologically sensitive areas (see Appendix K Project Correspondence for their letter).

E. FLOODPLAIN

The project site is not located within a FEMA 100-year floodplain. FEMA maps indicate that the site is located within "Other Flood Areas" from FEMA delineated floodplains. Please refer to Appendix A-1 for a copy of the applicable Flood Insurance Rate Maps No. 36029C0068H, effective date June 7, 2019.

F. SEQR

A completed Long Environmental Assessment Form can be found in Appendix I.

G. ENVIRONMENTAL

According to the NYSDEC EAF Mapper, the proposed Commerce Storage site is not located in a Critical Environmental Area and does not contain any Natural Communities or Endangered or Threatened Species. It does contain Spiny Softshells which are listed as a Rare Animal (see Appendix I for the Full Environmental Assessment Form).

H. WETLANDS

There are no wetlands within the Commerce Storage project site.

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III. EROSION AND SEDIMENT CONTROL

A. Temporary Erosion and Sediment Control Measures

The temporary erosion and sediment control measures that will be implemented are described below. The anticipated locations of these temporary measures are indicated on the Project Drawings. The quantity and location(s) of the erosion and sediment control measures will be finalized with the Permittee and/or Contractor prior to the start of construction and will be modified as field conditions and construction activities warrant. The Permittee and/or Contractor shall be responsible for implementation of all required sediment control measures as described in The Plan. All erosion and sediment control measures are to be installed as specified in The Plan and the project details. The details and specifications for materials, sizing and installation requirements can be found in Appendix G and on the Project Drawings.

- Stabilized Construction Entrance (CE) – Construction vehicles will enter the site from Commerce Drive at the proposed permanent site access point. A stabilized construction entrance will be installed to reduce or eliminate the tracking or deposition of sediment onto the public right-of-way during construction.

- Silt Fence (SF) – The silt fence will be installed as shown on the Project Drawings and as necessary during construction to reduce sheet-flow and runoff velocity and reduce the amount of sediment within the sheet-flow/runoff.

- Fiber Roll (FR) –Fiber rolls may be utilized in place of silt fence for sediment control and as inlet protection if installed according to manufacturer's specifications. Maintenance shall be performed as needed. Maintenance includes replacing slumping rolls, removing accumulated sediment, and filling in rills.

- Storm Drain Inlet Protection (IP) – Storm drain inlet protection will be installed, as necessary during construction, to reduce the amount of sediment that may enter the storm drain system through the inlets.

- Dust Control – Dust control will be implemented routinely to limit dust movement from disturbed soil surfaces to off-site areas where it may cause health hazards, inconvenience and traffic safety problems.

- Check Dams – The check dams may be utilized, as necessary, to reduce erosion in temporary ditches during regrading and/or installation of the proposed pipe culverts and in the permanent vegetated swales by restricting the velocity of flow in the channel until permanent vegetation/stabilization can be established.

- Temporary Vegetation (TV) – Temporary vegetation will be established on all areas as shown on the Project Drawings and as necessary on all other disturbed areas that remain inactive for more than seven (7) days. This will significantly reduce the erosion of the disturbed soils until the area becomes active again.

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- Sediment Traps –Sediment traps may be used, as necessary, to intercept runoff, trap the sediment and protect the downstream drainage-way.

The proposed construction activity is not anticipated to result in more than five (5) acres of disturbance at one time. Should construction activities be modified such that it appears likely that there will be more than 5 acres of disturbance, Owner or Agenowner must submit a request to the MS4 in writing prior to disturbing greater than 5 acres. Once more than 5 acres is disturbed at one time, Owner must implement stormwater inspections two times per week while greater than 5 acres are disturbed.

B. Permanent Erosion and Sediment Control Measures

The following permanent erosion and sediment control measures, vegetative practices and green infrastructure techniques will be used to provide long-term control of erosion and sedimentation when construction activities are completed and the project site is stabilized:

- Enclosed Storm Drainage System –An enclosed storm drainage system will be constructed to convey the runoff from the roadway areas.

- Rock Outlet Protection (OP) – The rock protection (rip-rap) will be installed as shown on the Project Drawings at the pipe outlets from the enclosed storm drainage system and at the end of the vegetated swales. It will be utilized to reduce the depth, velocity and energy of the water leaving the stormwater conveyance system and minimize the erosion of the receiving downstream channel.

- Permanent Vegetation (PV) – Permanent vegetation will be established on all areas as shown on the Project Drawings and as necessary on all other disturbed areas upon the completion of construction. This will significantly reduce the erosion of the disturbed soils while the site stabilizes and during daily use of the site following construction.

- Bio-retetenion Area – A Bio-retention Area will be established and maintained in order to treat flow from the roof leaders and pavement area to remove pollutantns through filtration and infiltration.

- Dry Swale – A Dry Swale will be established and maintained in order to treat flow from the pavement areas to remove pollutants through filtration and infiltration.

- Vegetated Swale – Vegetataed swales will be established along the western and southern property lines to increase the time of concentration, reduce peak discharge and provide infiltration. A vegetated swale will also be established prior to the Bio-retention Area to serve as pre-treatment by conveying stormwater at a low velocity, promoting natural treatment and infiltration.

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The location and construction information for implementation of the permanent measures for the project are indicated on the Project Drawings. The details showing materials, sizing and installation requirements can be found in Appendix L and on the Project Drawings.

C. Sequence of Construction and Erosion Control Installation

The following is the anticipated construction sequence for each phase. The contractor must notify the owner of any significant deviations from this sequence:

1. Install the stabilized construction entrance/exit per Project Drawings and Appendix L.

2. Install the silt fence/fiber roll per Project Drawings and Appendix L.

3. Begin clearing of the project area. Strip and stockpile any topsoil and sub-soil in designated areas (see Project Drawings). All stockpiled material shall be seeded and silt fence placed around perimeter immediately.

4. Begin earthwork and grading.

5. Additional silt fence, storm drain inlet protection and dust control will be implemented as necessary in conjunction with the earthwork construction activities.

6. Install storm drainage as shown on the Project Drawings including bio-retention areas and vegetated swales.

7. Complete construction of utilities, roadway and rough grading.

8. Complete remaining site construction, fine grade and topsoil remaining disturbed areas. Vegetation should be established as soon as possible as detailed on the Project Drawings.

9. Remove temporary soil erosion and sediment controls after permanent vegetation has been established and project site is stabilized. A project site is considered stabilized only after a minimum of 80% vegetative density is established on the entire project site.

All soil erosion and sediment control measures must be installed and maintained in conformance with The Plan, the Project Drawings and the *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity* Permit No. GP-0-20-001.

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D. Construction Site Wastes

The following best management practices shall be implemented to ensure proper storage and handling of construction site wastes:

- Designate an onsite water / concrete waste collection area that does not receive a substantial amount of runoff from upland area and does not drain directly to a water body.
- Ensure that any containers have lids so they can be covered before periods of rain. Material / chemical containers should be kept in a covered area whenever possible.
- Ensure waste collection frequency is adequate to prevent receptacles from overfilling.
- Clean up spills immediately. For hazardous materials, follow cleanup instructions on package. For smaller spills, use an absorbent material such as sawdust or kitty litter to contain the spill.
- Collect, remove and dispose of all construction site wastes at authorized disposal areas. A local environmental agency can be contacted to identify the disposal sites.

If pesticides are required, the following practices should be used to reduce health and environmental risks associated with pesticides as well as reduce the amount of pesticides that may come in contact with stormwater:

- Follow all federal, state and local regulations that apply to the use, handling or disposal of pesticides.
- Do not handle the materials any more than necessary.
- Store pesticides/fertilizers in a dry, covered area.
- Construct curbs or dikes to contain pesticides in case of spillage.
- Follow the recommended application rates and methods.
- Have equipment and absorbent materials available in areas where pesticides are stored and used in order to contain and clean up any spills that occur.

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The following management practices should be followed to reduce the contamination risk associated with petroleum products:

- Store petroleum products and fuel for vehicles in covered areas with dikes in place to contain any spills.
- Immediately contain and clean up any spills with absorbent materials.
- Have equipment available in fuel storage areas and in vehicles to contain and clean up any spills that occur.

To reduce risks of nutrient pollution, the following management practices shall apply:

- Have equipment available in storage areas and in vehicles to contain and clean up any spills that occur.
- Apply fertilizers at the minimum rate and to the minimum area needed.
- Work the fertilizer deeply into the soil to reduce exposure of nutrients to storm water runoff.
- Apply fertilizer at lower application rates with a higher application frequency.
- Limit hydroseeding, which is the simultaneous application of lime and fertilizers.
- Ensure that erosion and sediment controls are in place to prevent fertilizers and sediments from being transported off-site.
- Use detergents only as recommended and limit their onsite use. Wash water containing detergents should not be mixed with storm water. All polluted waste waters shall be directed to a sanitary sewer or be otherwise contained so that polluted waters may be appropriately treated at a wastewater treatment plant.

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IV. INSPECTIONS AND MAINTENACE

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices and all post construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with the General Permit (GP-0-20-001).

2. The terms of the Permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The owner or operator of each construction activity shall have a trained contractor inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame. The erosion control measures must be maintained/repaired/replaced as necessary such that each measure will meet the specifications included in Appendix G and the latest version of the New York State Standards and Specifications for Erosion and Sediment Control. The specifications include standard maintenance practices for each or the proposed measures.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of the General Permit, as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

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C. Qualified Inspector Inspection Requirements

During construction, the *owner or operator* will provide a qualified inspector to inspect all erosion and sediment control practices to ensure integrity and effectiveness, all areas of disturbance that have not achieved final stabilization, and all points of discharge to natural surface water bodies located within, or immediately adjacent to, the boundaries of the construction site, and all points of discharge from the construction site. Inspection forms can be found in Appendix H.

Site inspections shall be performed according to the following schedule:

a. For construction sites where soil disturbance activities are on going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on going and the *owner or operator* has received authorization in accordance with Part II.C.3 of the General Permit to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the Regional Office stormwater contact person or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the Regional Office stormwater contact person or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector(s)* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “Final Stabilization” and “Post-Construction Stormwater Management Practice” certification statements

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on the Notice of Termination (NOT). The *owner or operator* shall then submit the completed NOT form to the address in Part II.A.1 of Permit No. GP-0-20-001.

e. For construction sites that directly discharge to one of the 303(d) segments listed in Appendix E of the General Permit or is located in one of the watersheds listed in Appendix C of the General Permit, the qualified inspector shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

At a minimum, the qualified inspector shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved final stabilization, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection reports shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface water body.

f. Identification of all erosion and sediment control practices that need repair or maintenance;

g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

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i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards; and

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s).

k. Identification and status of all corrective actions that were required by previous inspection

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

m. All inspection reports shall be signed by the qualified inspector.

Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor (or subcontractor) of any corrective actions that need to be taken. The contractor (or subcontractor) shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame. The erosion control measures must be maintained/repaired/replaced as necessary such that each measure will meet the specifications included in Appendix G. The specifications include standard maintenance practices for each or the proposed measures. The Plan shall be revised and the measures updated in accordance with sound engineering practices, the guidelines of the General Permit and the Project Drawings. The Project Engineer is to be notified of any significant revisions to the implemented measures or The Plan.

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V. POST-CONSTRUCTION OPERATION AND MAINTENANCE

A private entity will be established to provide, post-construction, a qualified inspector to inspect and maintain the Stormwater conveyance system and the outlet structures at least twice annually and after a 25-year or greater storm event. During each inspection, the qualified inspector shall inspect the permanent stormwater management practices and stormwater conveyance system to ensure they are clear of silt, debris, weeds and woody plants. Removal of material shall be by mechanical methods or by hand. All material removed shall be disposed of by an approved method. All areas of permanent vegetation shall be fertilized, as necessary, to keep the vegetation healthy and vigorous and at a minimum density of eighty (80) percent over the entire pervious surface. The Maintenance and Management Inspection Checklist from Appendix H of the NYSDEC Stormwater Management Design Manual can be found in Appendix J for use by the qualified inspector.

The private entity shall maintain the bio-retention and dry swale areas and repair any damage such as animal burrows.

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VI. ADDITIONAL INFORMATION

1. Contractor and subcontractors must review the New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity permit No. GP-0-20-001, effective January 29, 2020. Any questions or concerns regarding material discussed in this General Permit should be immediately directed to the permittee.

   Each contractor and subcontractor that will perform on the site actions which may reasonably be expected to cause or have the potential to cause pollution of the waters of the State of New York, shall sign the contractor's certification statement at the back of this Stormwater Pollution Prevention Plan (SWPPP) in Appendix E.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, and all documentation necessary to demonstrate eligibility with this permit at the construction site until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection. All inspection reports shall be submitted to the MS4.

3. The owner or operator shall ensure that the provisions of the SWPPP are implemented from the commencement of construction activity until all areas of disturbance have achieved final stabilization and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP.

4. The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years form the date that the site achieves final stabilization. This period may be extended by the Department of Environmental Conservation, in its sole discretion, at any time upon written notification.

5. The owner operator of a construction activity shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a regulated, traditional land use control MS4, the MS4. At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at one time:

   a) The *owner or operator* shall have a qualified inspector conduct at least two (2) site inspections every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

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b) In areas where soil disturbance activity ha been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of technical standard, New York State Standards and Specifications for Erosion and Sediment Control.
c) The *owner of operator* shall prepare a phasing plan (if applicable) that defines maximum disturbed area per phase and shows required cuts and fills.
d) The *owner or operator* shall install any additional site specific practices needed to protect water quality.
e) The *owner or operator* shall include the requirements above in their SWPPP.

6. The following list describes some of the construction materials that may be stored at the project site:

- Drainage construction materials (PVC pipe, plastic pipe, concrete pipe, corrugated metal pipe, manholes, catch basins, end-sections)
- Stone
- Fill and Topsoil
- Soil Erosion and Sediment Control Materials for immediate repairs
- Construction Equipment
- Building construction materials

7. A Notice of Termination (N.O.T.) must be filed with the NYS DEC upon completion of the project. The Notice of Termination form can be found in Appendix D of this plan.

An *owner or operator* may terminate coverage when one or more the following conditions have been met:

a. Total project completion - All construction activity identified in the SWPPP has been completed; and all areas of disturbance have achieved final stabilization; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved final stabilization; and all temporary, structural erosion and sediment control measures have been removed; and all postconstruction stormwater management

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practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under The Permit in accordance with Part II.E of the General Permit.

d. The owner or operator obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

For *construction activities* meeting a. or b. above, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The qualified inspector shall, by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of the General Permit have been achieved.

For construction activities that are subject to the requirements of a regulated, traditional land use control MS4 and meeting a. or b. above, the owner or operator shall have the regulated, traditional land use control MS4 sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of the General Permit. The regulated, traditional land use control MS4 official, by signing this statement, has determined that it is acceptable for the owner or operator to submit the NOT in accordance with the requirements of this Part. The regulated, traditional land use control MS4 can make this determination by performing a final site inspection themselves or by accepting the qualified inspector's final site inspection certification(s) as required above.

8. Permittee, Contractor and Sub-contractor to implement best management practices (BMP) to prevent litter, debris, building materials, or similar material from being discharged into waters of the State of New York.

9. The Plan shall be revised, and the measures updated, as site conditions require, in accordance with sound engineering practices, the guidelines of the General Permit and the Project Drawings. The Project Engineer is to be notified of any significant revisions to the implemented measures or The Plan.

10. Upon the completion of construction, the enclosed storm drainage system, bio-retention area, and dry swale will become the responsibility of the private entity established for such purposes.

11. Once the project is stabilized, level 1 inspection for the stormwater management practices and bio-retention construction inspection checklist shall be performed and signed by a professional engineer. The report shall be submitted to the Town's stormwater management officer along with the NOT form.

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VII. OWNER/OPERATOR CERTIFICATION STATEMENT

The following certification shall be made in accordance with the SPDES General Permit for Stormwater Discharges from Construction Activity, Permit GP-0-20-001

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

Signature: _____ Date: _____

Print Name: Eric Bogart

Title: Owner

Address: 6885 Campbell Blvd
North Tonawanda, NY 14120 Phone: (716) 807-2388

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Appendix A
Drainage Calculations

321 Commerce, LLC

Stormwater Pollution Prevention Plan

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Appendix A-1
Drainage Calculations
Existing Conditions

321 Commerce, LLC

Design Report & Stormwater Pollution Prevention Plan

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Dwellings and Small Commercial Buildings

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Dwellings and Small Commercial Buildings

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Dwellings and Small Commercial Buildings–Erie County, New York							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Cv—Cosad loamy fine sand							
Cosad	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.01	Shrink-swell	0.09	Shrink-swell	0.01

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Dwellings and Small Commercial Buildings–Erie County, New York							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ge—Getzville silt loam							
Getzville	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 21, Aug 29, 2021

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Soil Map—Erie County, New York



Map Scale: 1:758 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 20, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 4, 2020—Jul 10, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Map Unit Legend

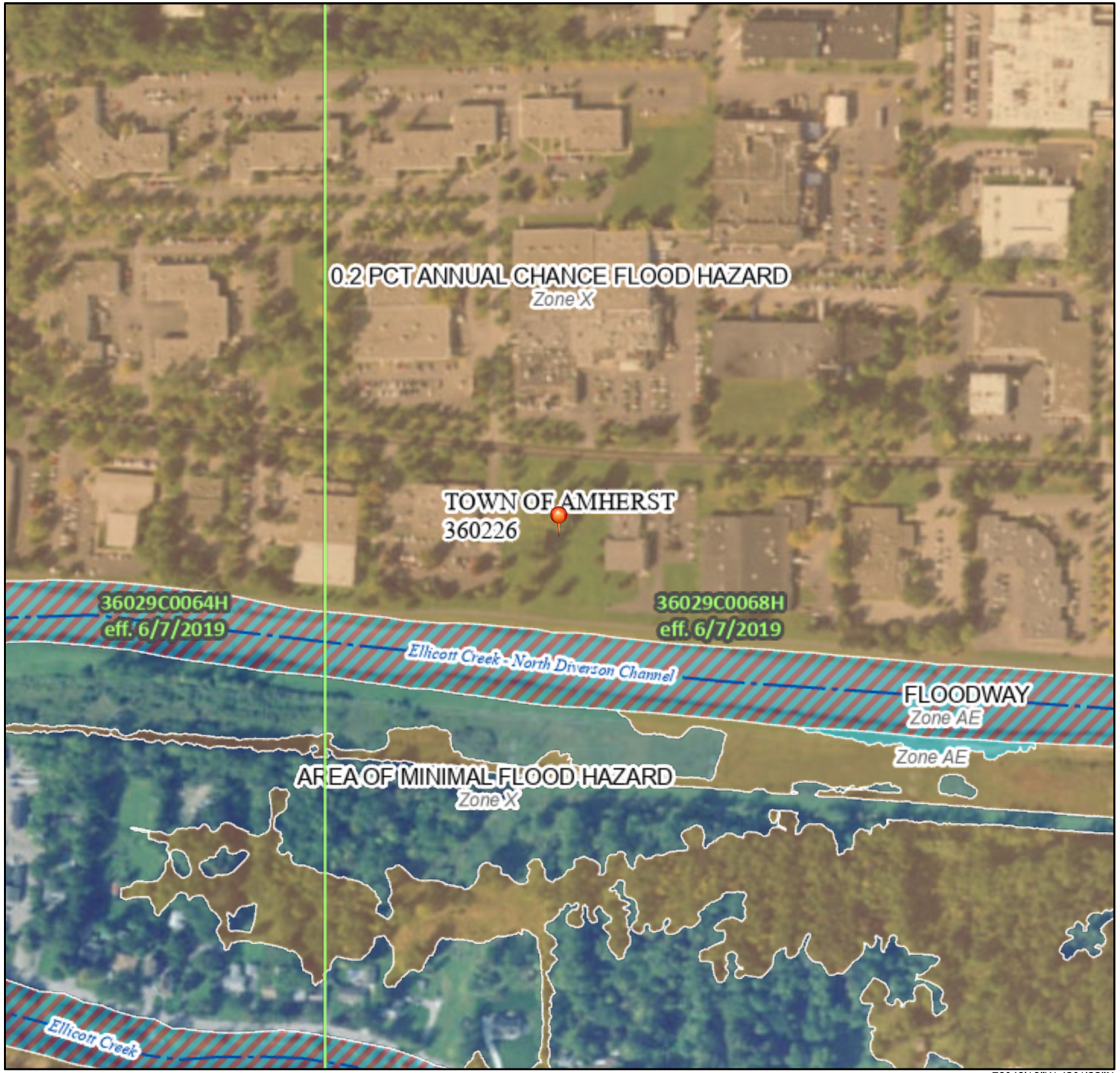
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cv	Cosad loamy fine sand	1.4	58.9%
Ge	Getzville silt loam	1.0	41.1%
Totals for Area of Interest		**2.3**	**100.0%**

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

National Flood Hazard Layer FIRMette

78°48'56"W 43°1'49"N



78°48'18"W 43°1'23"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BF *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, V*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazar of 1% annual chance flood with a depth less than one foot or with d areas of less than one square mil
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk du Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zo*
- Effective LOMRs
- Area of Undetermined Flood Haza

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Ch
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

The pin displayed on the map is an appro point selected by the user and does not r an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This ma was exported on 8/3/2021 at 2:20 PM and does not reflect changes or amendments subsequent to this date an time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following n elements do not appear: basemap imagery, flood zone labe legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized area regulatory purposes.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

LEGEND

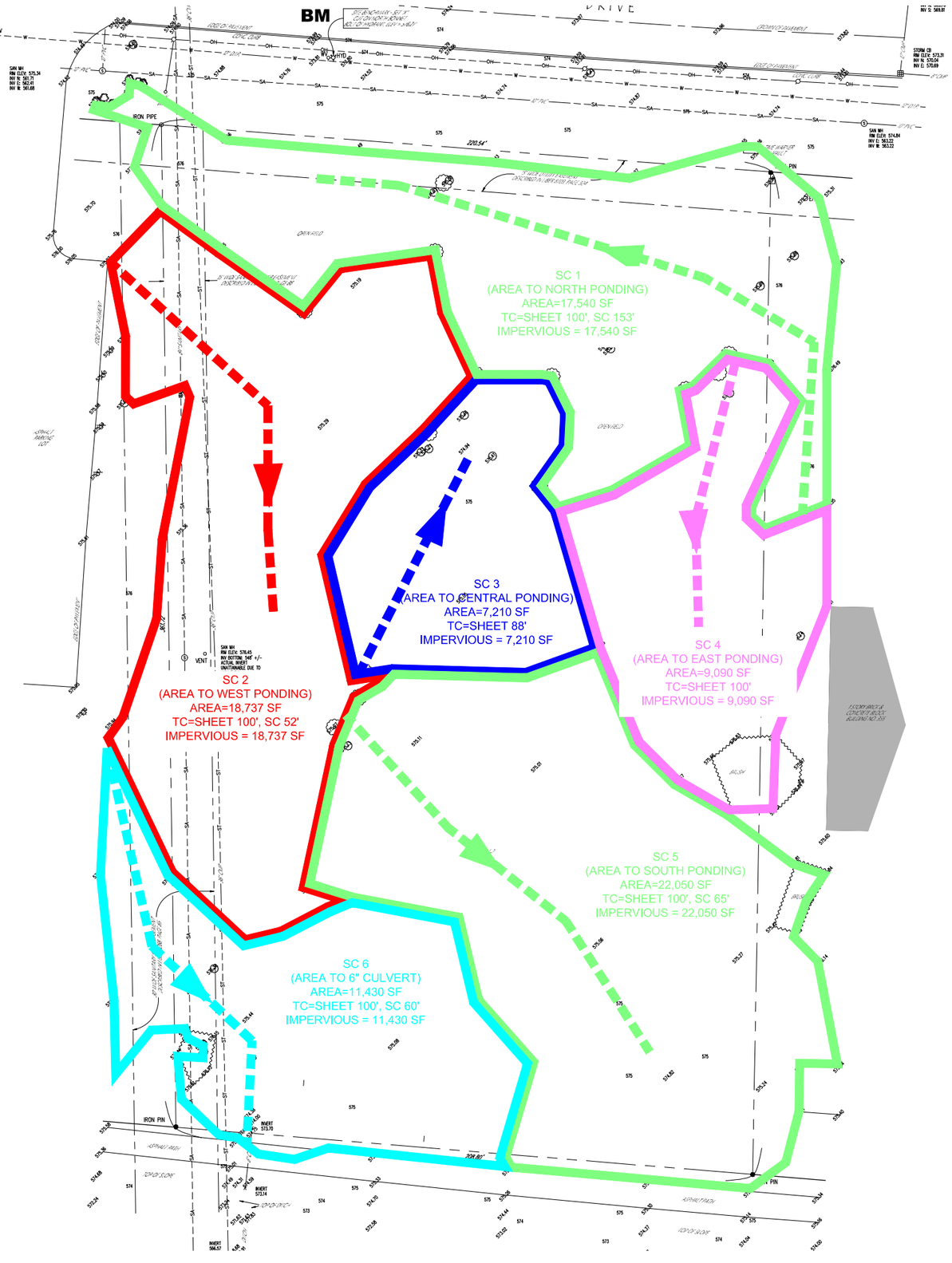
NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C		UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
STMH	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
70 Center Street
Lewiston, NY 14092
Phone:(716)754-2256
Fax (716)754-4232

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1		
2		
3		
4		
5		
6		
7		
8		

EXISTING DRAINAGE CONDITIONS PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
321 Commerce Drive
Amherst, New York 14228

Project Contact: Advanced Design Group (716) 754-2256

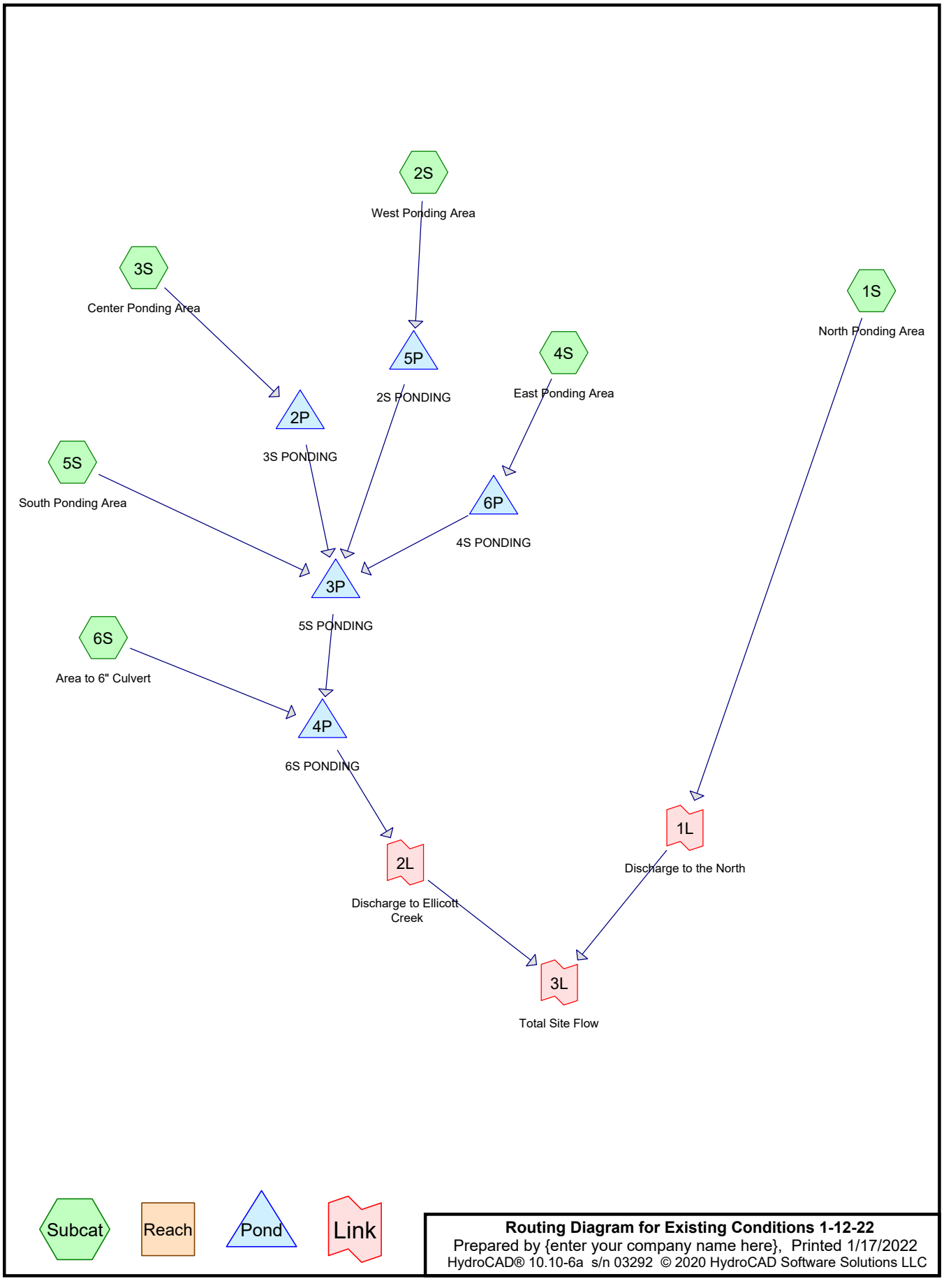
date	project no.:	sheet
1-21-2022	21-4768	7 OF 10

AS NOTED

Z:\400 Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\400-Layout Plan 1-21-22.dwg

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	1.79	2
2	2-yr	Type II 24-hr		Default	24.00	1	2.16	2
3	10-yr	Type II 24-hr		Default	24.00	1	3.02	2
4	25-yr	Type II 24-hr		Default	24.00	1	3.66	2
5	100-yr	Type II 24-hr		Default	24.00	1	4.91	2

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.804	74	>75% Grass cover, Good, HSG C (2S, 3S, 4S)
1.125	80	>75% Grass cover, Good, HSG D (1S, 5S, 6S)
1.930	**77**	**TOTAL AREA**

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.804	HSG C	2S, 3S, 4S
1.125	HSG D	1S, 5S, 6S
0.000	Other	
1.930		**TOTAL AREA**

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.804	1.125	0.000	1.930	>75% Grass cover, Good	1S, 2S, 3S, 4S, 5S, 6S
0.000	**0.000**	**0.804**	**1.125**	**0.000**	**1.930**	**TOTAL AREA**	

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>0.44"
Tc=0.0 min CN=80 Runoff=0.26 cfs 0.013 af

Subcatchment2S: West Ponding Area Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>0.26"
Tc=0.0 min CN=74 Runoff=0.15 cfs 0.009 af

Subcatchment3S: Center Ponding Area Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>0.26"
Tc=0.0 min CN=74 Runoff=0.06 cfs 0.004 af

Subcatchment4S: East Ponding Area Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>0.26"
Tc=0.0 min CN=74 Runoff=0.07 cfs 0.004 af

Subcatchment5S: South Ponding Area Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>0.44"
Tc=0.0 min CN=80 Runoff=0.37 cfs 0.019 af

Subcatchment6S: Area to 6" Culvert Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>0.44"
Tc=0.0 min CN=80 Runoff=0.19 cfs 0.010 af

Pond 2P: 3S PONDING Peak Elev=575.17' Storage=154 cf Inflow=0.06 cfs 0.004 af
Outflow=0.00 cfs 0.000 af

Pond 3P: 5S PONDING Peak Elev=575.07' Storage=223 cf Inflow=0.52 cfs 0.031 af
Outflow=0.36 cfs 0.027 af

Pond 4P: 6S PONDING Peak Elev=574.18' Storage=28 cf Inflow=0.42 cfs 0.037 af
Outflow=0.36 cfs 0.037 af

Pond 5P: 2S PONDING Peak Elev=575.44' Storage=0 cf Inflow=0.15 cfs 0.009 af
Outflow=0.15 cfs 0.009 af

Pond 6P: 4S PONDING Peak Elev=575.56' Storage=76 cf Inflow=0.07 cfs 0.004 af
Outflow=0.01 cfs 0.003 af

Link 1L: Discharge to the North Inflow=0.26 cfs 0.013 af
Primary=0.26 cfs 0.013 af

Link 2L: Discharge to Ellicott Creek Inflow=0.36 cfs 0.037 af
Primary=0.36 cfs 0.037 af

Link 3L: Total Site Flow Inflow=0.55 cfs 0.050 af
Primary=0.55 cfs 0.050 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.058 af Average Runoff Depth = 0.36"
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

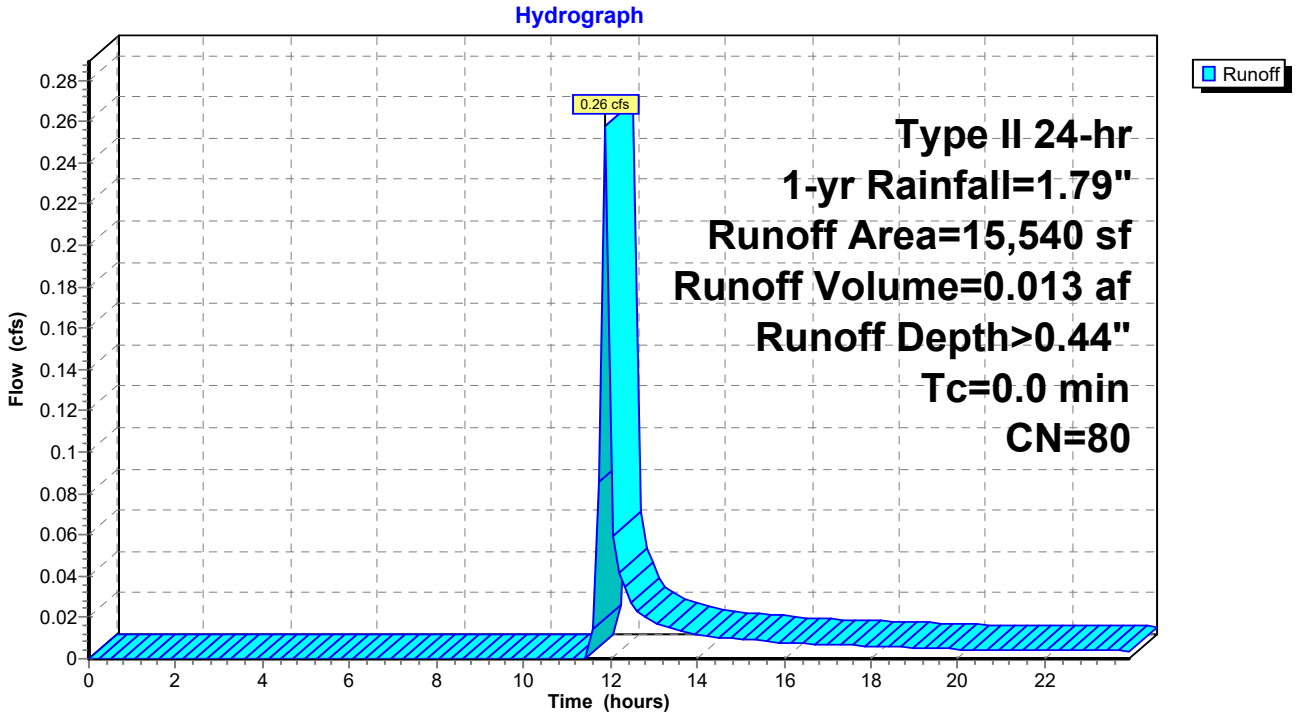
Summary for Subcatchment 1S: North Ponding Area

Runoff = 0.26 cfs @ 11.90 hrs, Volume= 0.013 af, Depth> 0.44"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

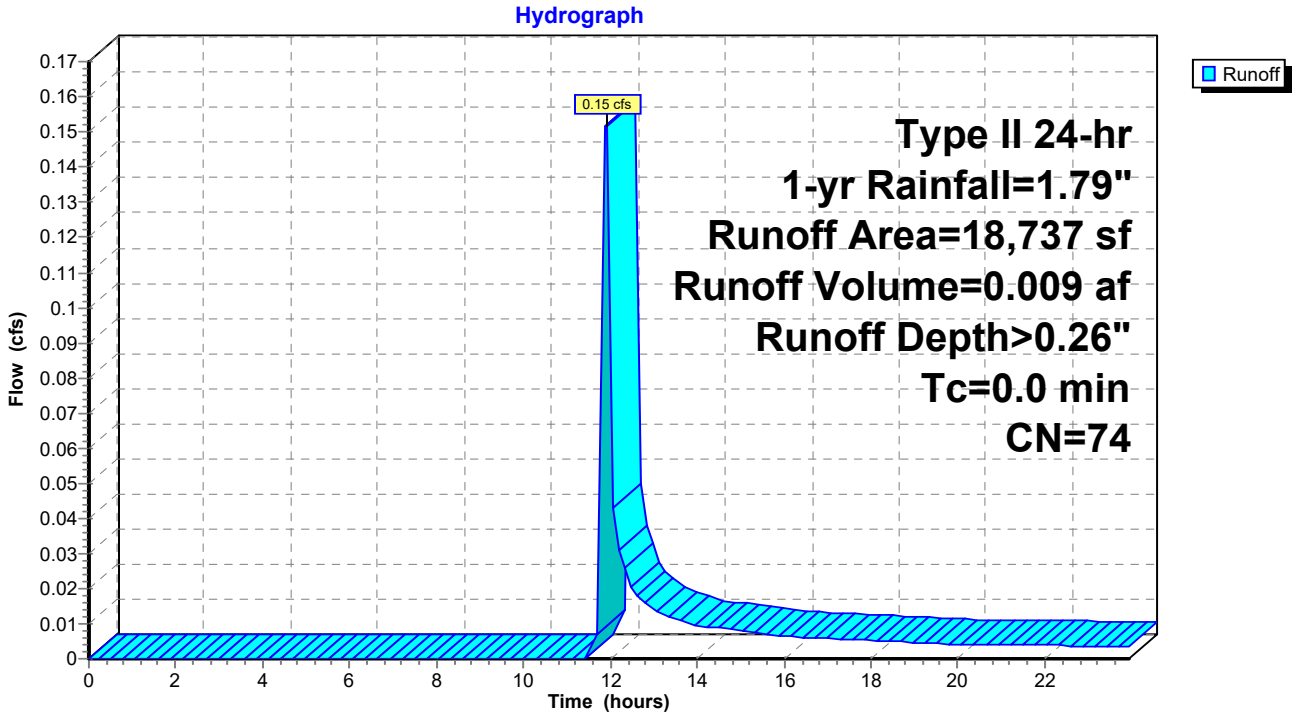
Summary for Subcatchment 2S: West Ponding Area

Runoff = 0.15 cfs @ 11.91 hrs, Volume= 0.009 af, Depth> 0.26"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

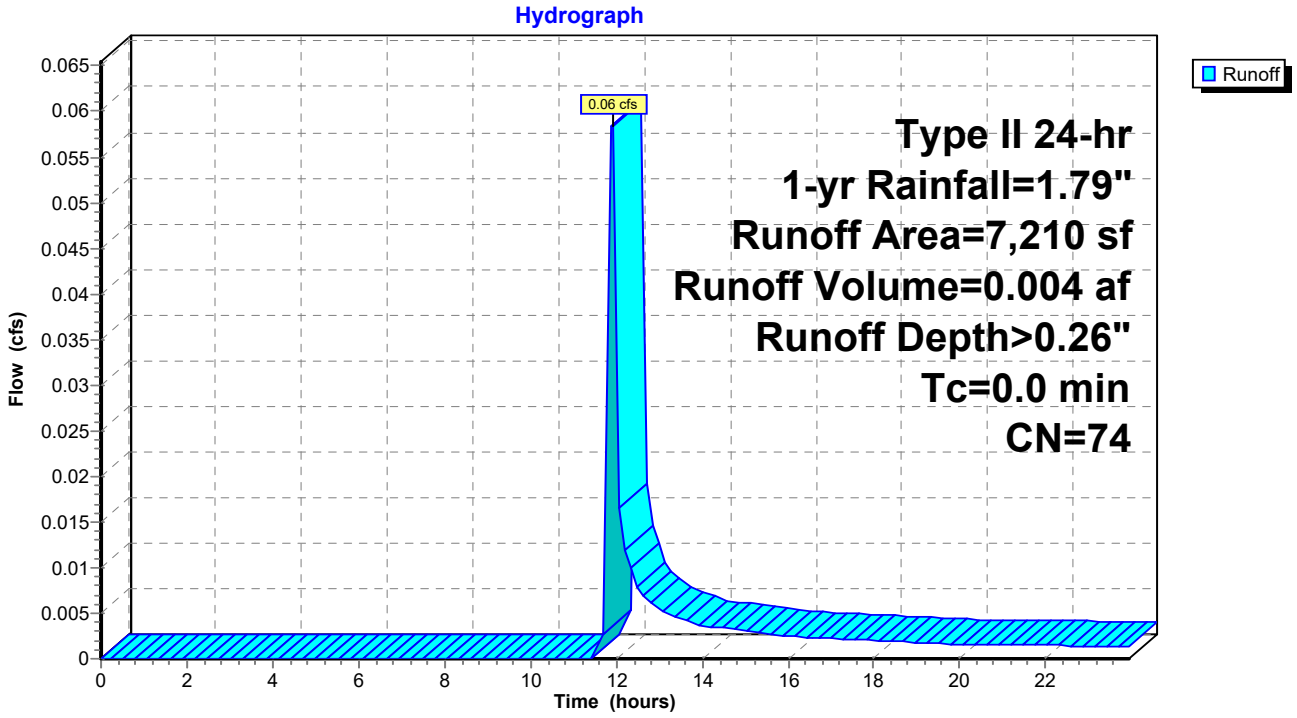
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.06 cfs @ 11.91 hrs, Volume= 0.004 af, Depth> 0.26"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

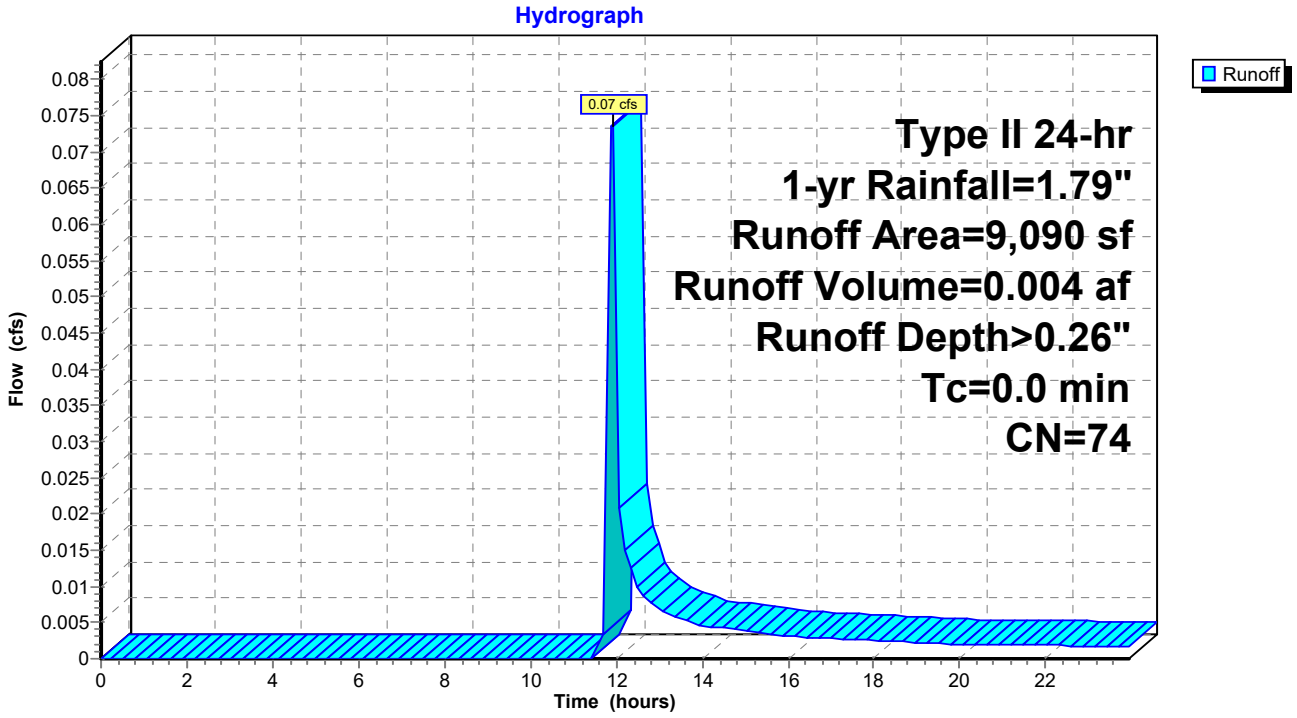
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.07 cfs @ 11.91 hrs, Volume= 0.004 af, Depth> 0.26"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

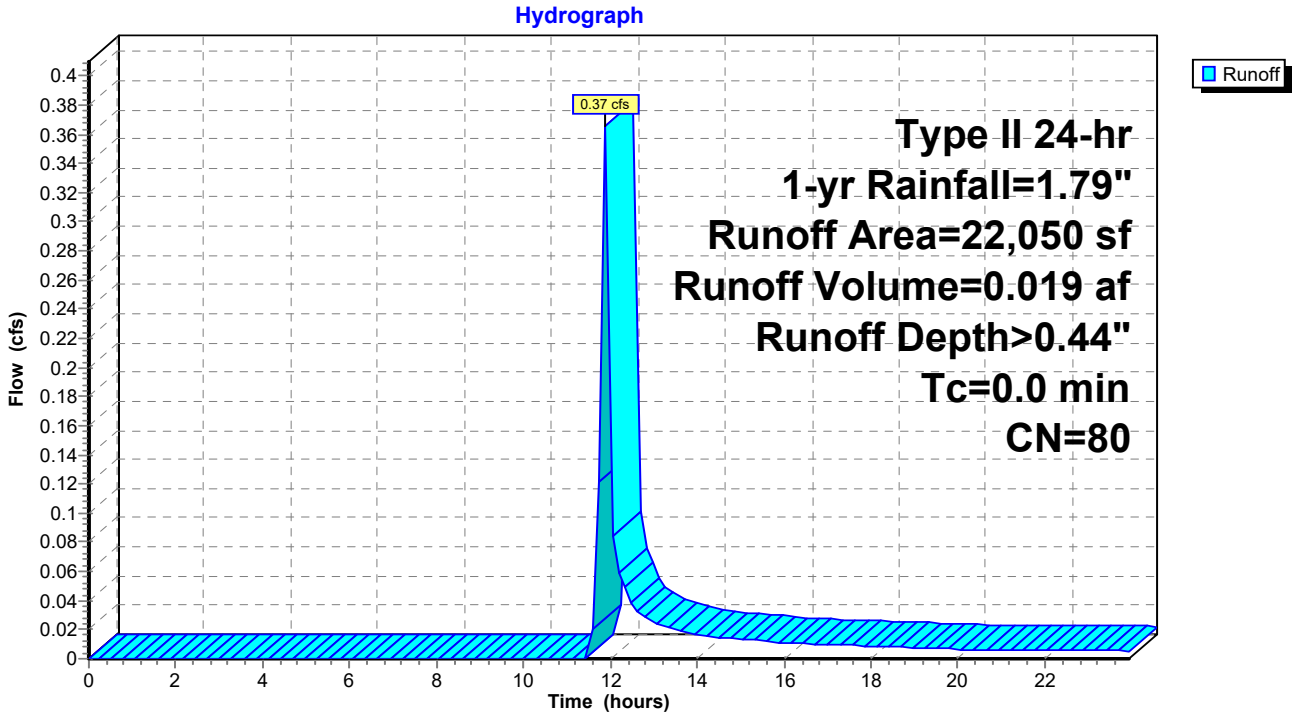
Summary for Subcatchment 5S: South Ponding Area

Runoff = 0.37 cfs @ 11.90 hrs, Volume= 0.019 af, Depth> 0.44"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

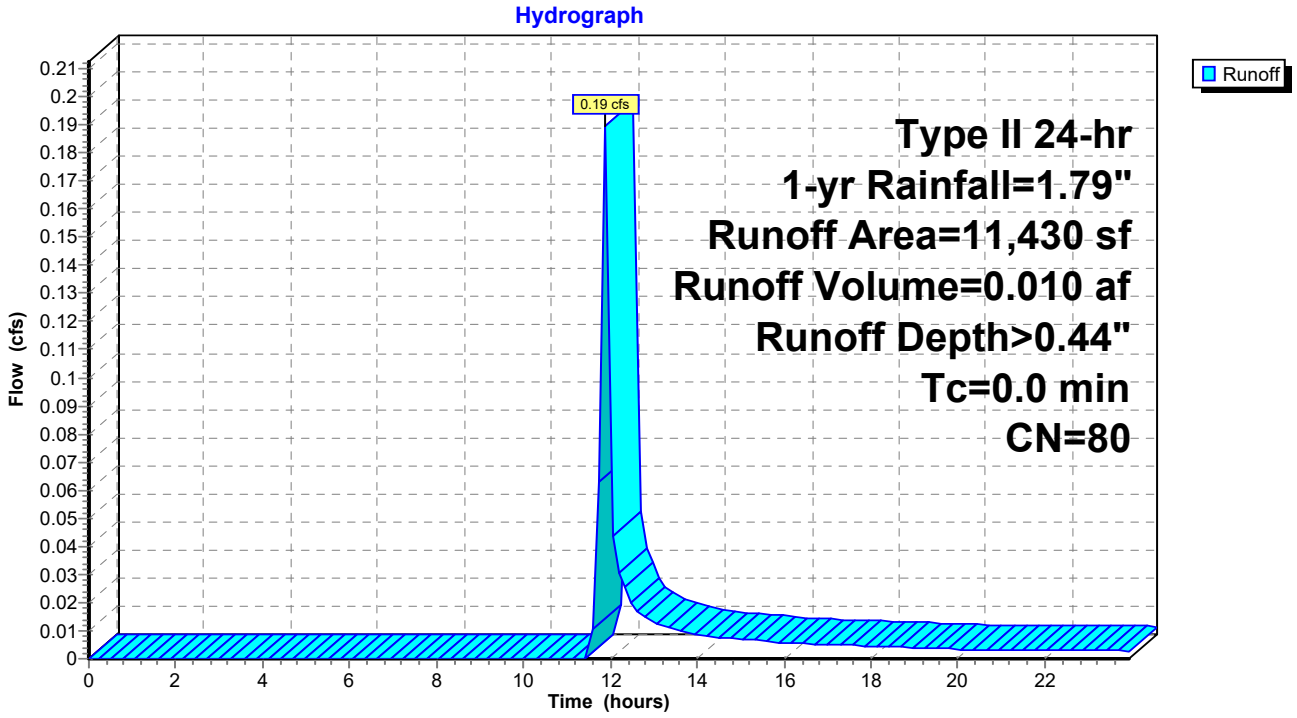
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 0.19 cfs @ 11.90 hrs, Volume= 0.010 af, Depth> 0.44"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.79"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 0.26" for 1-yr event
Inflow = 0.06 cfs @ 11.91 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.17' @ 23.94 hrs Surf.Area= 1,673 sf Storage= 154 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

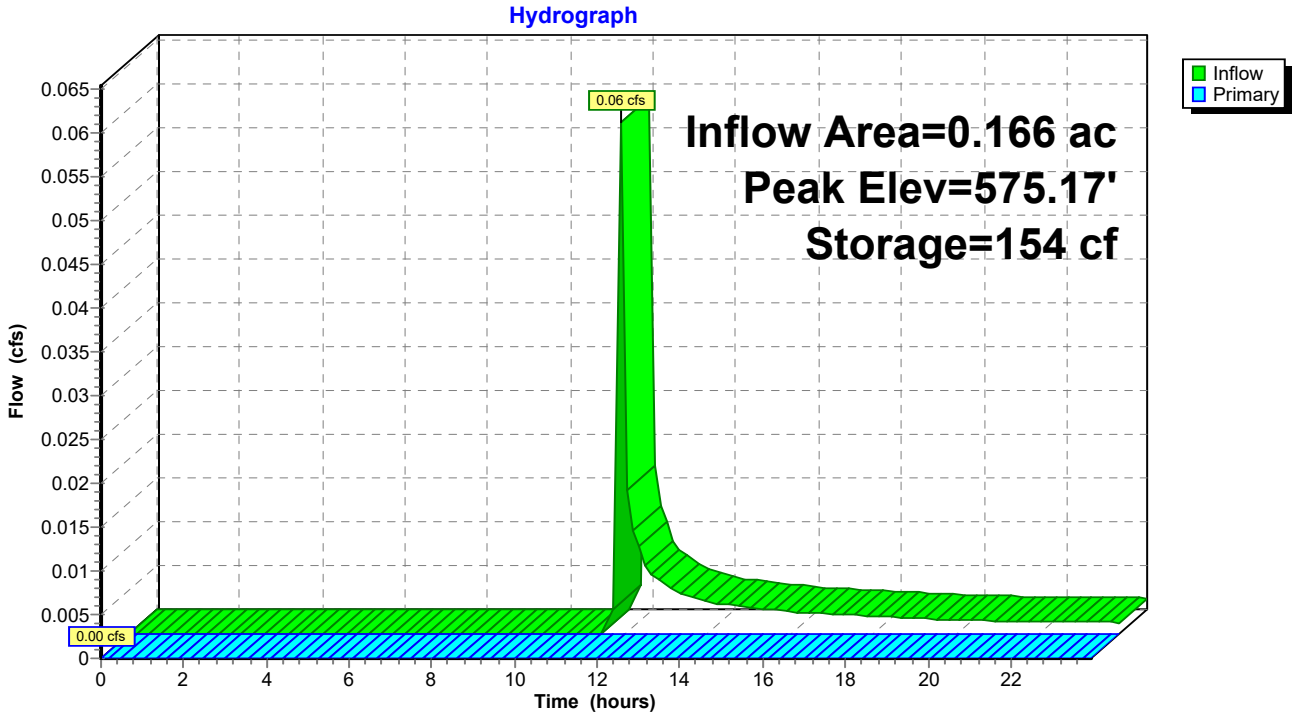
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.94' TW=574.82' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 0.28" for 1-yr event
Inflow = 0.52 cfs @ 11.90 hrs, Volume= 0.031 af
Outflow = 0.36 cfs @ 12.03 hrs, Volume= 0.027 af, Atten= 30%, Lag= 8.1 min
Primary = 0.36 cfs @ 12.03 hrs, Volume= 0.027 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.07' @ 12.03 hrs Surf.Area= 2,709 sf Storage= 223 cf

Plug-Flow detention time= 84.3 min calculated for 0.027 af (88% of inflow)
Center-of-Mass det. time= 27.7 min (922.2 - 894.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

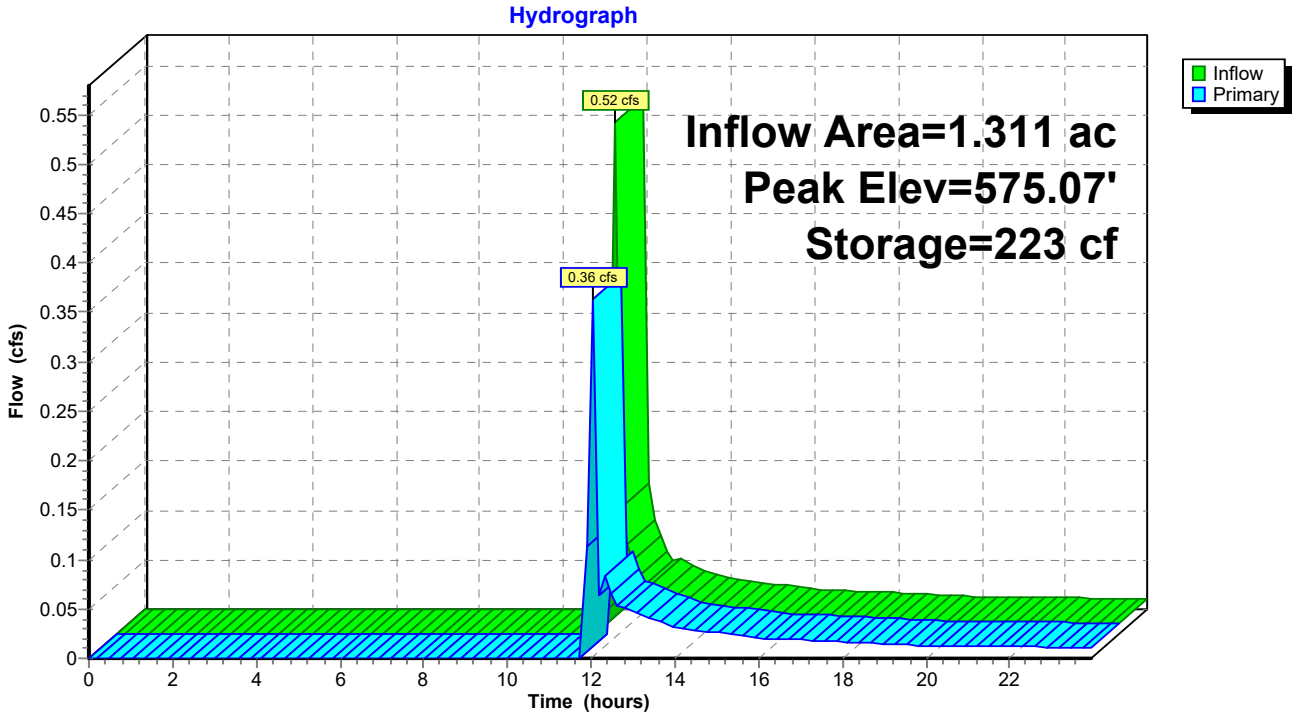
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.35 cfs @ 12.03 hrs HW=575.07' TW=574.17' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.35 cfs @ 0.57 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.28" for 1-yr event
Inflow = 0.42 cfs @ 12.01 hrs, Volume= 0.037 af
Outflow = 0.36 cfs @ 12.03 hrs, Volume= 0.037 af, Atten= 15%, Lag= 1.4 min
Primary = 0.36 cfs @ 12.03 hrs, Volume= 0.037 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.18' @ 12.03 hrs Surf.Area= 296 sf Storage= 28 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

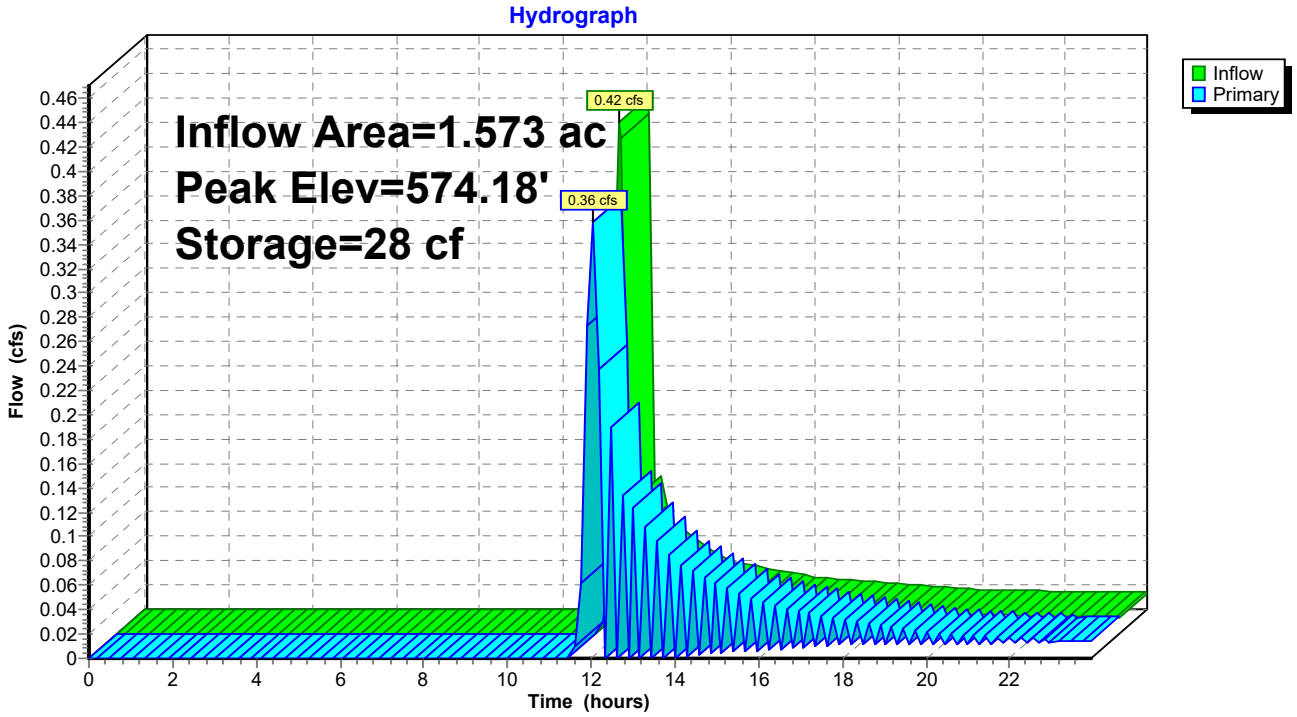
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	**6.0" Round 6" CULVERT** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.35 cfs @ 12.03 hrs HW=574.17' TW=0.00' (Dynamic Tailwater)
1=6" CULVERT (Inlet Controls 0.35 cfs @ 1.84 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 0.26" for 1-yr event
Inflow = 0.15 cfs @ 11.91 hrs, Volume= 0.009 af
Outflow = 0.15 cfs @ 11.91 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 11.91 hrs, Volume= 0.009 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

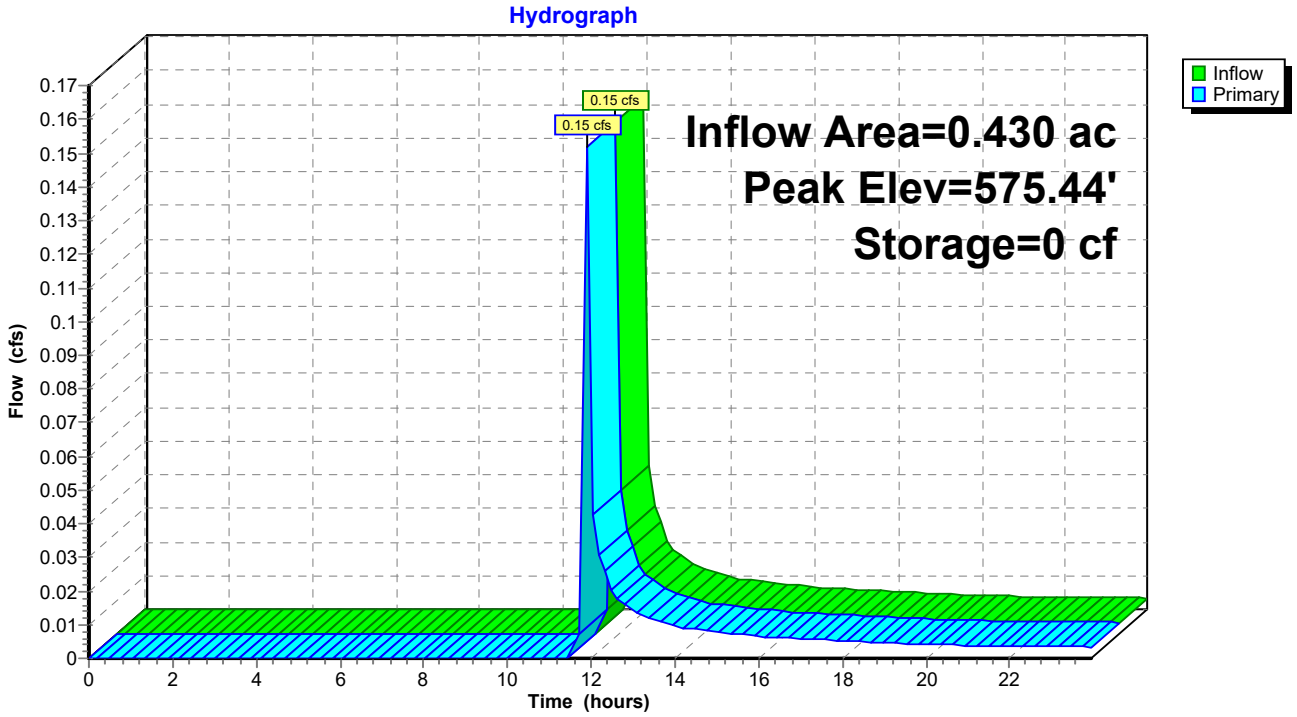
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.91 hrs HW=575.44' TW=575.06' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Passes 0.00 cfs of 14.66 cfs potential flow)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 0.26" for 1-yr event
Inflow = 0.07 cfs @ 11.91 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.93 hrs, Volume= 0.003 af, Atten= 89%, Lag= 61.3 min
Primary = 0.01 cfs @ 12.93 hrs, Volume= 0.003 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.56' @ 12.93 hrs Surf.Area= 1,232 sf Storage= 76 cf

Plug-Flow detention time= 257.6 min calculated for 0.003 af (62% of inflow)
Center-of-Mass det. time= 114.5 min (1,019.9 - 905.3)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

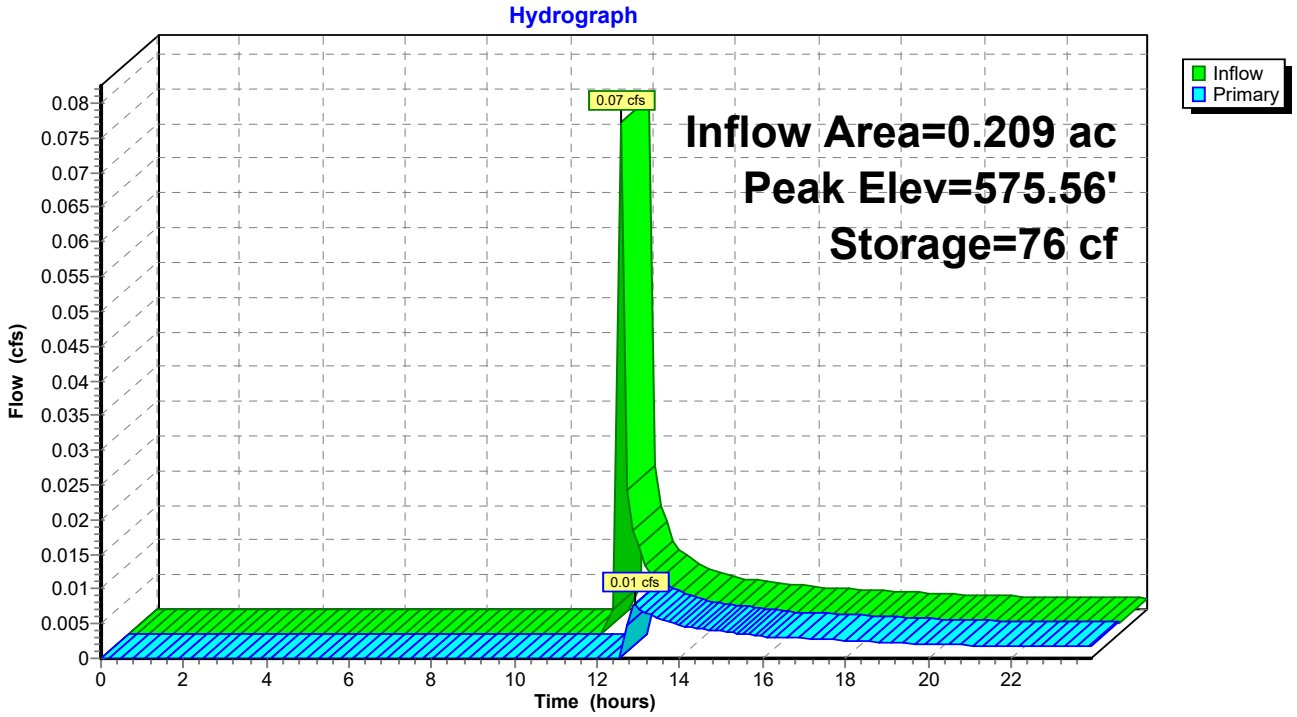
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.01 cfs @ 12.93 hrs HW=575.56' TW=575.05' (Dynamic Tailwater)
↑**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.16 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING



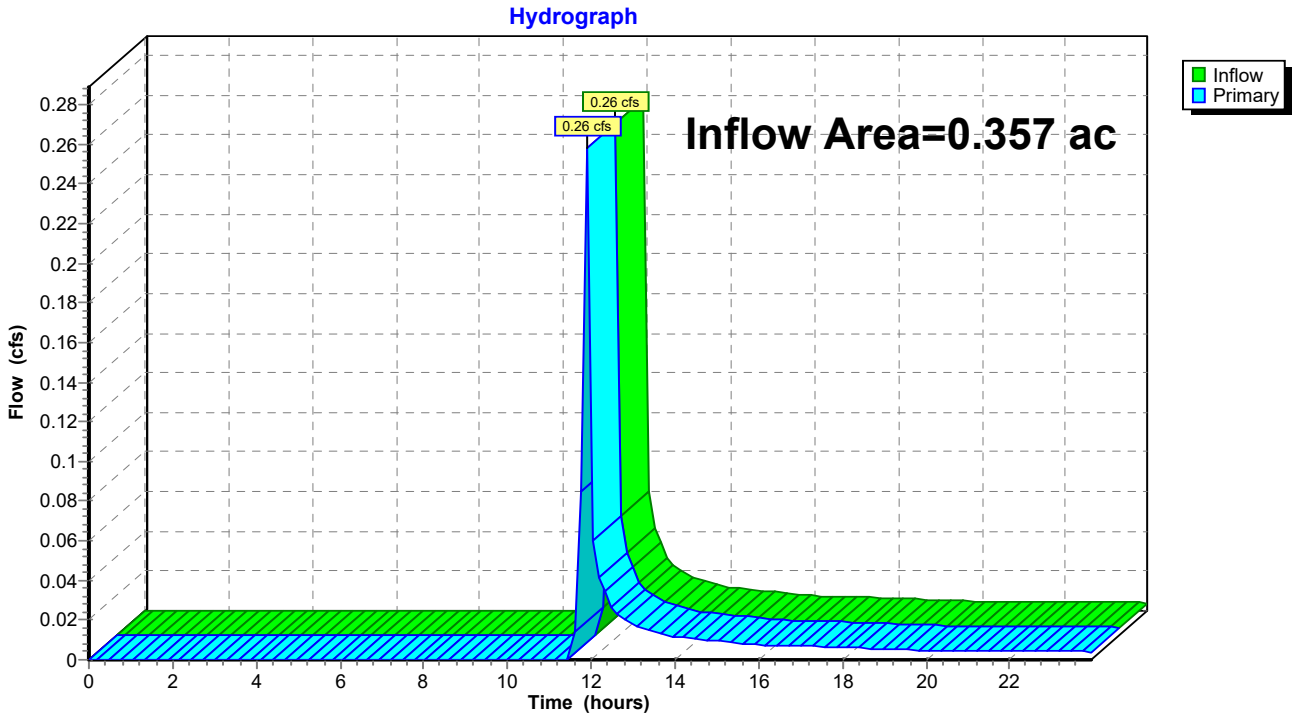
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 0.44" for 1-yr event
Inflow = 0.26 cfs @ 11.90 hrs, Volume= 0.013 af
Primary = 0.26 cfs @ 11.90 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



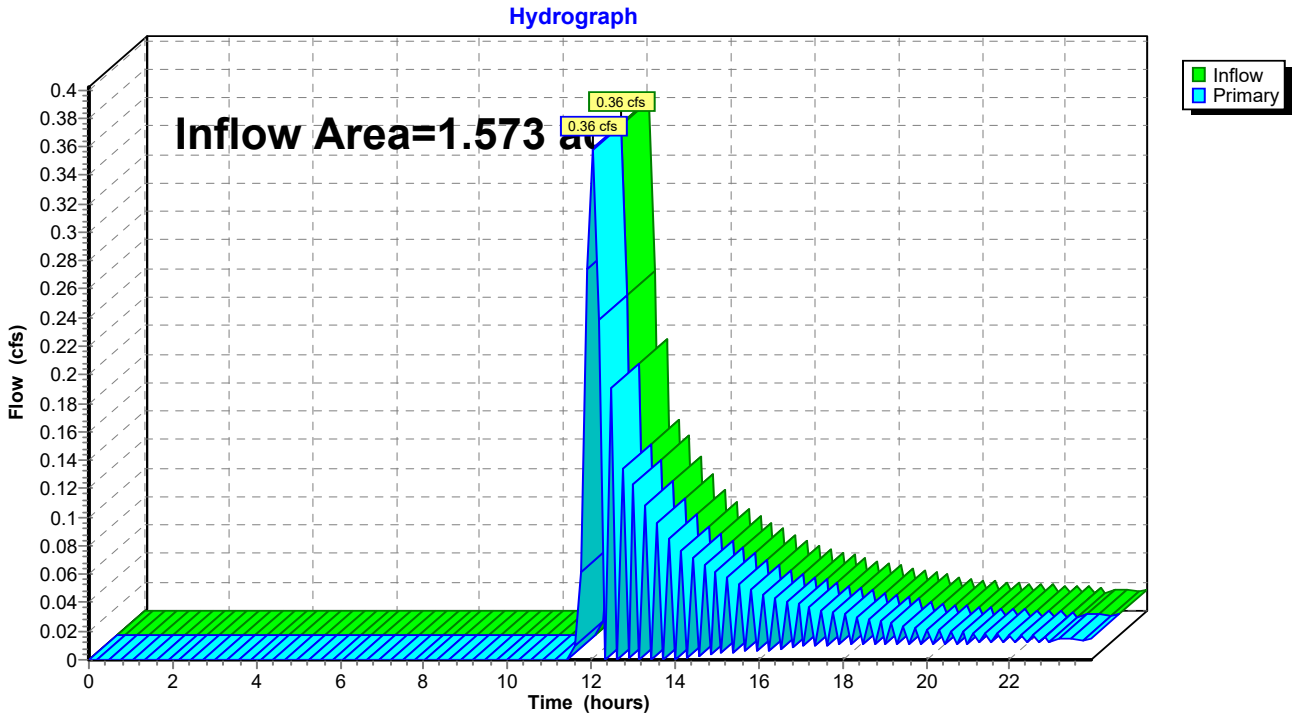
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.28" for 1-yr event
Inflow = 0.36 cfs @ 12.03 hrs, Volume= 0.037 af
Primary = 0.36 cfs @ 12.03 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



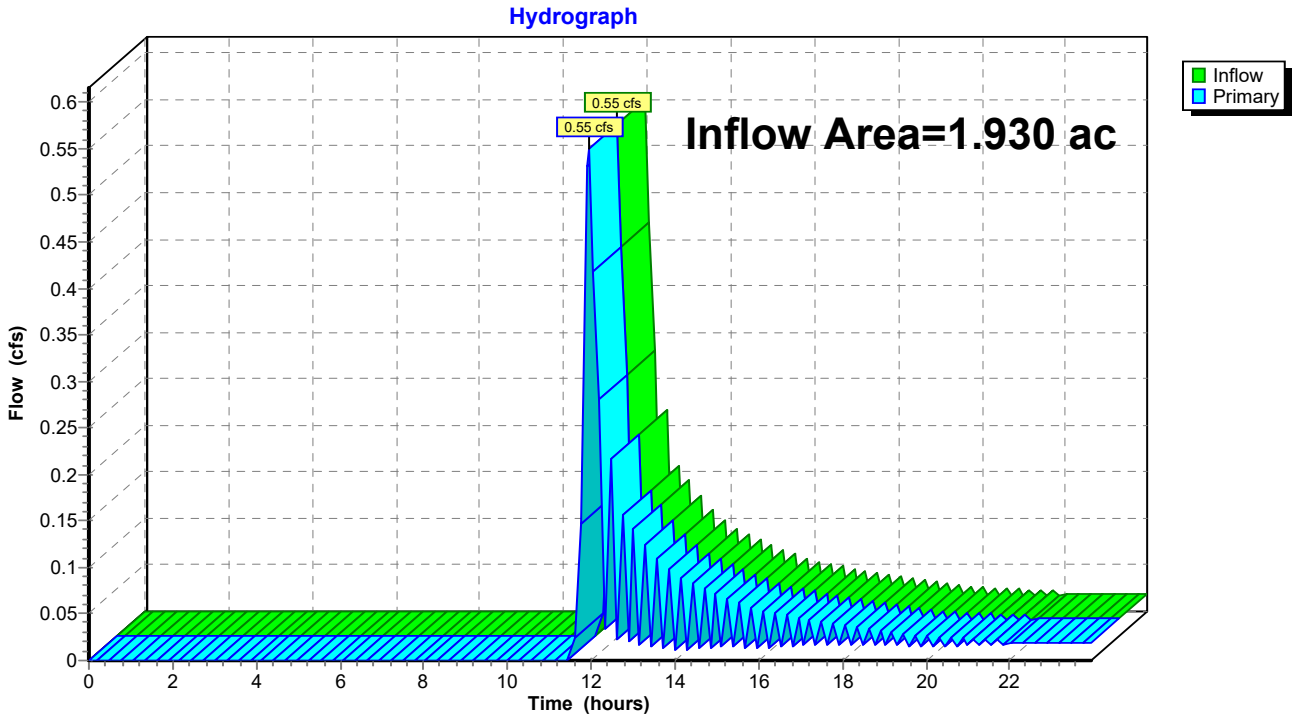
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 0.31" for 1-yr event
Inflow = 0.55 cfs @ 11.94 hrs, Volume= 0.050 af
Primary = 0.55 cfs @ 11.94 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>0.66"
Tc=0.0 min CN=80 Runoff=0.40 cfs 0.020 af

Subcatchment2S: West Ponding Area Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>0.43"
Tc=0.0 min CN=74 Runoff=0.29 cfs 0.015 af

Subcatchment3S: Center Ponding Area Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>0.43"
Tc=0.0 min CN=74 Runoff=0.11 cfs 0.006 af

Subcatchment4S: East Ponding Area Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>0.43"
Tc=0.0 min CN=74 Runoff=0.14 cfs 0.007 af

Subcatchment5S: South Ponding Area Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>0.66"
Tc=0.0 min CN=80 Runoff=0.57 cfs 0.028 af

Subcatchment6S: Area to 6" Culvert Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>0.66"
Tc=0.0 min CN=80 Runoff=0.29 cfs 0.014 af

Pond 2P: 3S PONDING Peak Elev=575.22' Storage=256 cf Inflow=0.11 cfs 0.006 af
Outflow=0.00 cfs 0.000 af

Pond 3P: 5S PONDING Peak Elev=575.09' Storage=279 cf Inflow=0.86 cfs 0.049 af
Outflow=0.65 cfs 0.045 af

Pond 4P: 6S PONDING Peak Elev=574.52' Storage=223 cf Inflow=0.92 cfs 0.060 af
Outflow=0.56 cfs 0.060 af

Pond 5P: 2S PONDING Peak Elev=575.44' Storage=0 cf Inflow=0.29 cfs 0.015 af
Outflow=0.29 cfs 0.015 af

Pond 6P: 4S PONDING Peak Elev=575.57' Storage=84 cf Inflow=0.14 cfs 0.007 af
Outflow=0.05 cfs 0.006 af

Link 1L: Discharge to the North Inflow=0.40 cfs 0.020 af
Primary=0.40 cfs 0.020 af

Link 2L: Discharge to Ellicott Creek Inflow=0.56 cfs 0.060 af
Primary=0.56 cfs 0.060 af

Link 3L: Total Site Flow Inflow=0.90 cfs 0.080 af
Primary=0.90 cfs 0.080 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.091 af Average Runoff Depth = 0.56"
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

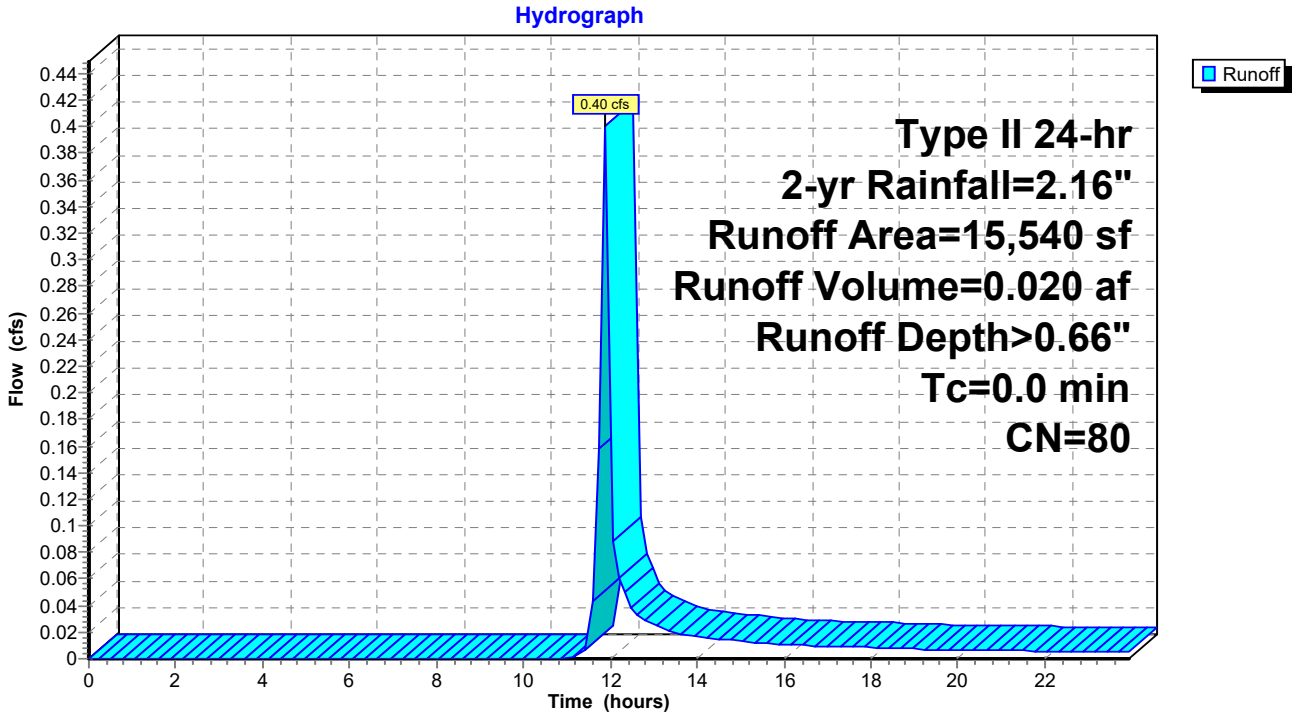
Summary for Subcatchment 1S: North Ponding Area

Runoff = 0.40 cfs @ 11.89 hrs, Volume= 0.020 af, Depth> 0.66"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

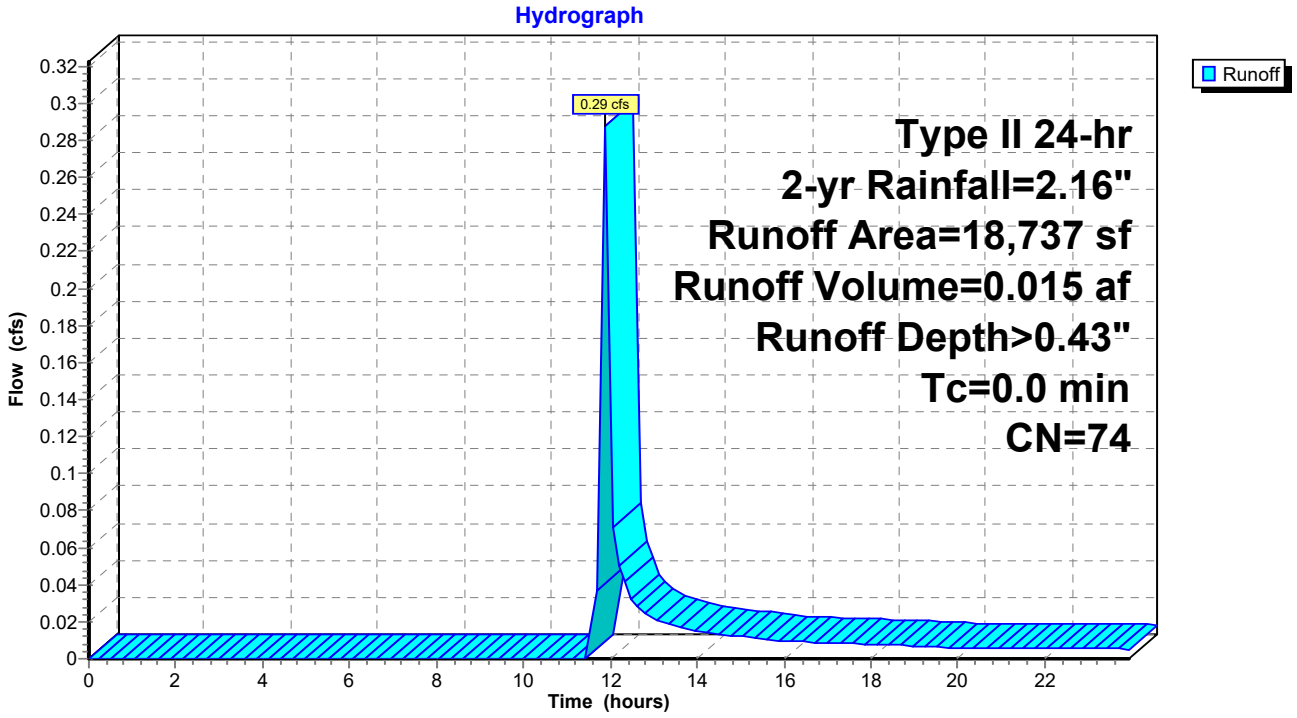
Summary for Subcatchment 2S: West Ponding Area

Runoff = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af, Depth> 0.43"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

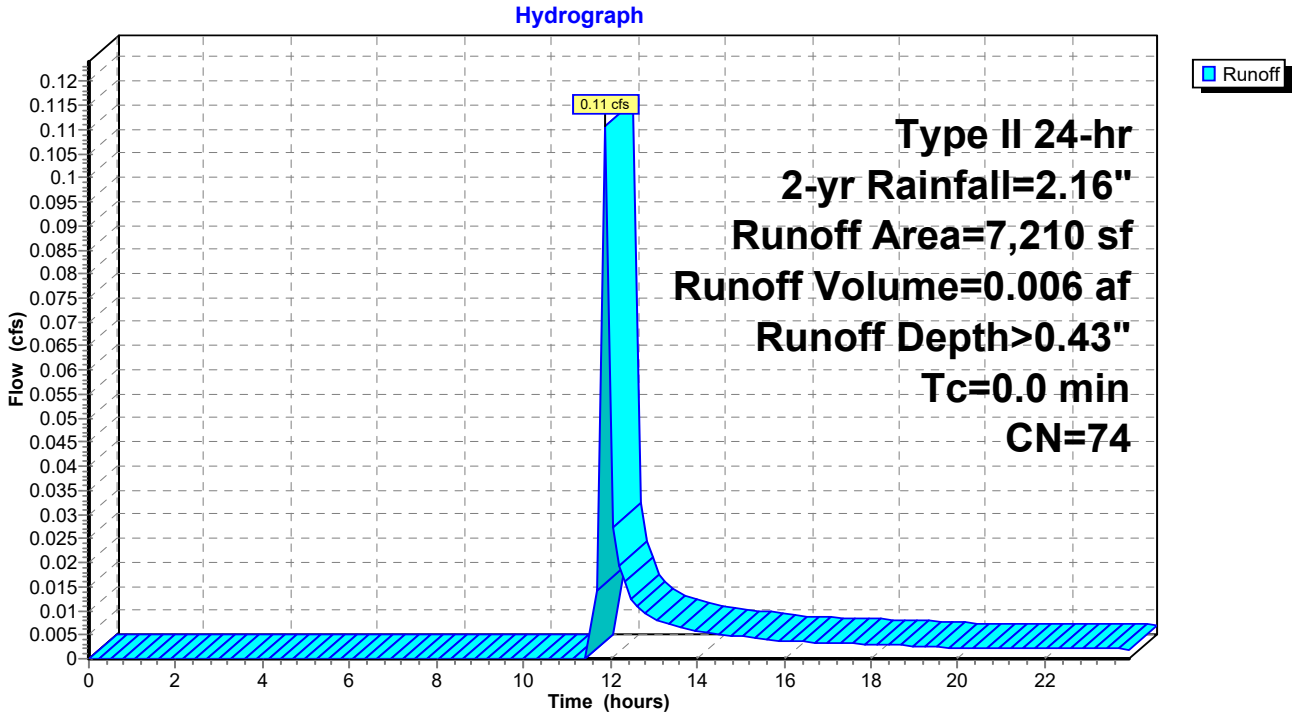
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.11 cfs @ 11.90 hrs, Volume= 0.006 af, Depth> 0.43"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

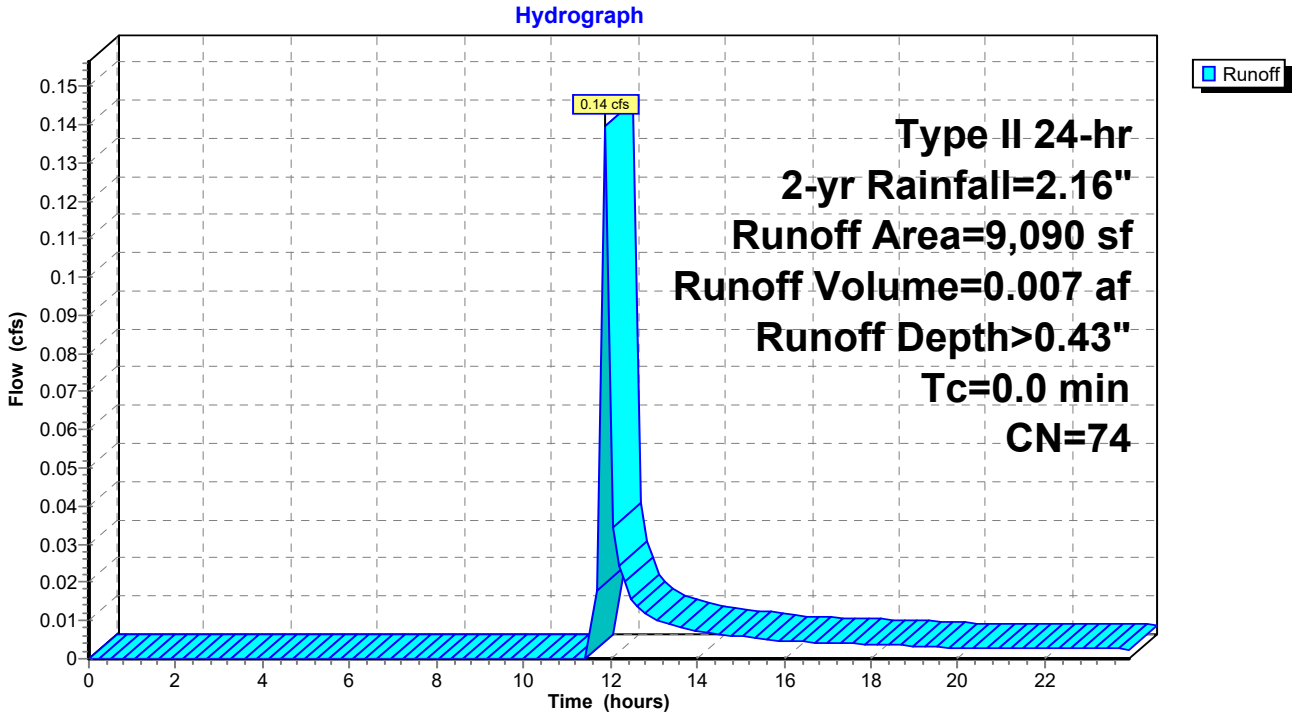
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.14 cfs @ 11.90 hrs, Volume= 0.007 af, Depth> 0.43"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

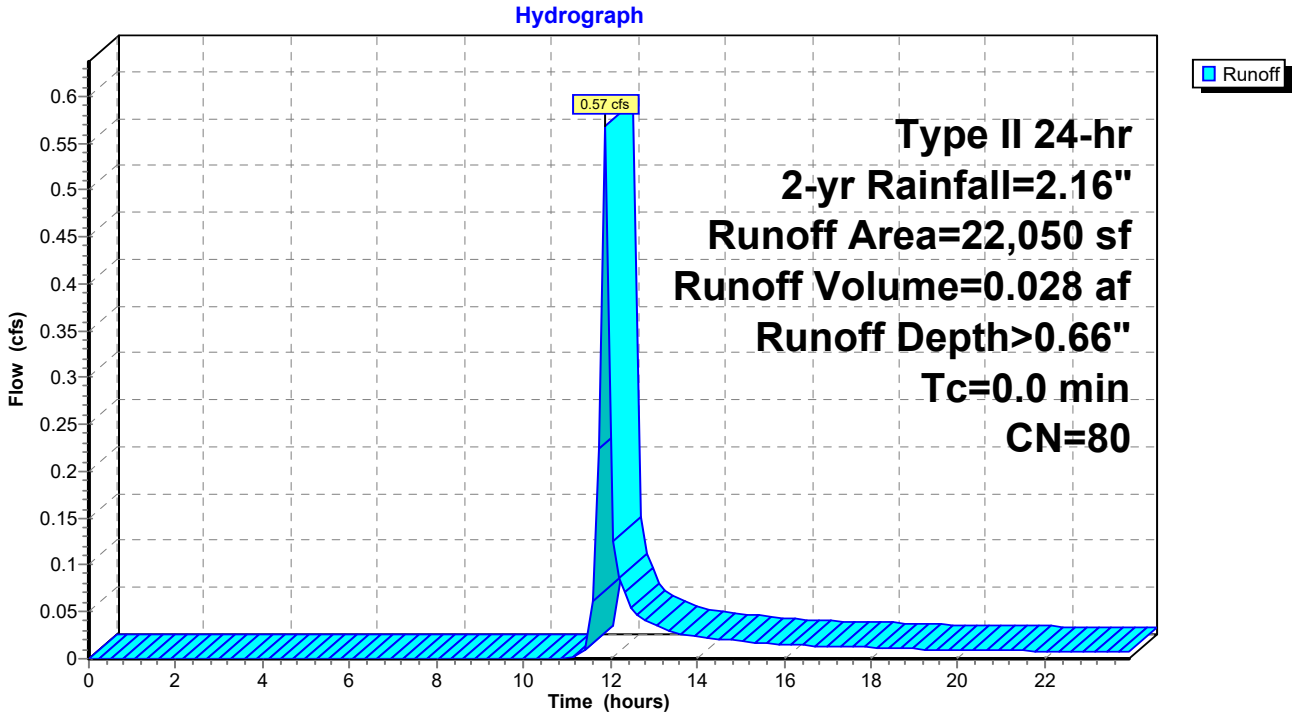
Summary for Subcatchment 5S: South Ponding Area

Runoff = 0.57 cfs @ 11.89 hrs, Volume= 0.028 af, Depth> 0.66"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

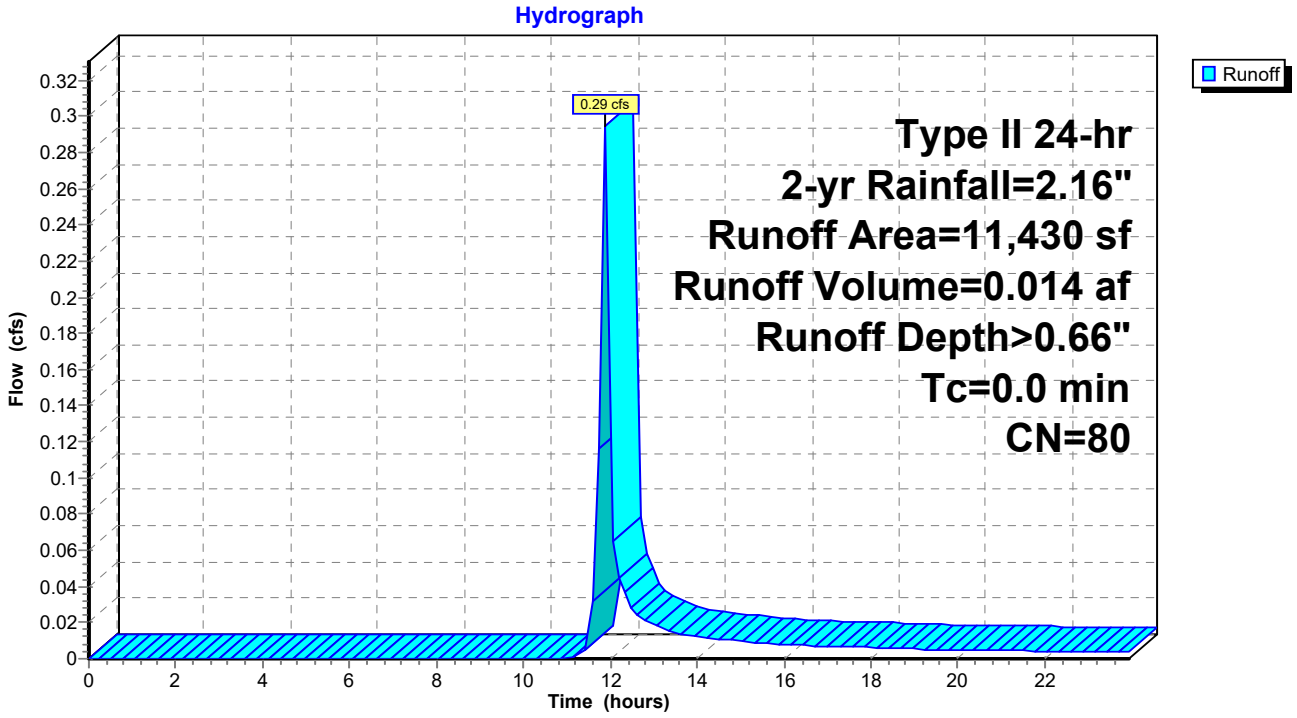
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 0.29 cfs @ 11.89 hrs, Volume= 0.014 af, Depth> 0.66"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.16"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 0.43" for 2-yr event
Inflow = 0.11 cfs @ 11.90 hrs, Volume= 0.006 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.22' @ 23.94 hrs Surf.Area= 2,165 sf Storage= 256 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

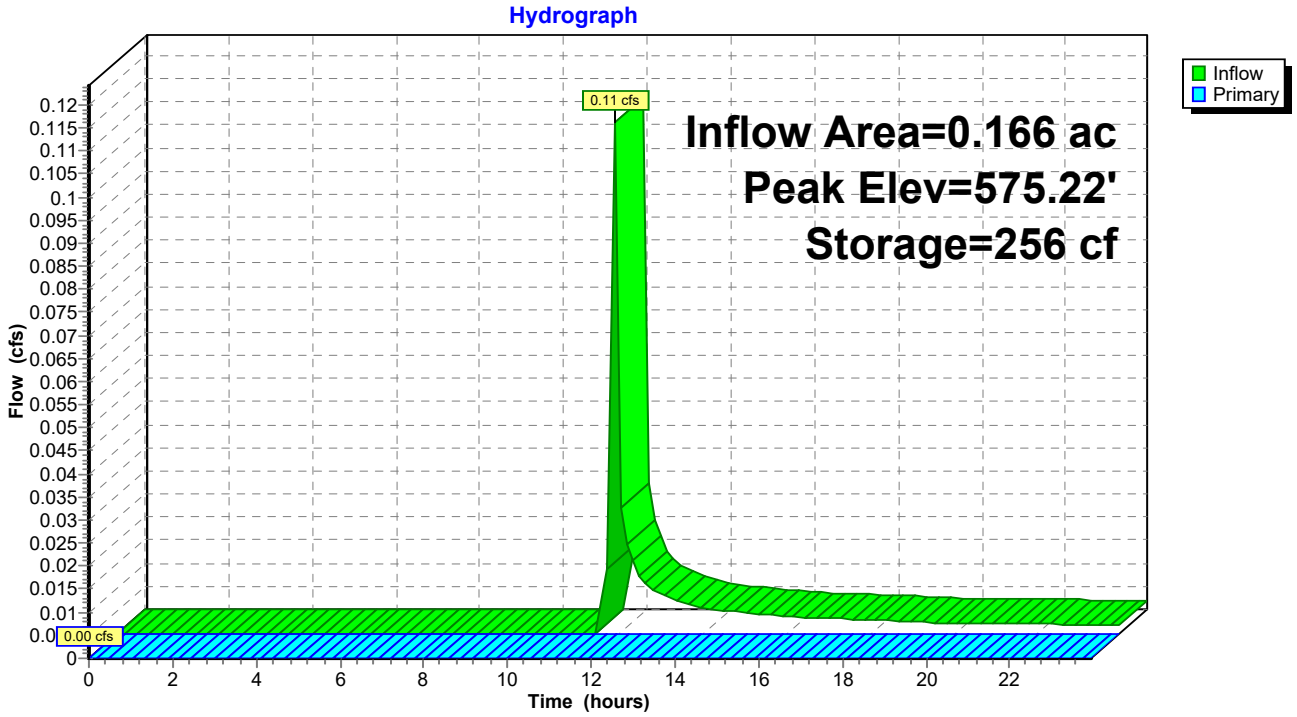
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.94' TW=574.82' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 0.45" for 2-yr event
Inflow = 0.86 cfs @ 11.90 hrs, Volume= 0.049 af
Outflow = 0.65 cfs @ 11.96 hrs, Volume= 0.045 af, Atten= 24%, Lag= 3.7 min
Primary = 0.65 cfs @ 11.96 hrs, Volume= 0.045 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.09' @ 11.96 hrs Surf.Area= 3,162 sf Storage= 279 cf

Plug-Flow detention time= 54.2 min calculated for 0.045 af (92% of inflow)
Center-of-Mass det. time= 16.4 min (891.1 - 874.7)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

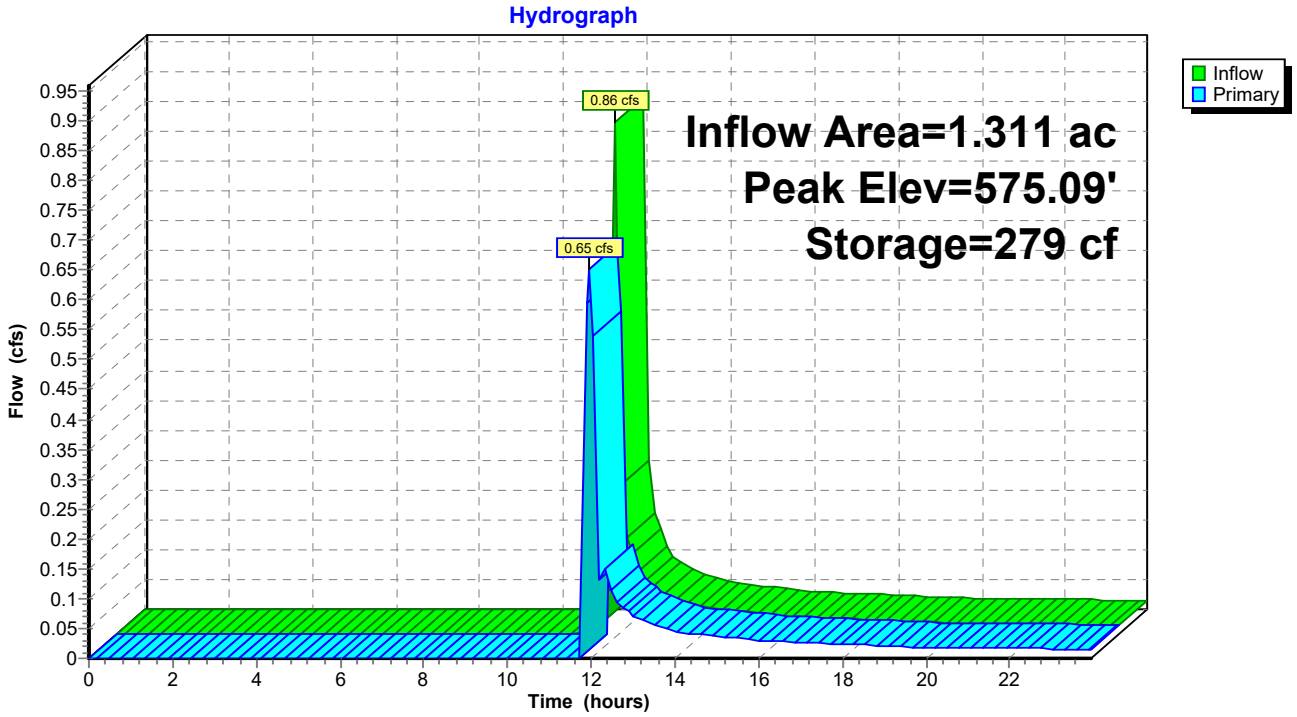
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.57 cfs @ 11.96 hrs HW=575.08' TW=574.42' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.57 cfs @ 0.67 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.46" for 2-yr event
Inflow = 0.92 cfs @ 11.93 hrs, Volume= 0.060 af
Outflow = 0.56 cfs @ 12.06 hrs, Volume= 0.060 af, Atten= 39%, Lag= 7.6 min
Primary = 0.56 cfs @ 12.06 hrs, Volume= 0.060 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.52' @ 12.06 hrs Surf.Area= 852 sf Storage= 223 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.6 min (884.3 - 882.7)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

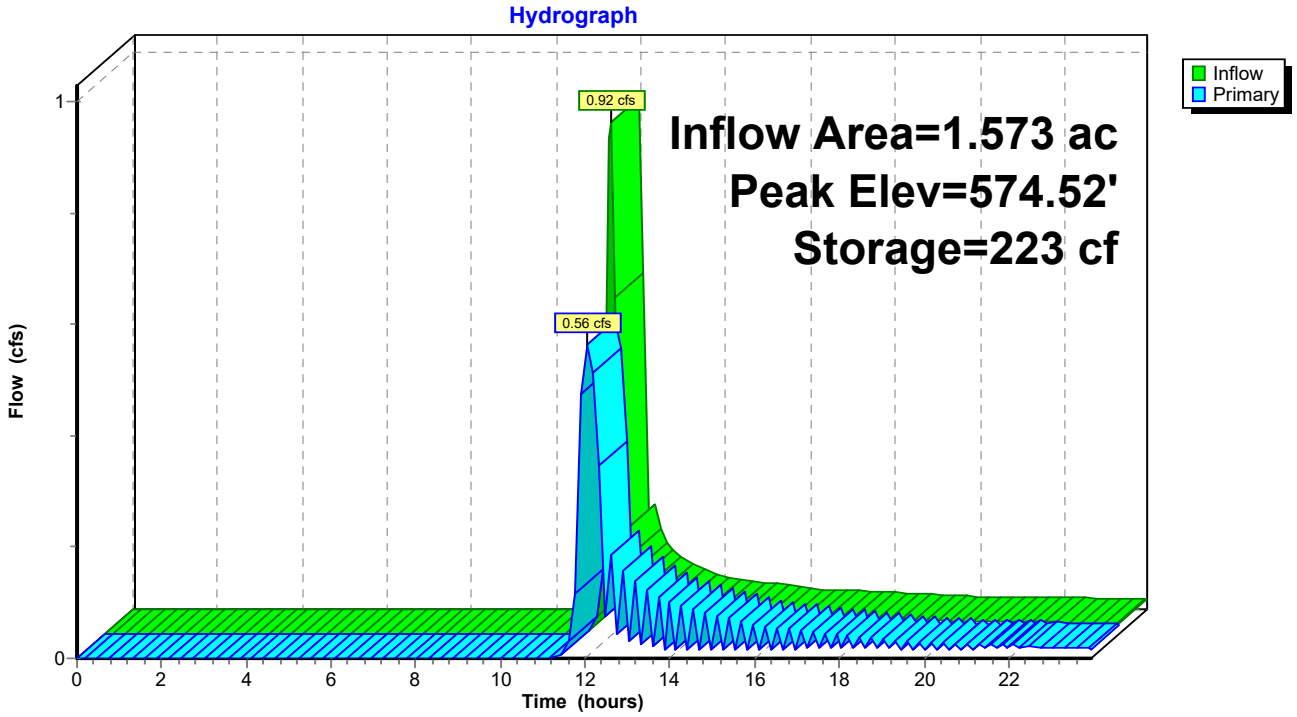
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	**6.0" Round 6" CULVERT** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.55 cfs @ 12.06 hrs HW=574.50' TW=0.00' (Dynamic Tailwater)
1=6" CULVERT (Inlet Controls 0.55 cfs @ 2.83 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 0.43" for 2-yr event
Inflow = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af
Outflow = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

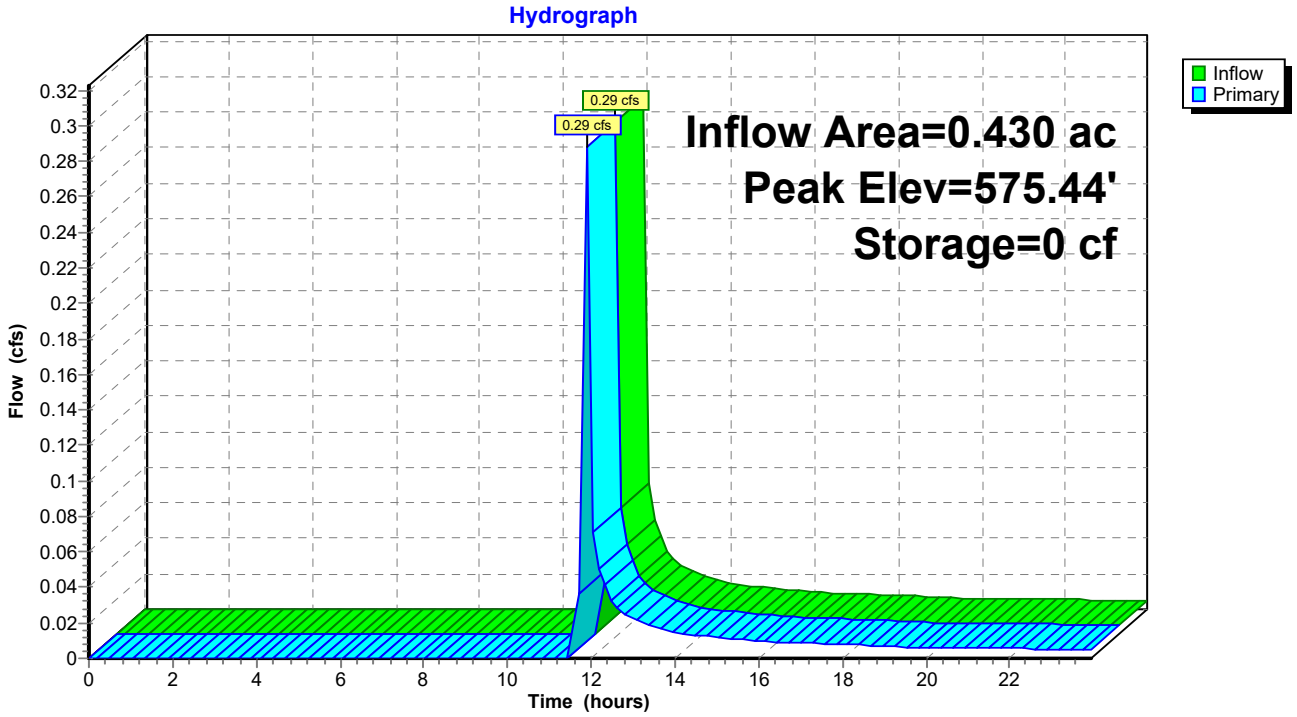
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.90 hrs HW=575.44' TW=575.08' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Passes 0.00 cfs of 14.62 cfs potential flow)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 0.43" for 2-yr event
Inflow = 0.14 cfs @ 11.90 hrs, Volume= 0.007 af
Outflow = 0.05 cfs @ 12.06 hrs, Volume= 0.006 af, Atten= 62%, Lag= 9.6 min
Primary = 0.05 cfs @ 12.06 hrs, Volume= 0.006 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.57' @ 12.04 hrs Surf.Area= 1,294 sf Storage= 84 cf

Plug-Flow detention time= 153.6 min calculated for 0.006 af (77% of inflow)
Center-of-Mass det. time= 54.2 min (938.2 - 883.9)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

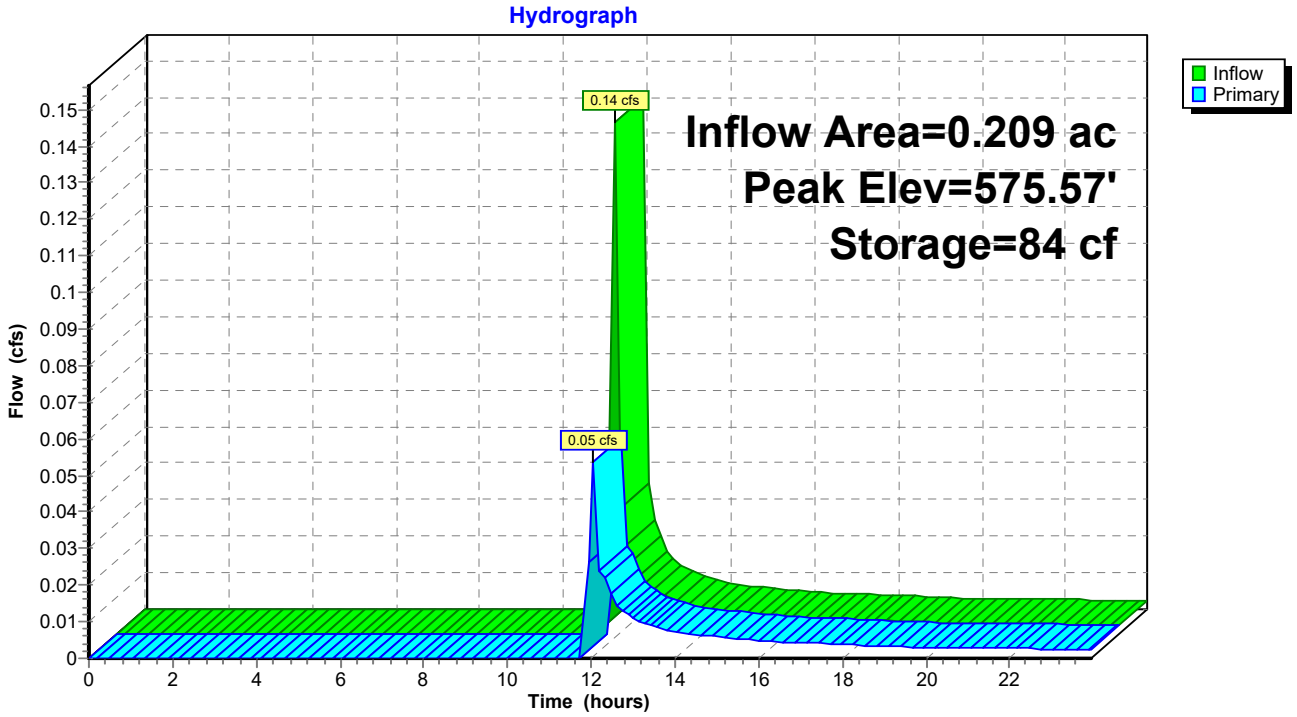
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.05 cfs @ 12.06 hrs HW=575.57' TW=575.08' (Dynamic Tailwater)
↑**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.30 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING



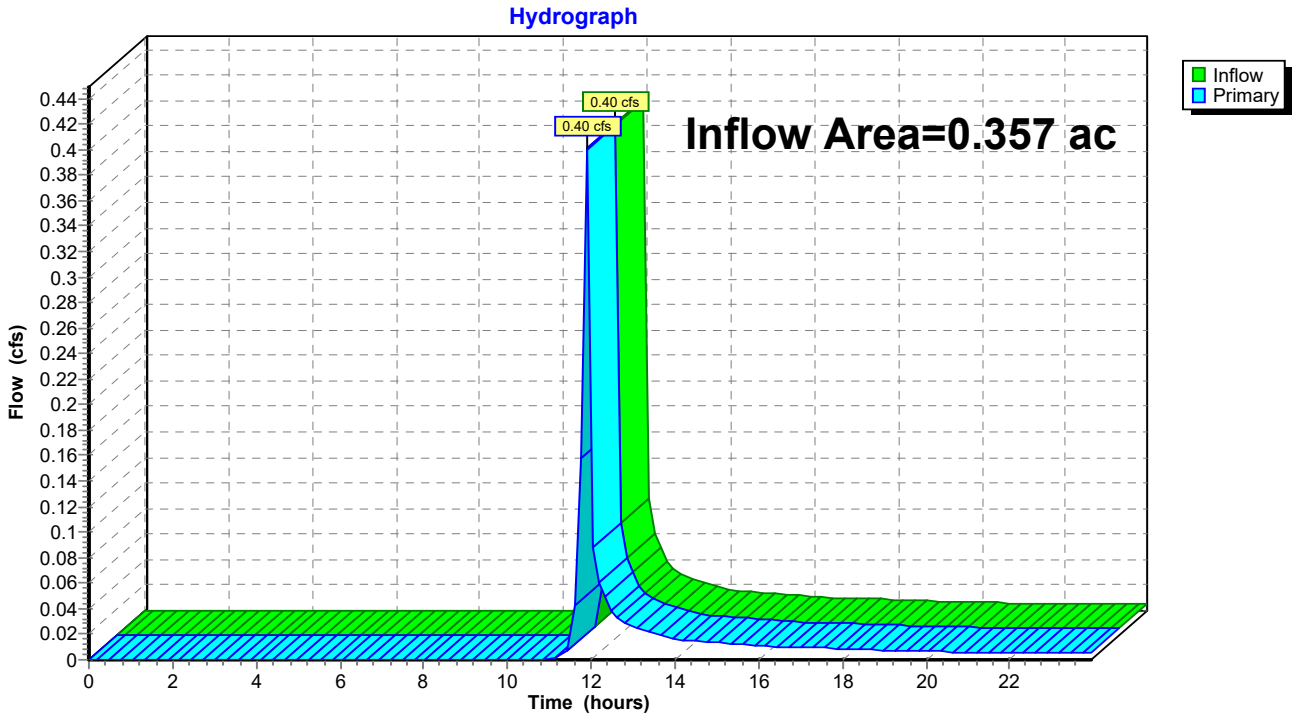
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 0.66" for 2-yr event
Inflow = 0.40 cfs @ 11.89 hrs, Volume= 0.020 af
Primary = 0.40 cfs @ 11.89 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



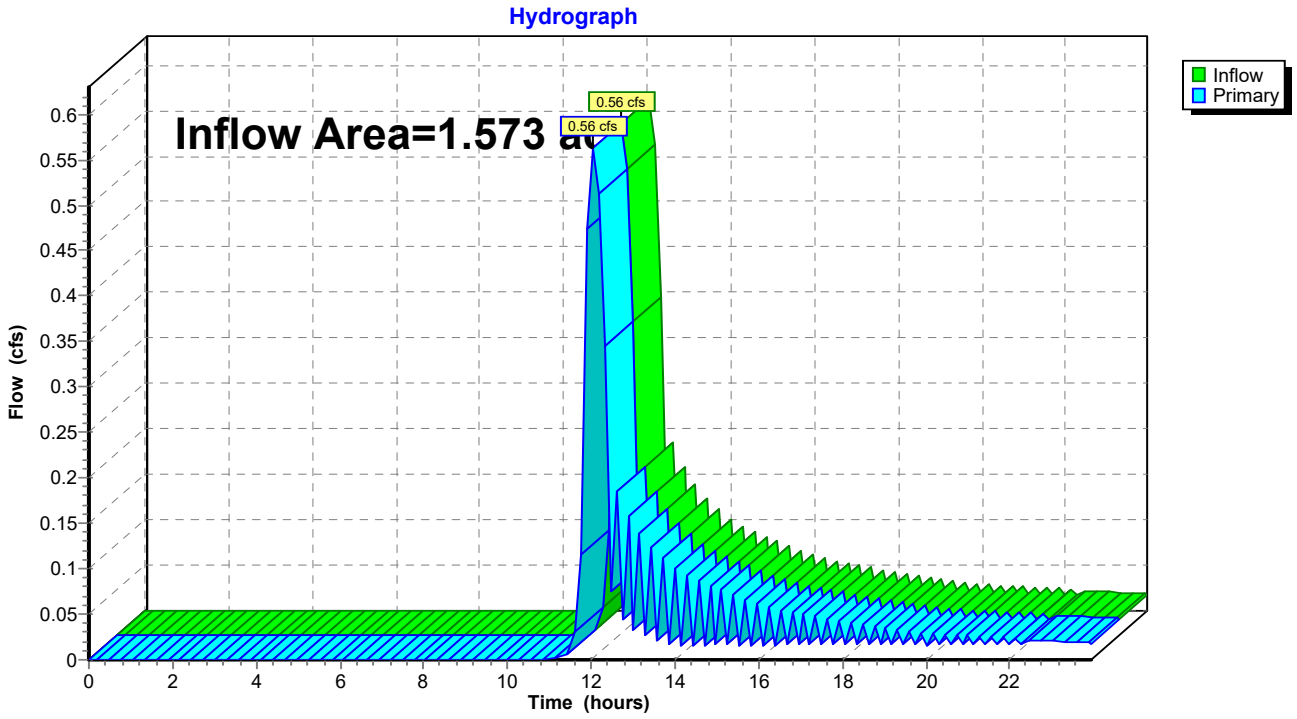
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.46" for 2-yr event
Inflow = 0.56 cfs @ 12.06 hrs, Volume= 0.060 af
Primary = 0.56 cfs @ 12.06 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



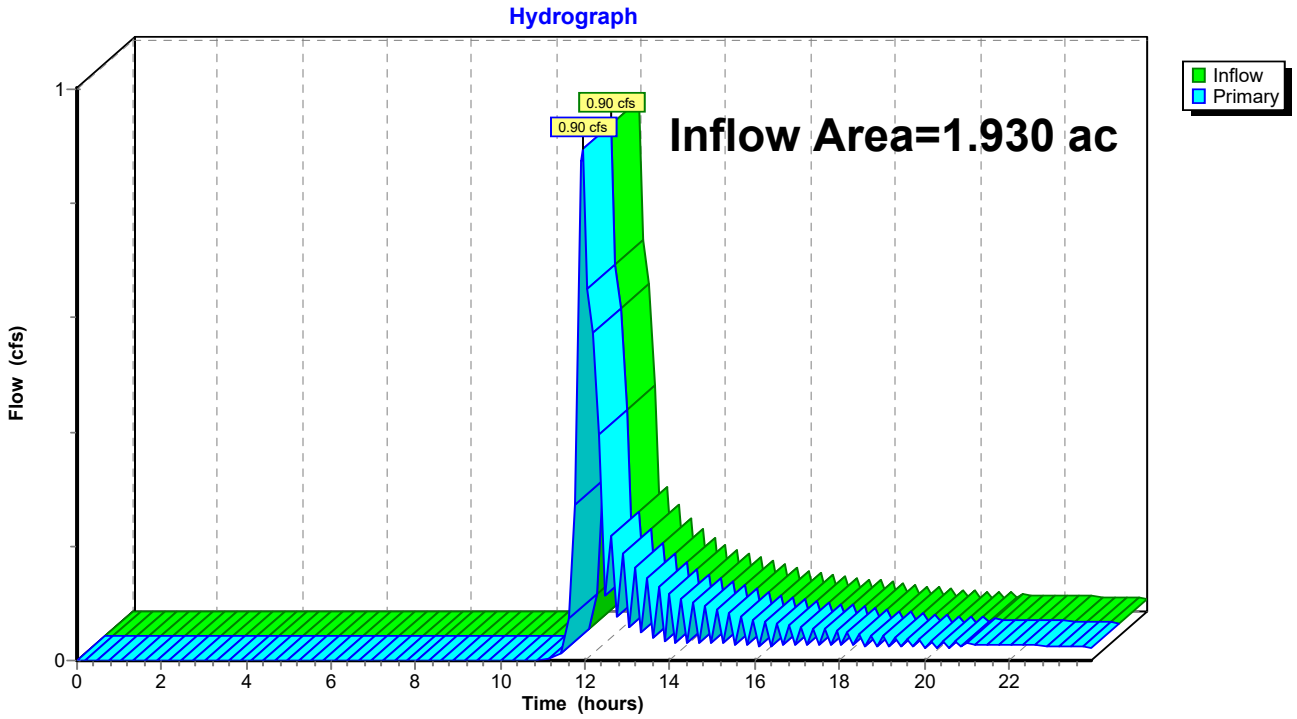
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 0.49" for 2-yr event
Inflow = 0.90 cfs @ 11.93 hrs, Volume= 0.080 af
Primary = 0.90 cfs @ 11.93 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>1.27"
Tc=0.0 min CN=80 Runoff=0.78 cfs 0.038 af

Subcatchment2S: West Ponding Area Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>0.92"
Tc=0.0 min CN=74 Runoff=0.67 cfs 0.033 af

Subcatchment3S: Center Ponding Area Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>0.92"
Tc=0.0 min CN=74 Runoff=0.26 cfs 0.013 af

Subcatchment4S: East Ponding Area Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>0.92"
Tc=0.0 min CN=74 Runoff=0.33 cfs 0.016 af

Subcatchment5S: South Ponding Area Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>1.27"
Tc=0.0 min CN=80 Runoff=1.10 cfs 0.053 af

Subcatchment6S: Area to 6" Culvert Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>1.27"
Tc=0.0 min CN=80 Runoff=0.57 cfs 0.028 af

Pond 2P: 3S PONDING Peak Elev=575.34' Storage=553 cf Inflow=0.26 cfs 0.013 af
Outflow=0.00 cfs 0.000 af

Pond 3P: 5S PONDING Peak Elev=575.13' Storage=408 cf Inflow=2.02 cfs 0.101 af
Outflow=1.65 cfs 0.097 af

Pond 4P: 6S PONDING Peak Elev=574.90' Storage=666 cf Inflow=2.20 cfs 0.125 af
Outflow=2.30 cfs 0.125 af

Pond 5P: 2S PONDING Peak Elev=575.44' Storage=0 cf Inflow=0.67 cfs 0.033 af
Outflow=0.67 cfs 0.033 af

Pond 6P: 4S PONDING Peak Elev=575.59' Storage=111 cf Inflow=0.33 cfs 0.016 af
Outflow=0.27 cfs 0.014 af

Link 1L: Discharge to the North Inflow=0.78 cfs 0.038 af
Primary=0.78 cfs 0.038 af

Link 2L: Discharge to Ellicott Creek Inflow=2.30 cfs 0.125 af
Primary=2.30 cfs 0.125 af

Link 3L: Total Site Flow Inflow=2.49 cfs 0.162 af
Primary=2.49 cfs 0.162 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.180 af Average Runoff Depth = 1.12"
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

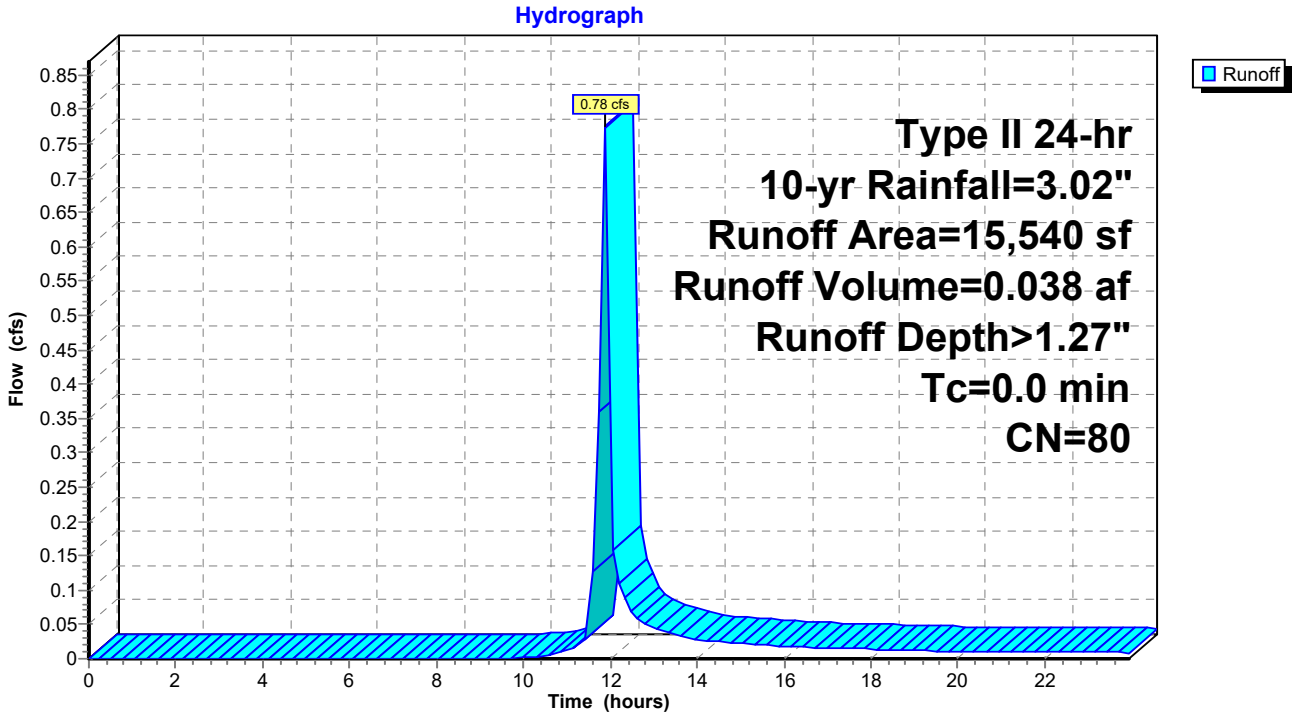
Summary for Subcatchment 1S: North Ponding Area

Runoff = 0.78 cfs @ 11.89 hrs, Volume= 0.038 af, Depth> 1.27"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

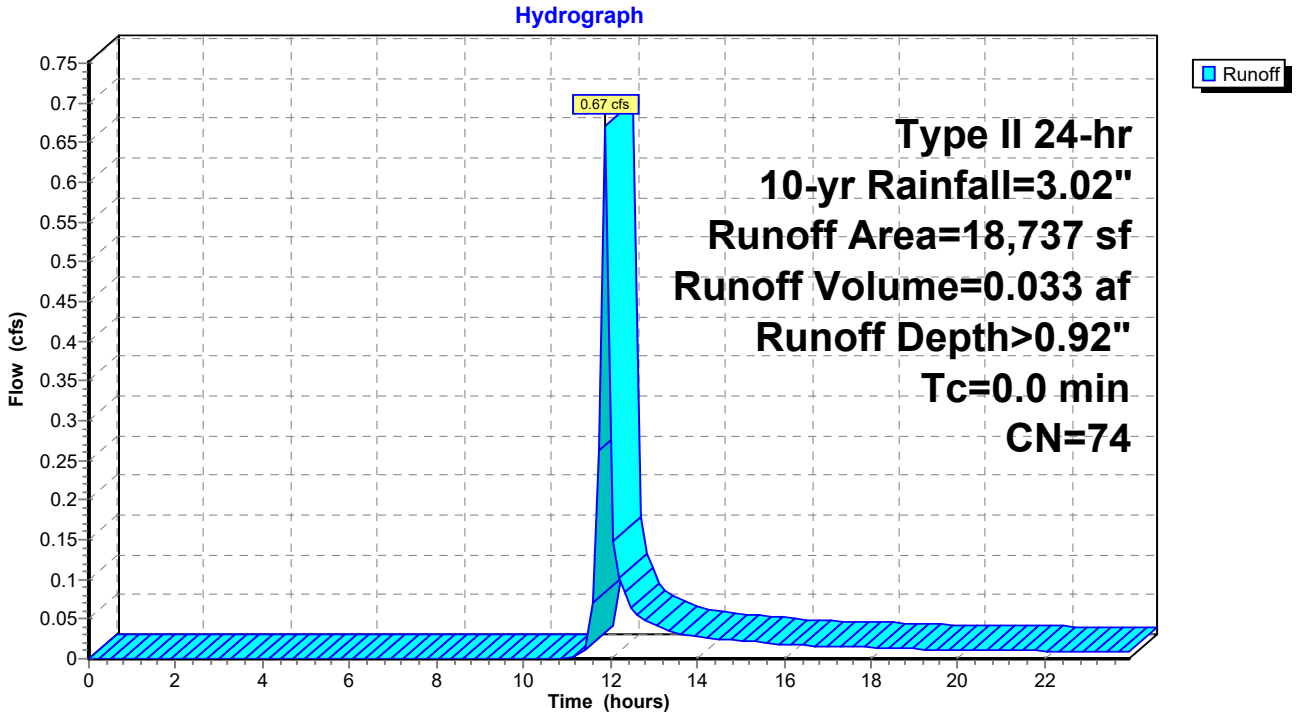
Summary for Subcatchment 2S: West Ponding Area

Runoff = 0.67 cfs @ 11.89 hrs, Volume= 0.033 af, Depth> 0.92"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

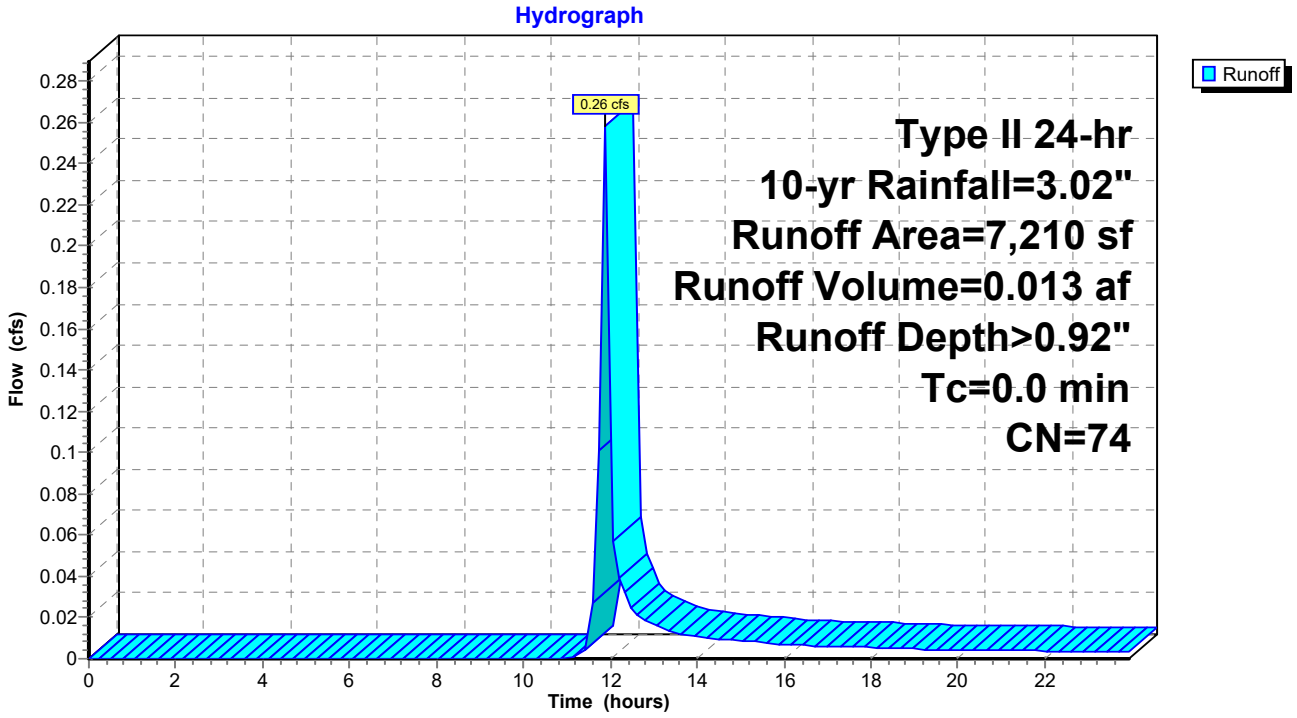
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.26 cfs @ 11.89 hrs, Volume= 0.013 af, Depth> 0.92"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

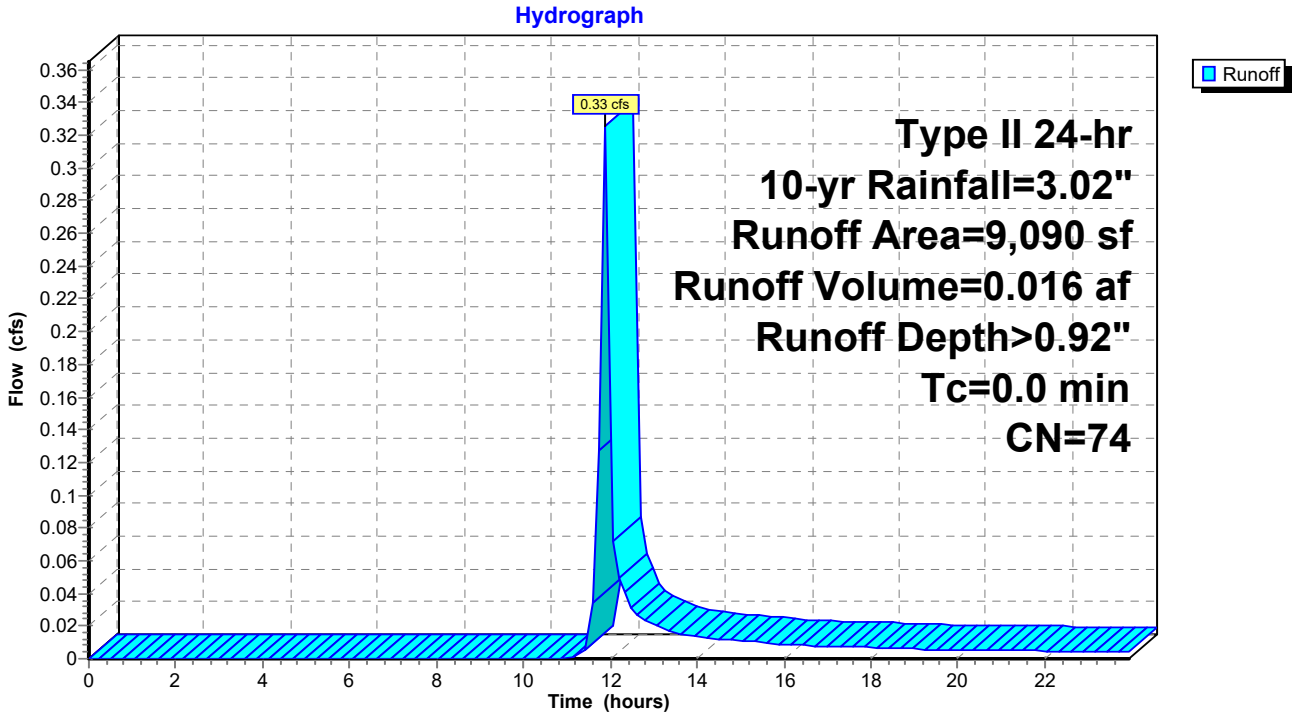
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.33 cfs @ 11.89 hrs, Volume= 0.016 af, Depth> 0.92"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

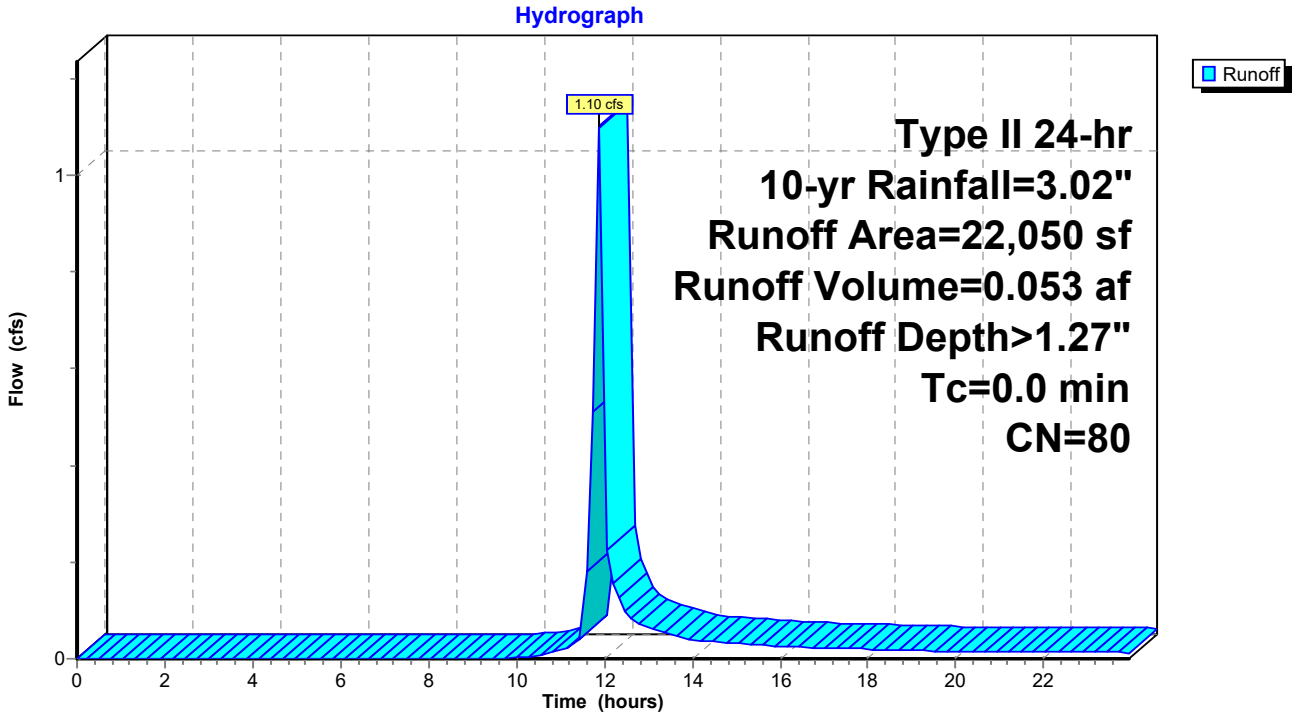
Summary for Subcatchment 5S: South Ponding Area

Runoff = 1.10 cfs @ 11.89 hrs, Volume= 0.053 af, Depth> 1.27"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

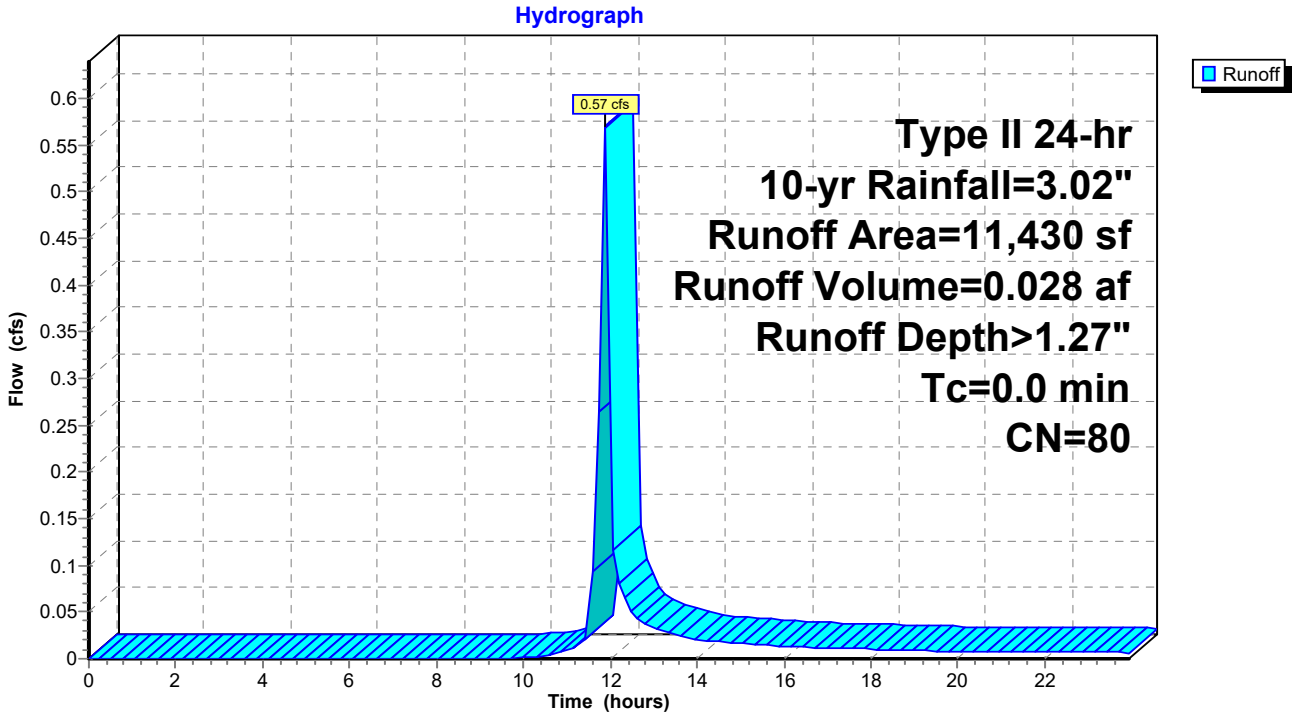
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 0.57 cfs @ 11.89 hrs, Volume= 0.028 af, Depth> 1.27"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.02"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-yr event
Inflow = 0.26 cfs @ 11.89 hrs, Volume= 0.013 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.34' @ 23.94 hrs Surf.Area= 3,187 sf Storage= 553 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

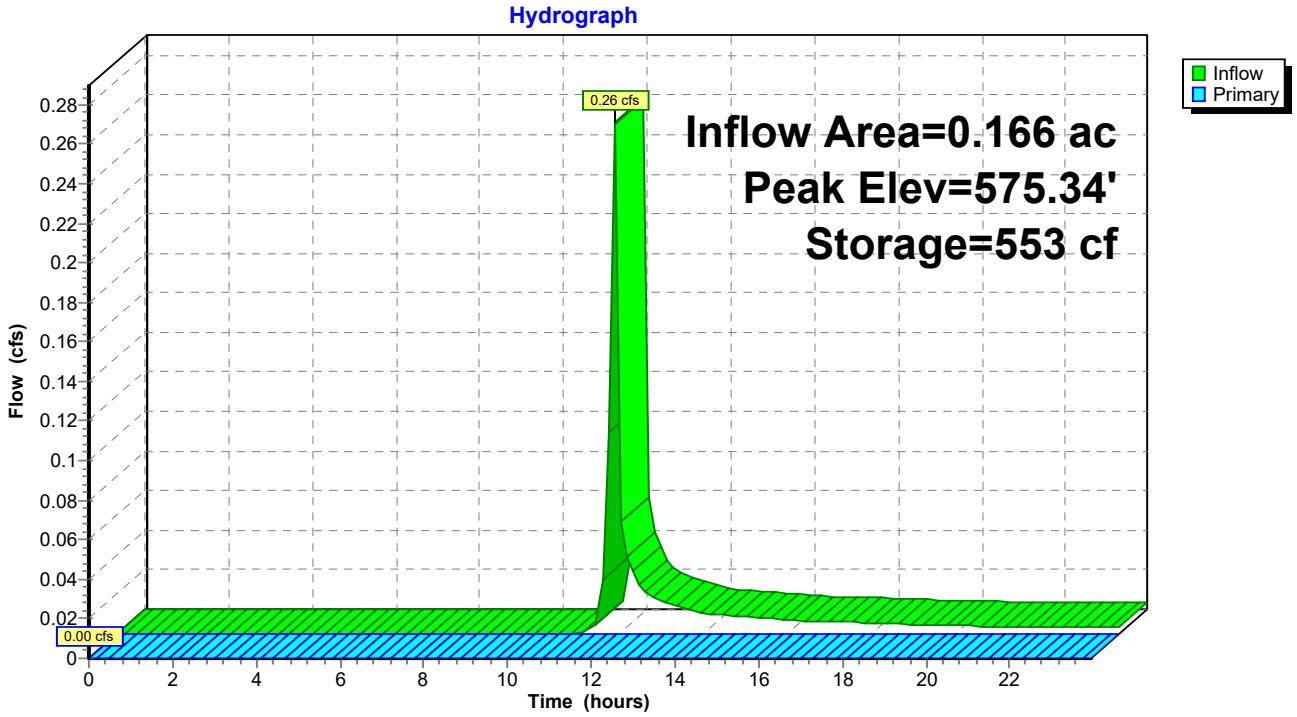
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.94' TW=574.82' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-yr event
Inflow = 2.02 cfs @ 11.89 hrs, Volume= 0.101 af
Outflow = 1.65 cfs @ 11.93 hrs, Volume= 0.097 af, Atten= 18%, Lag= 2.0 min
Primary = 1.65 cfs @ 11.93 hrs, Volume= 0.097 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.13' @ 11.93 hrs Surf.Area= 4,023 sf Storage= 408 cf

Plug-Flow detention time= 28.9 min calculated for 0.096 af (96% of inflow)
Center-of-Mass det. time= 8.9 min (858.2 - 849.3)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

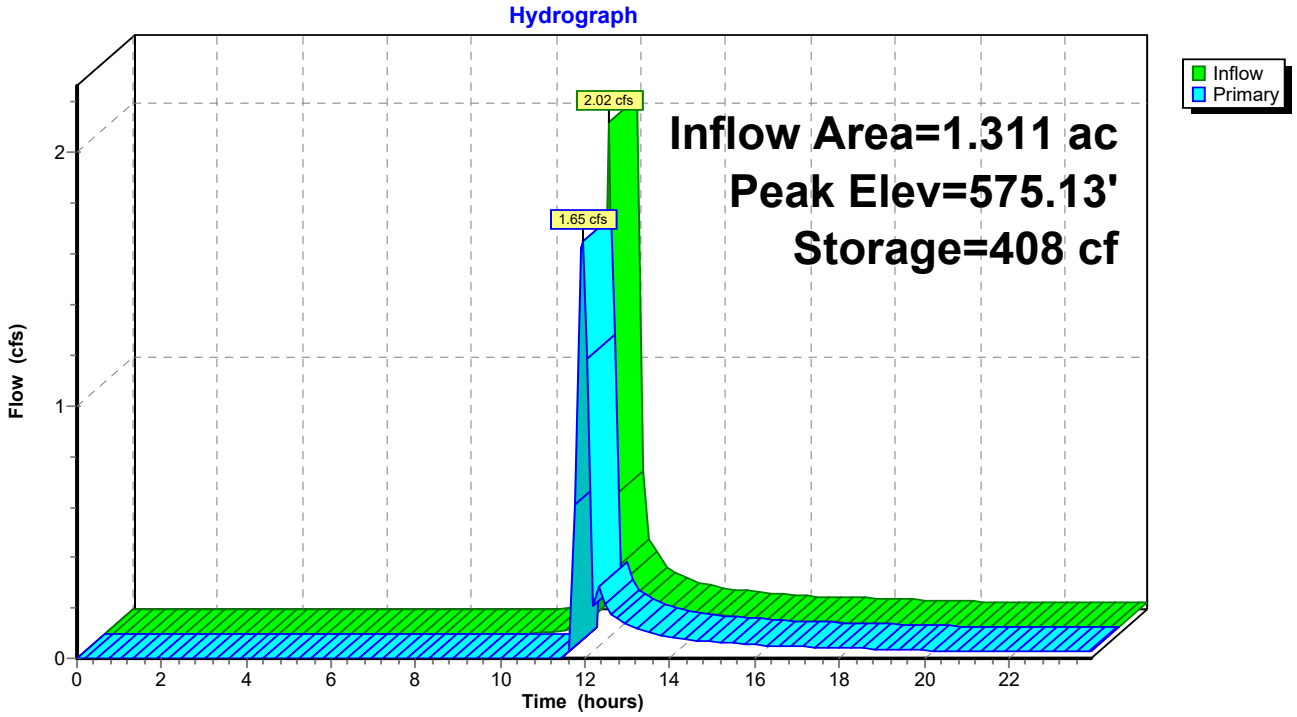
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.53 cfs @ 11.93 hrs HW=575.12' TW=574.83' (Dynamic Tailwater)
↳**1=Sharp-Crested Rectangular Weir** (Weir Controls 1.53 cfs @ 0.94 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.95" for 10-yr event
Inflow = 2.20 cfs @ 11.91 hrs, Volume= 0.125 af
Outflow = 2.30 cfs @ 12.04 hrs, Volume= 0.125 af, Atten= 0%, Lag= 7.3 min
Primary = 2.30 cfs @ 12.04 hrs, Volume= 0.125 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.90' @ 12.00 hrs Surf.Area= 1,475 sf Storage= 666 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.9 min (856.4 - 853.5)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

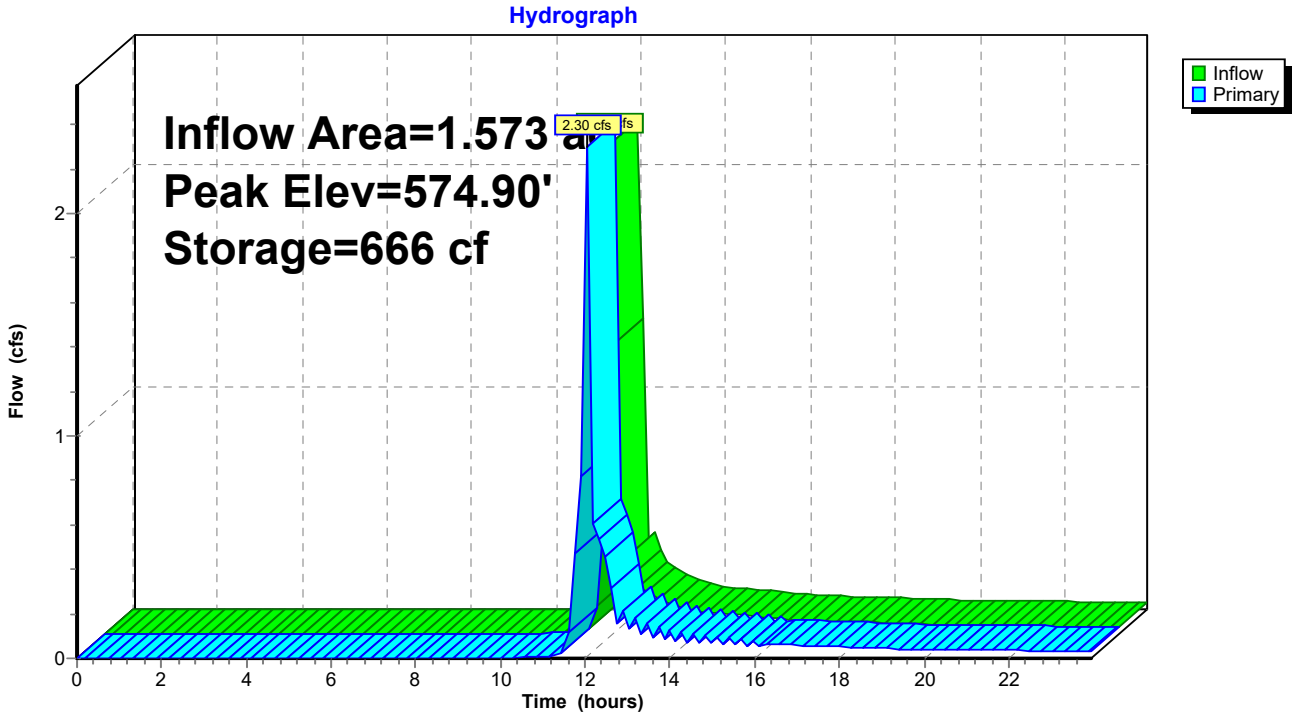
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	**6.0" Round 6" CULVERT** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.23 cfs @ 12.04 hrs HW=574.88' TW=0.00' (Dynamic Tailwater)
└─**1=6" CULVERT** (Inlet Controls 0.72 cfs @ 3.67 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.51 cfs @ 0.93 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-yr event
Inflow = 0.67 cfs @ 11.89 hrs, Volume= 0.033 af
Outflow = 0.67 cfs @ 11.89 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 11.89 hrs, Volume= 0.033 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

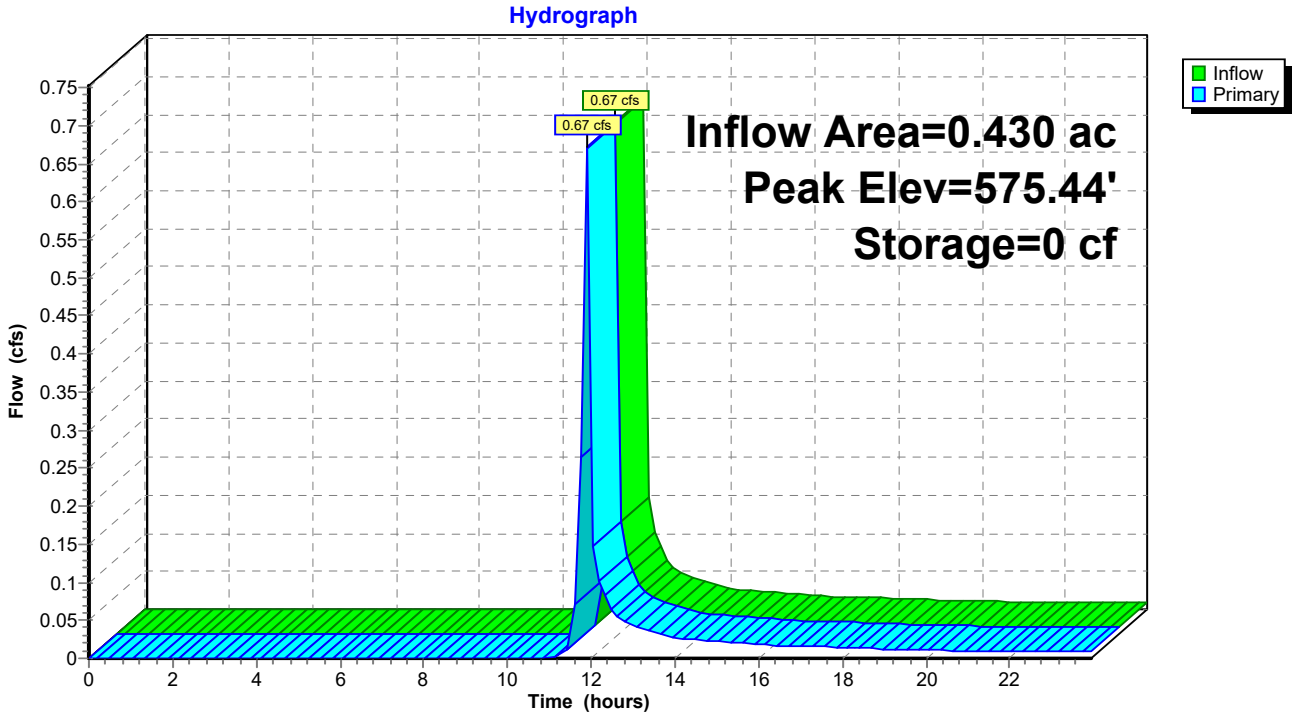
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.89 hrs HW=575.44' TW=575.12' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Passes 0.00 cfs of 14.36 cfs potential flow)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-yr event
Inflow = 0.33 cfs @ 11.89 hrs, Volume= 0.016 af
Outflow = 0.27 cfs @ 11.94 hrs, Volume= 0.014 af, Atten= 18%, Lag= 2.7 min
Primary = 0.27 cfs @ 11.94 hrs, Volume= 0.014 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.59' @ 11.95 hrs Surf.Area= 1,487 sf Storage= 111 cf

Plug-Flow detention time= 74.0 min calculated for 0.014 af (89% of inflow)
Center-of-Mass det. time= 21.0 min (877.9 - 856.9)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

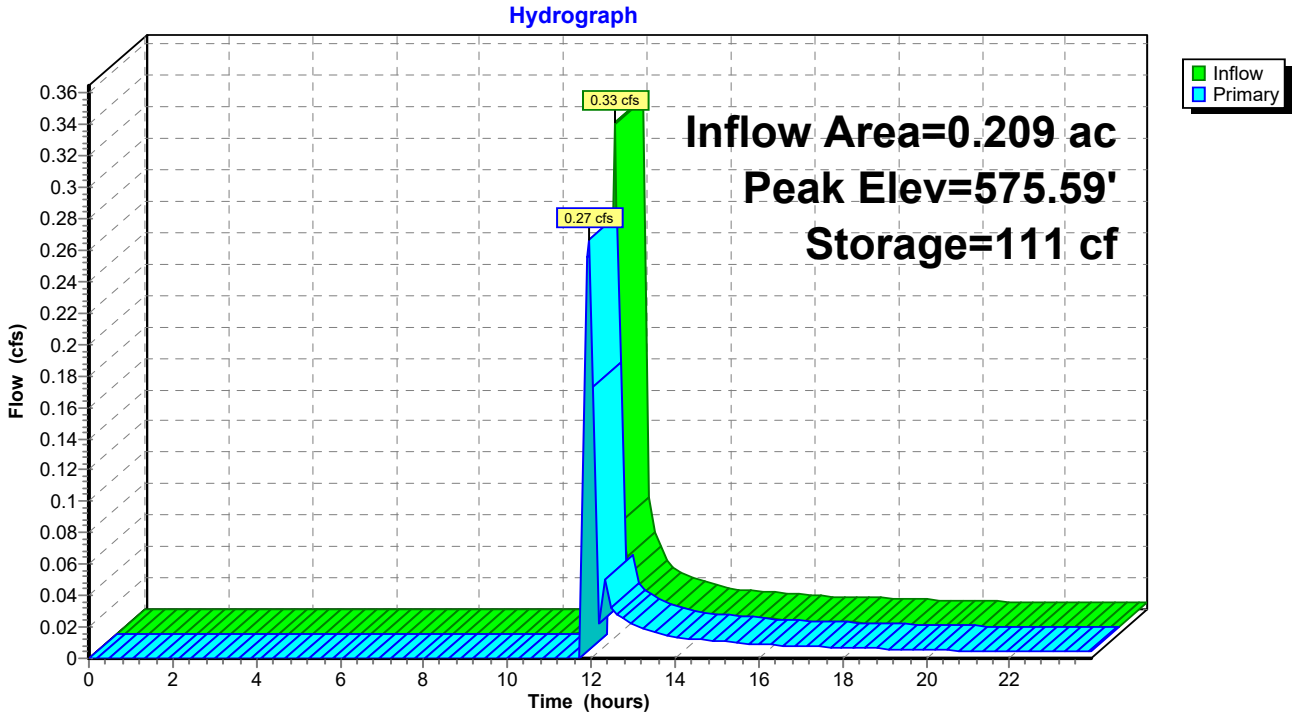
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.23 cfs @ 11.94 hrs HW=575.58' TW=575.12' (Dynamic Tailwater)
↳**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.23 cfs @ 0.50 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING



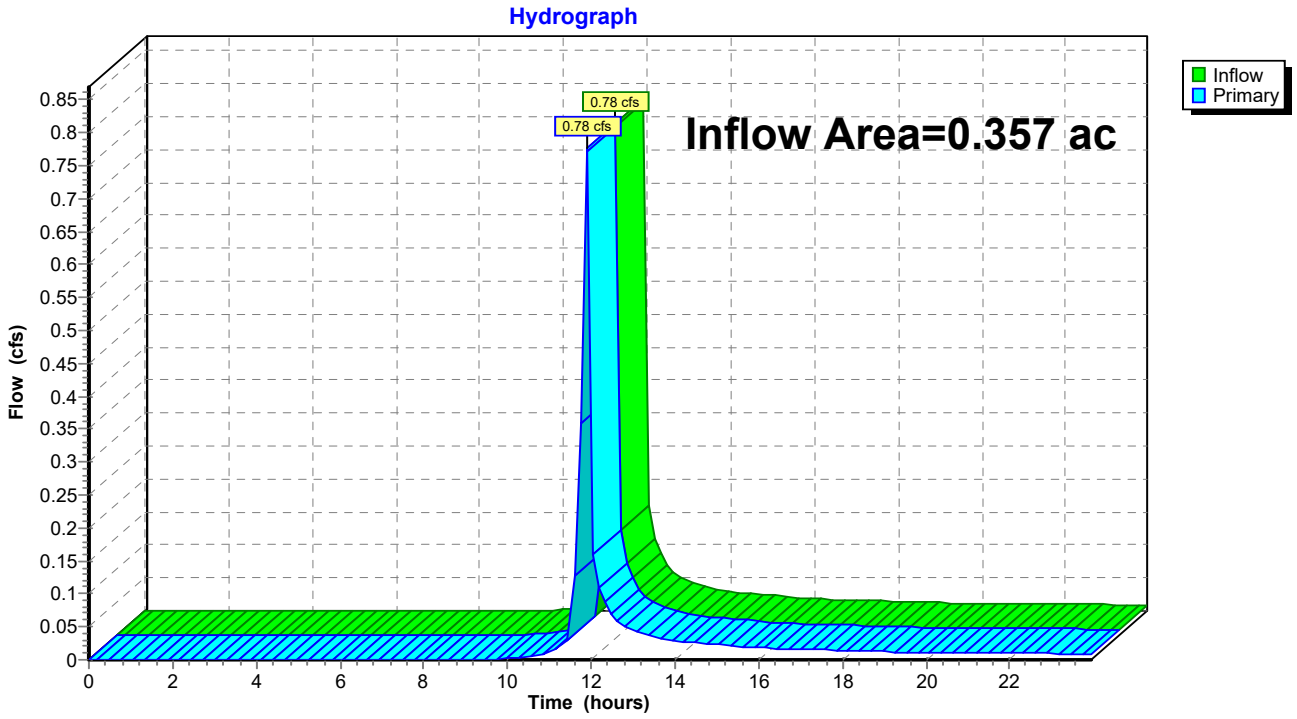
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 1.27" for 10-yr event
Inflow = 0.78 cfs @ 11.89 hrs, Volume= 0.038 af
Primary = 0.78 cfs @ 11.89 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



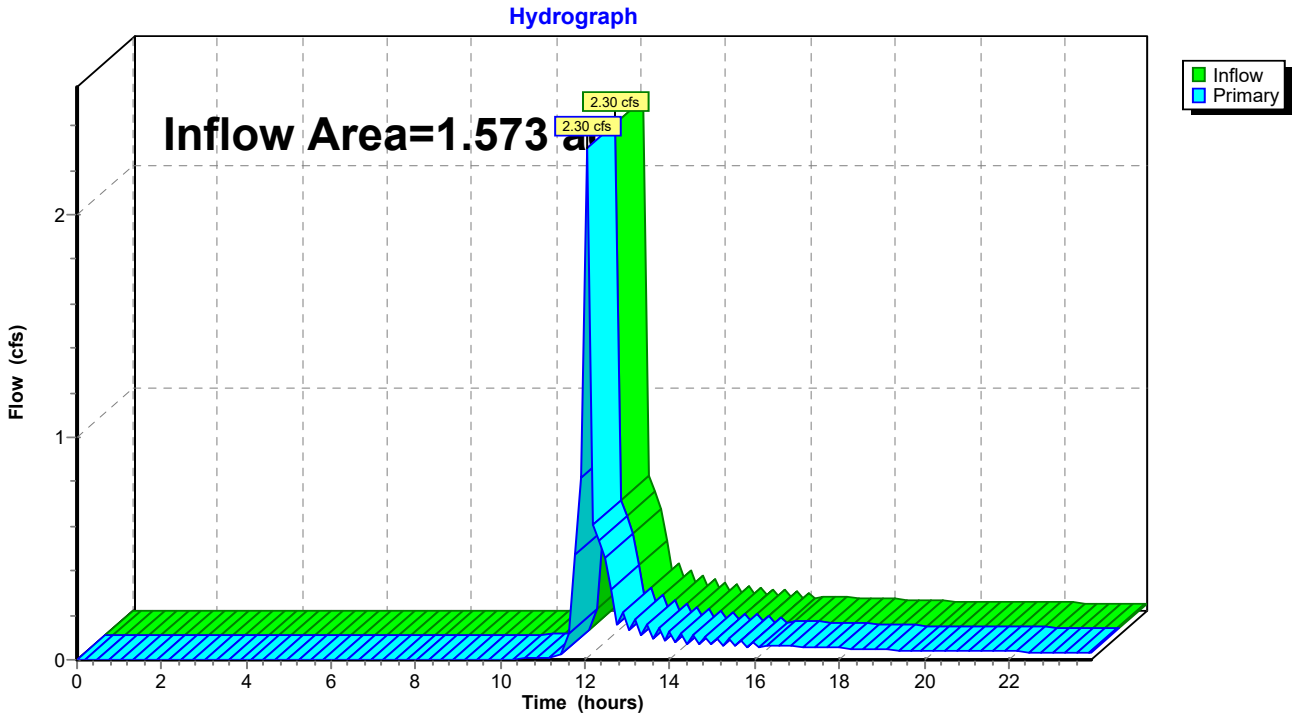
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 0.95" for 10-yr event
Inflow = 2.30 cfs @ 12.04 hrs, Volume= 0.125 af
Primary = 2.30 cfs @ 12.04 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



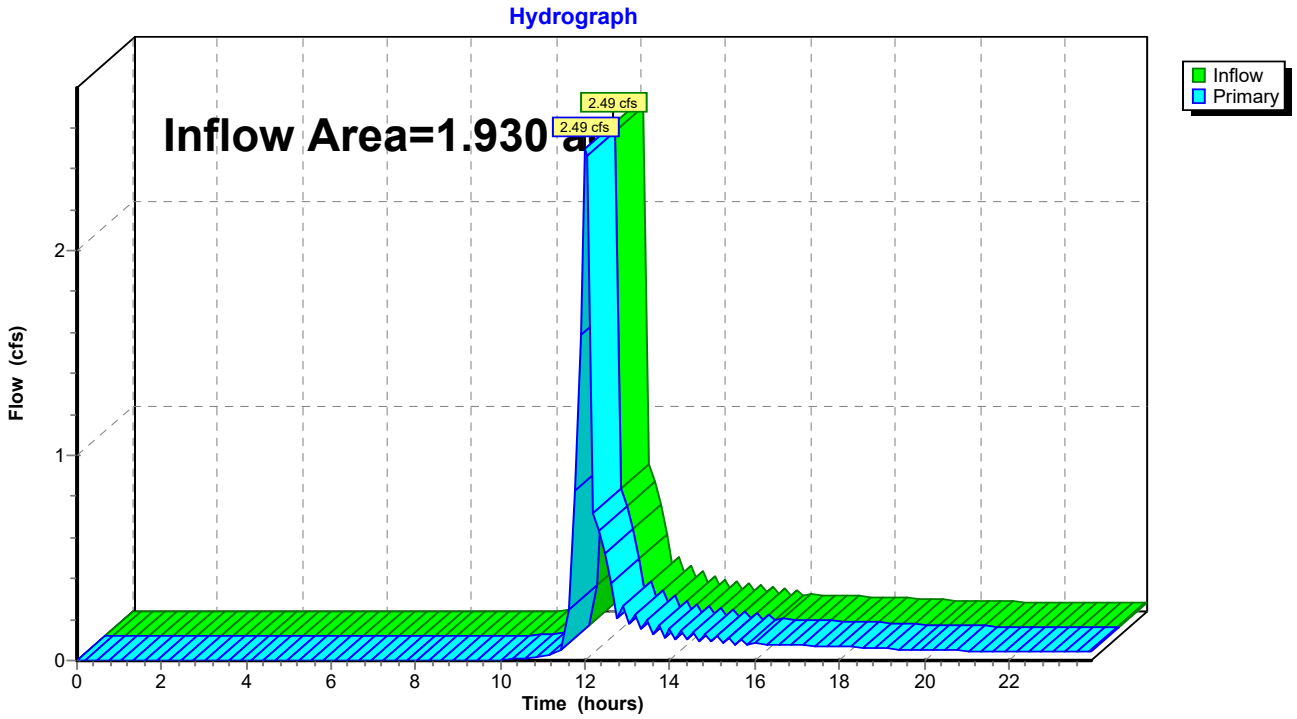
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 1.01" for 10-yr event
Inflow = 2.49 cfs @ 12.02 hrs, Volume= 0.162 af
Primary = 2.49 cfs @ 12.02 hrs, Volume= 0.162 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>1.76"
Tc=0.0 min CN=80 Runoff=1.08 cfs 0.052 af

Subcatchment2S: West Ponding Area Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>1.35"
Tc=0.0 min CN=74 Runoff=1.00 cfs 0.048 af

Subcatchment3S: Center Ponding Area Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>1.35"
Tc=0.0 min CN=74 Runoff=0.38 cfs 0.019 af

Subcatchment4S: East Ponding Area Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>1.35"
Tc=0.0 min CN=74 Runoff=0.48 cfs 0.024 af

Subcatchment5S: South Ponding Area Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>1.76"
Tc=0.0 min CN=80 Runoff=1.53 cfs 0.074 af

Subcatchment6S: Area to 6" Culvert Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>1.76"
Tc=0.0 min CN=80 Runoff=0.79 cfs 0.039 af

Pond 2P: 3S PONDING Peak Elev=575.36' Storage=642 cf Inflow=0.38 cfs 0.019 af
Outflow=0.01 cfs 0.004 af

Pond 3P: 5S PONDING Peak Elev=575.15' Storage=524 cf Inflow=2.98 cfs 0.149 af
Outflow=2.48 cfs 0.145 af

Pond 4P: 6S PONDING Peak Elev=574.92' Storage=693 cf Inflow=3.25 cfs 0.183 af
Outflow=2.79 cfs 0.183 af

Pond 5P: 2S PONDING Peak Elev=575.44' Storage=0 cf Inflow=1.00 cfs 0.048 af
Outflow=1.00 cfs 0.048 af

Pond 6P: 4S PONDING Peak Elev=575.60' Storage=124 cf Inflow=0.48 cfs 0.024 af
Outflow=0.46 cfs 0.022 af

Link 1L: Discharge to the North Inflow=1.08 cfs 0.052 af
Primary=1.08 cfs 0.052 af

Link 2L: Discharge to Ellicott Creek Inflow=2.79 cfs 0.183 af
Primary=2.79 cfs 0.183 af

Link 3L: Total Site Flow Inflow=3.66 cfs 0.236 af
Primary=3.66 cfs 0.236 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.256 af Average Runoff Depth = 1.59"
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

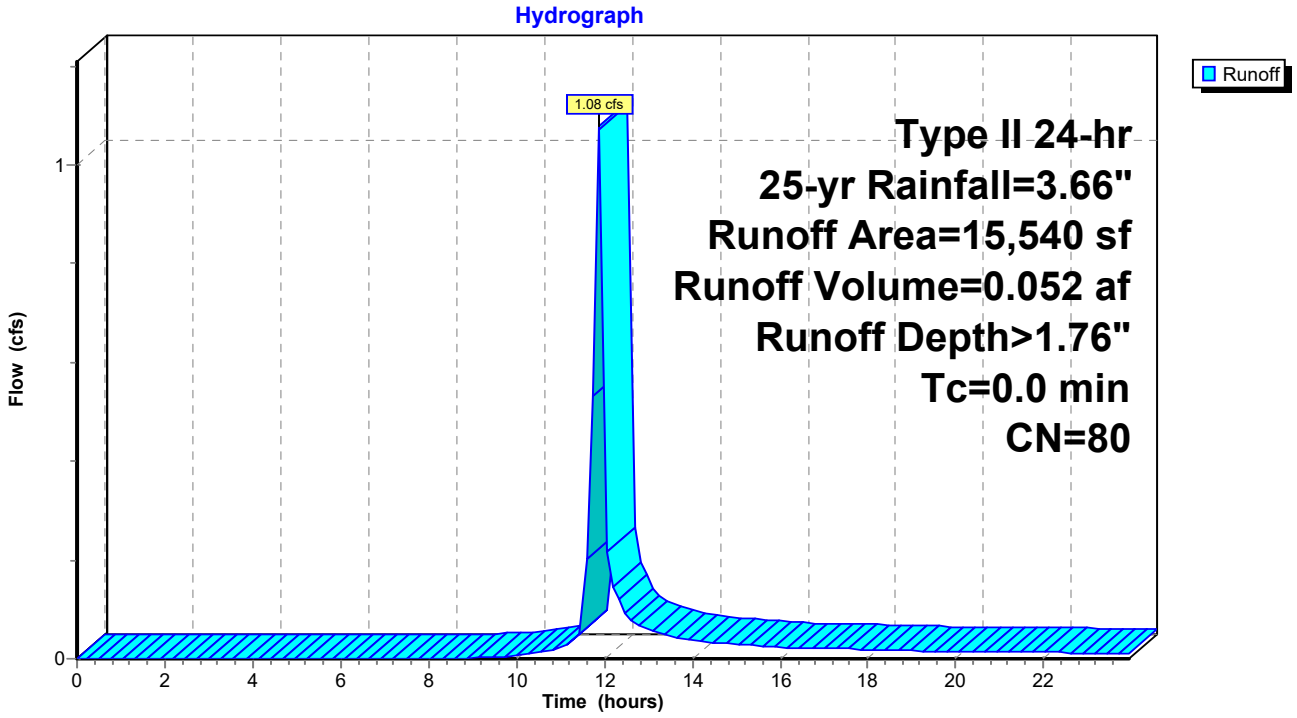
Summary for Subcatchment 1S: North Ponding Area

Runoff = 1.08 cfs @ 11.88 hrs, Volume= 0.052 af, Depth> 1.76"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

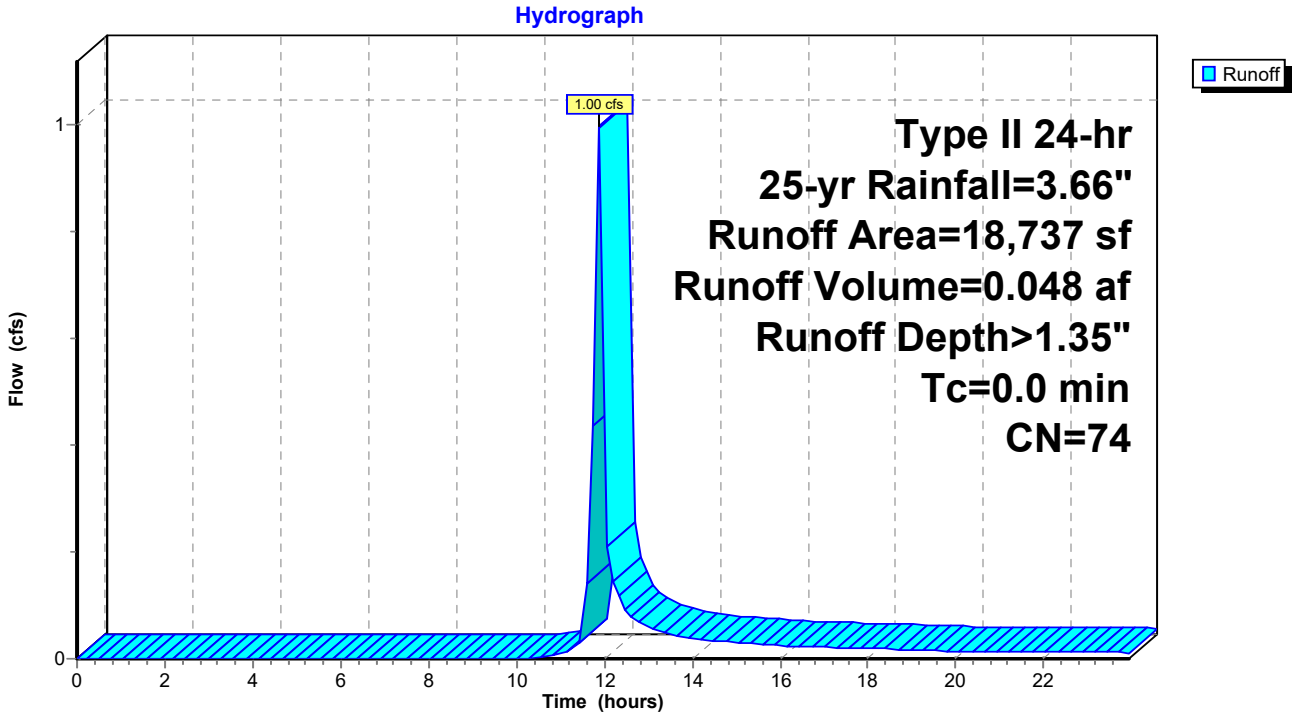
Summary for Subcatchment 2S: West Ponding Area

Runoff = 1.00 cfs @ 11.89 hrs, Volume= 0.048 af, Depth> 1.35"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

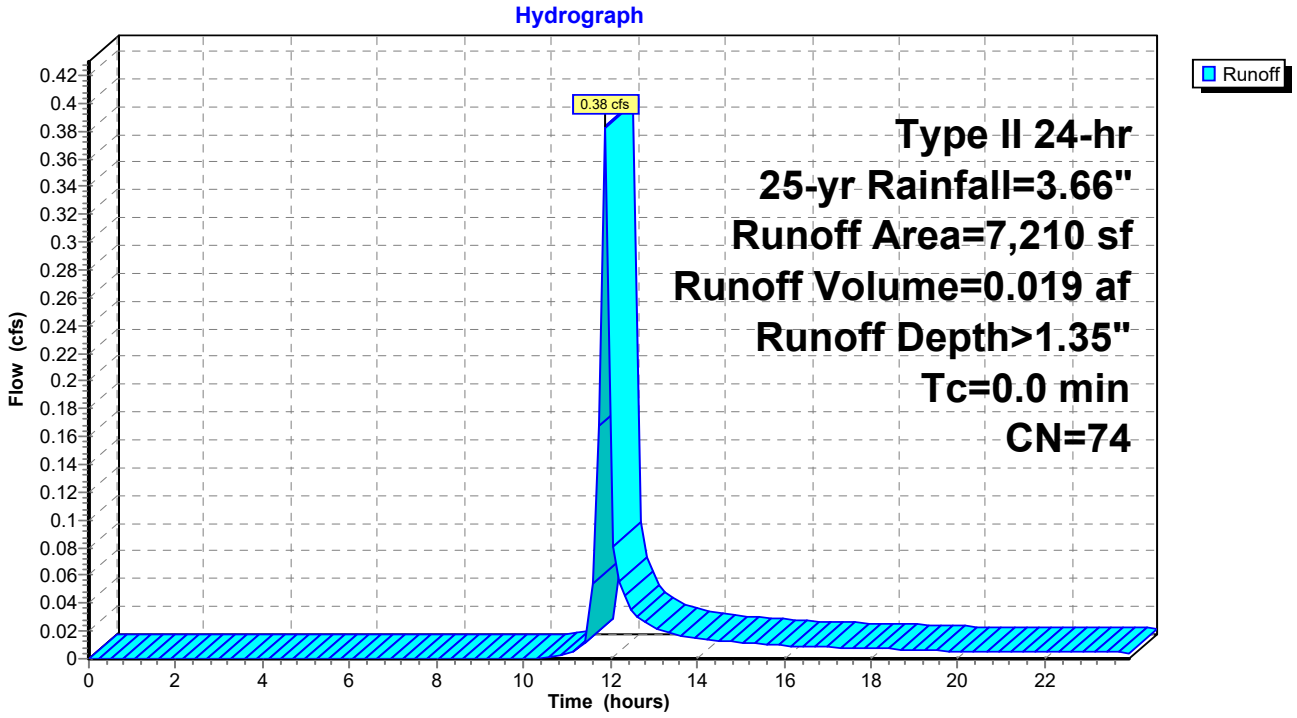
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.38 cfs @ 11.89 hrs, Volume= 0.019 af, Depth> 1.35"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

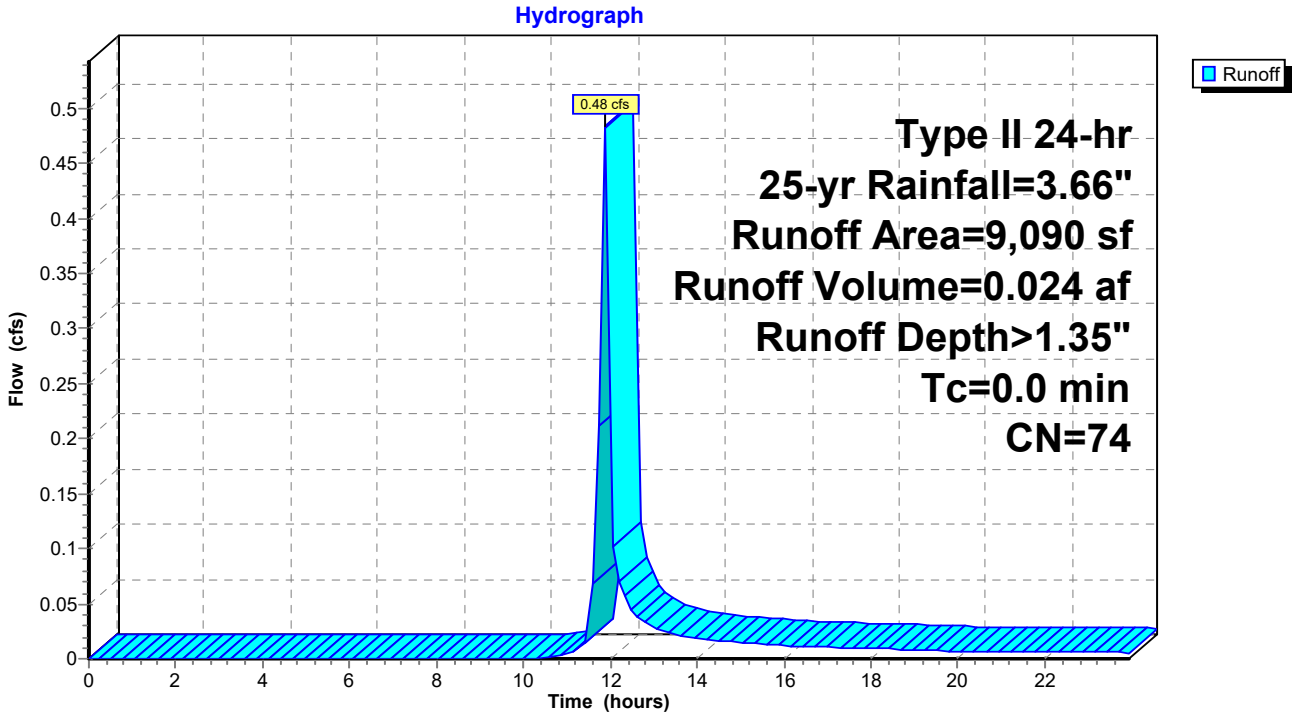
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.48 cfs @ 11.89 hrs, Volume= 0.024 af, Depth> 1.35"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

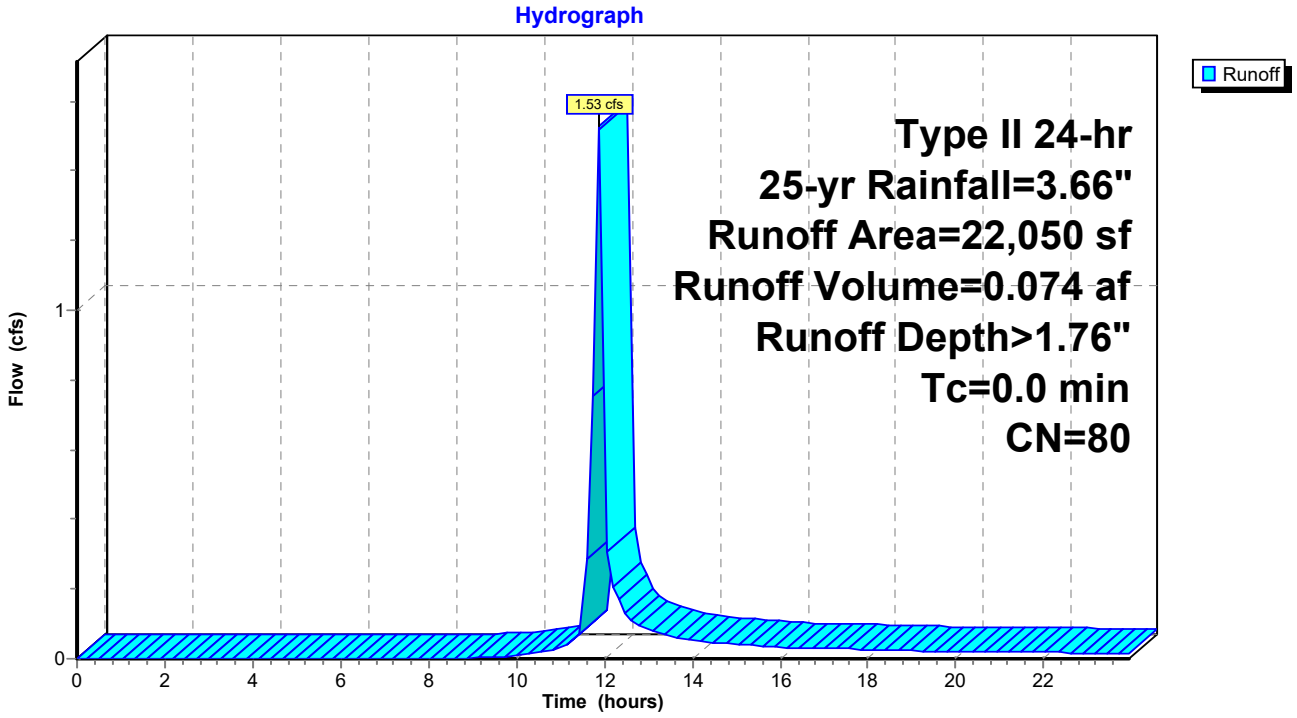
Summary for Subcatchment 5S: South Ponding Area

Runoff = 1.53 cfs @ 11.88 hrs, Volume= 0.074 af, Depth> 1.76"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

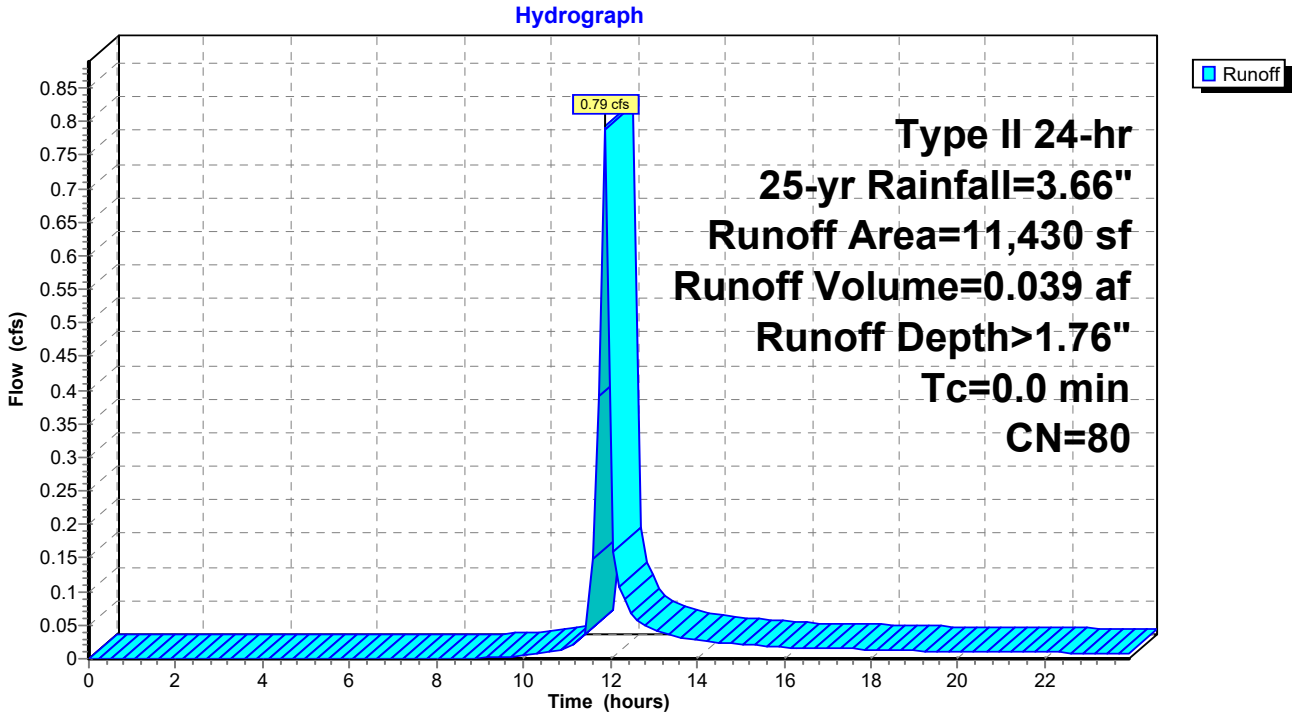
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 0.79 cfs @ 11.88 hrs, Volume= 0.039 af, Depth> 1.76"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.66"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 1.35" for 25-yr event
Inflow = 0.38 cfs @ 11.89 hrs, Volume= 0.019 af
Outflow = 0.01 cfs @ 16.93 hrs, Volume= 0.004 af, Atten= 98%, Lag= 302.7 min
Primary = 0.01 cfs @ 16.93 hrs, Volume= 0.004 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.36' @ 16.93 hrs Surf.Area= 3,437 sf Storage= 642 cf

Plug-Flow detention time= 478.4 min calculated for 0.004 af (21% of inflow)
Center-of-Mass det. time= 337.5 min (1,182.5 - 845.0)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

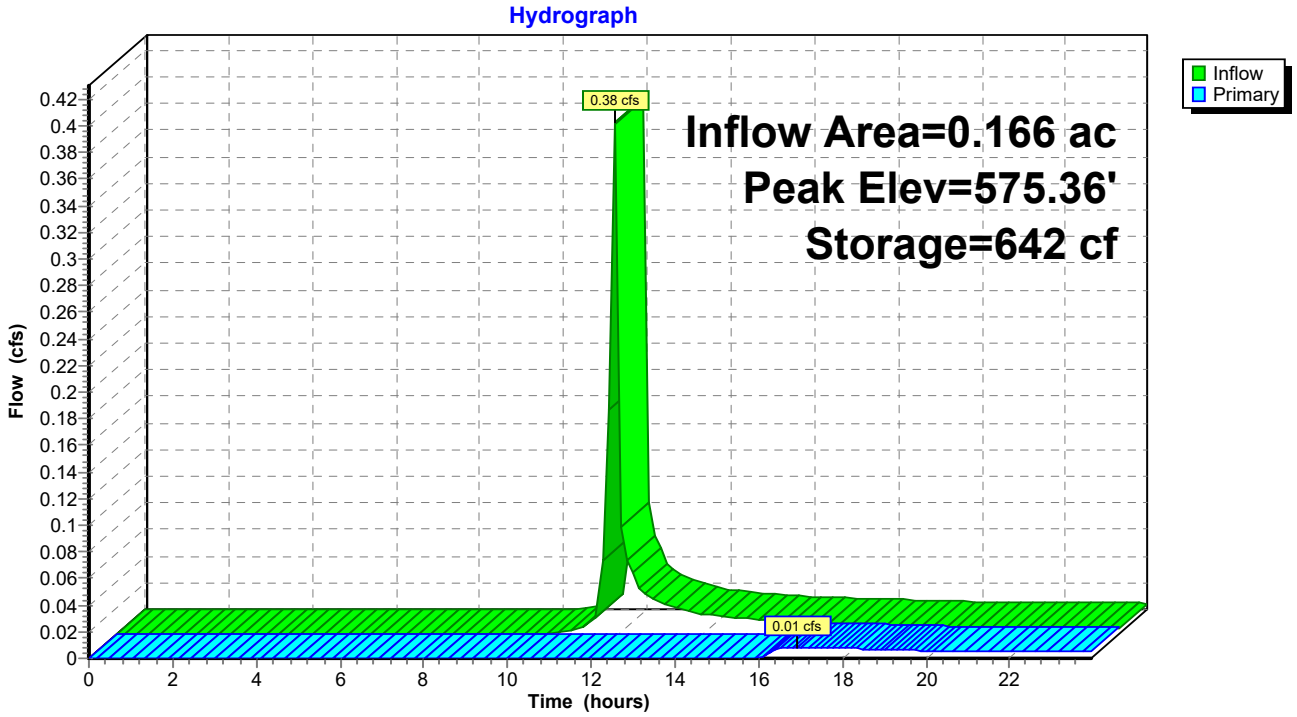
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.01 cfs @ 16.93 hrs HW=575.36' TW=575.05' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.17 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 1.36" for 25-yr event
Inflow = 2.98 cfs @ 11.89 hrs, Volume= 0.149 af
Outflow = 2.48 cfs @ 11.92 hrs, Volume= 0.145 af, Atten= 17%, Lag= 1.9 min
Primary = 2.48 cfs @ 11.92 hrs, Volume= 0.145 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.15' @ 11.92 hrs Surf.Area= 4,663 sf Storage= 524 cf

Plug-Flow detention time= 21.4 min calculated for 0.144 af (97% of inflow)
Center-of-Mass det. time= 7.4 min (854.7 - 847.2)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

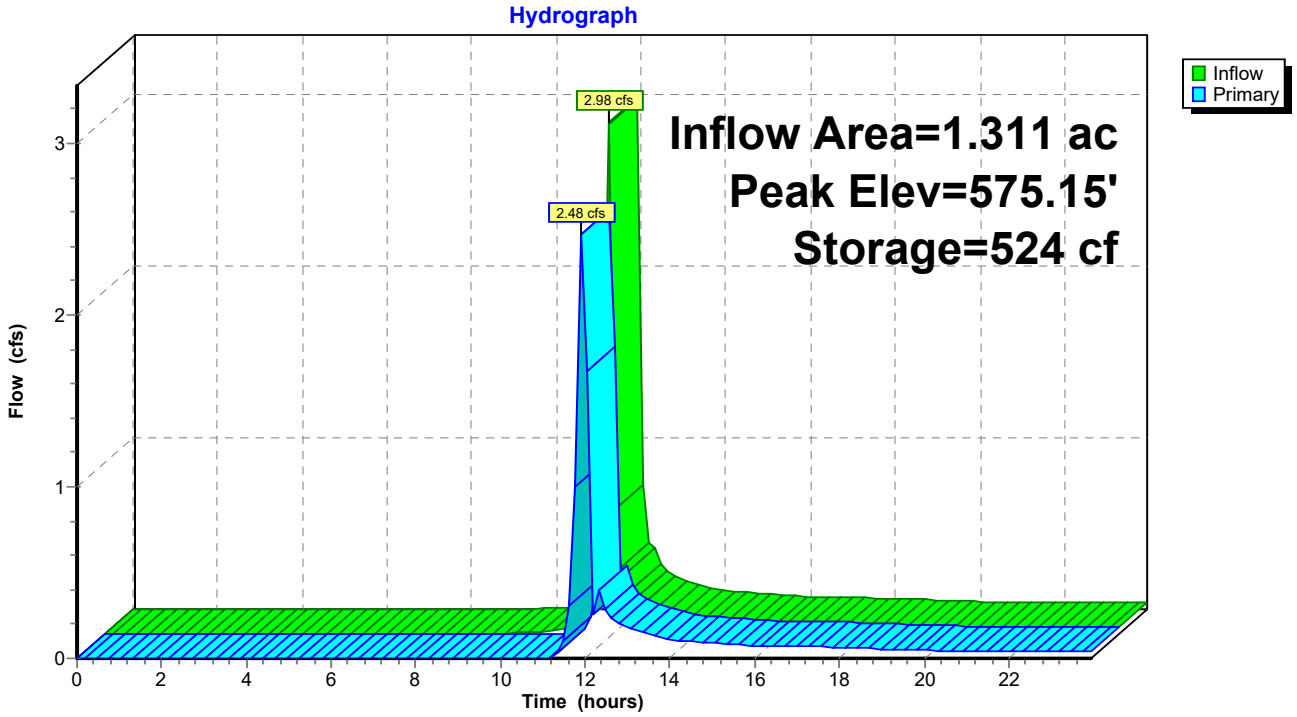
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.33 cfs @ 11.92 hrs HW=575.15' TW=574.89' (Dynamic Tailwater)
↳**1=Sharp-Crested Rectangular Weir** (Weir Controls 2.33 cfs @ 1.08 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 1.40" for 25-yr event
Inflow = 3.25 cfs @ 11.91 hrs, Volume= 0.183 af
Outflow = 2.79 cfs @ 11.98 hrs, Volume= 0.183 af, Atten= 14%, Lag= 4.1 min
Primary = 2.79 cfs @ 11.98 hrs, Volume= 0.183 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.92' @ 11.97 hrs Surf.Area= 1,505 sf Storage= 693 cf

Plug-Flow detention time= 2.9 min calculated for 0.183 af (100% of inflow)
Center-of-Mass det. time= 2.8 min (851.7 - 848.9)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

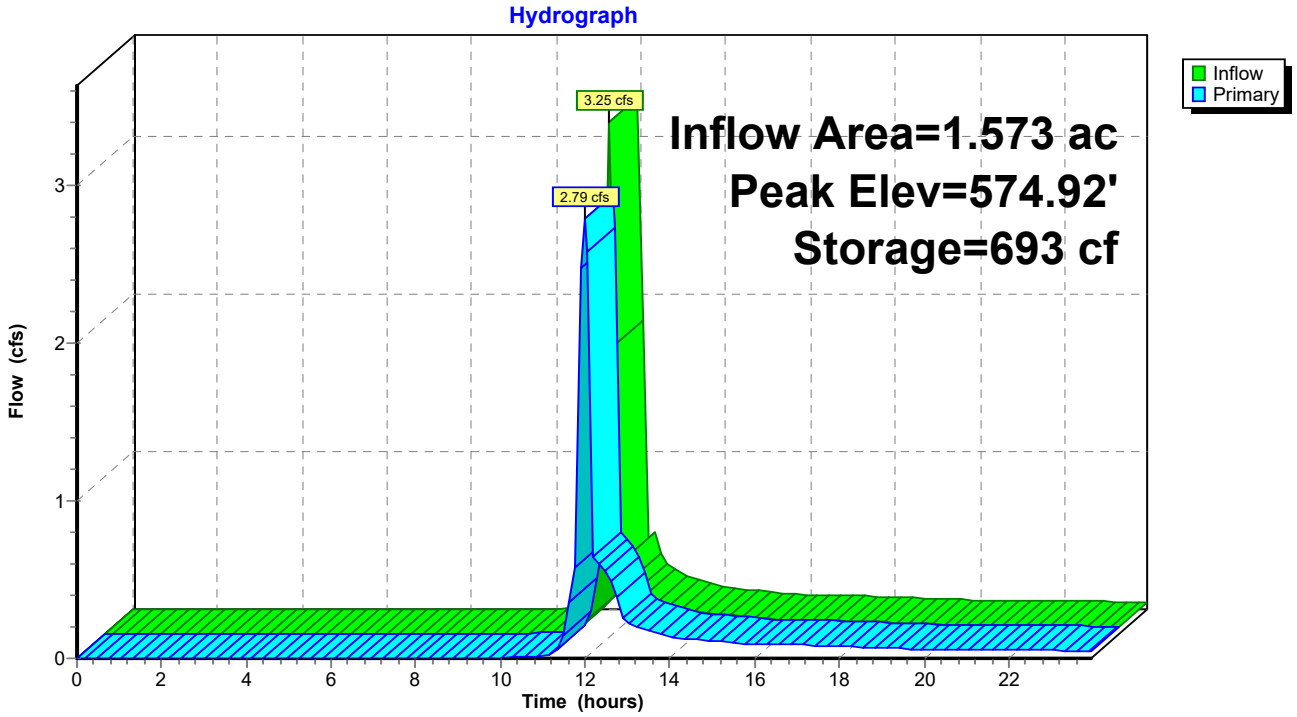
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	**6.0" Round 6" CULVERT** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.53 cfs @ 11.98 hrs HW=574.89' TW=0.00' (Dynamic Tailwater)
└─**1=6" CULVERT** (Inlet Controls 0.72 cfs @ 3.69 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.81 cfs @ 0.99 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 1.35" for 25-yr event
Inflow = 1.00 cfs @ 11.89 hrs, Volume= 0.048 af
Outflow = 1.00 cfs @ 11.89 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min
Primary = 1.00 cfs @ 11.89 hrs, Volume= 0.048 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (845.0 - 845.0)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

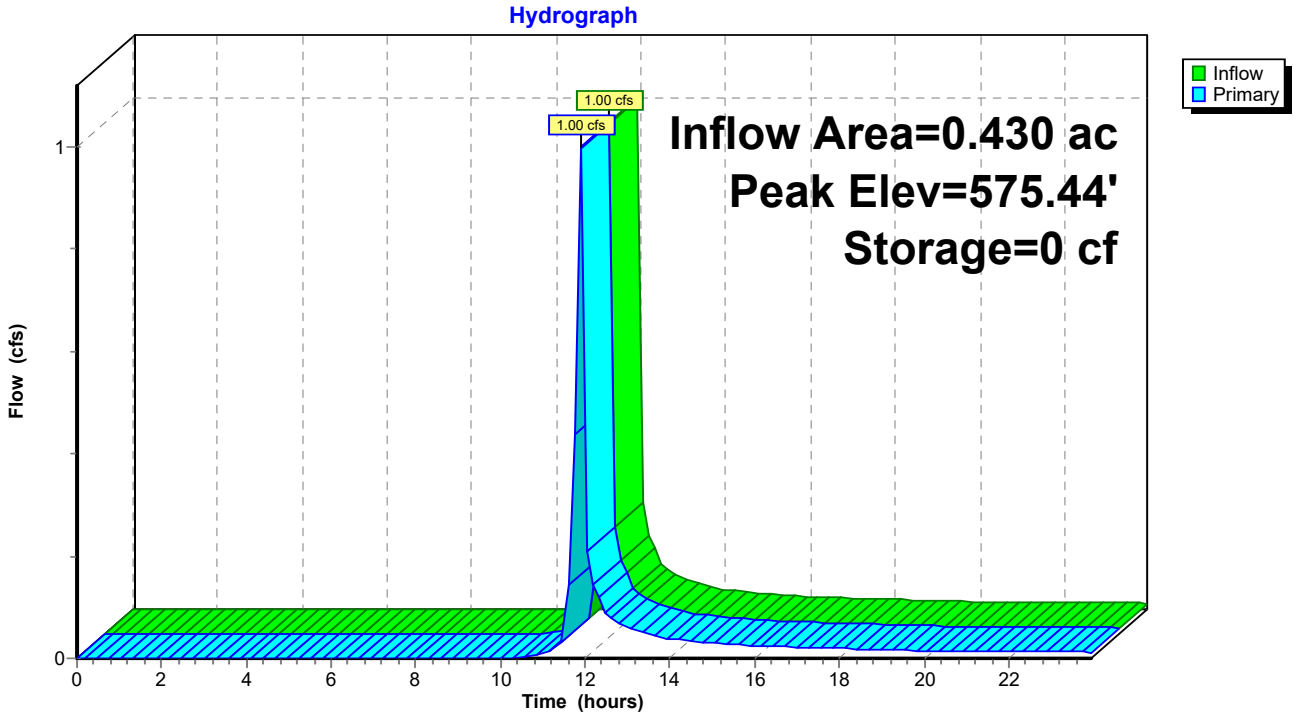
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.89 hrs HW=575.44' TW=575.15' (Dynamic Tailwater)
↑**1=Sharp-Crested Rectangular Weir** (Passes 0.00 cfs of 14.10 cfs potential flow)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 1.35" for 25-yr event
Inflow = 0.48 cfs @ 11.89 hrs, Volume= 0.024 af
Outflow = 0.46 cfs @ 11.91 hrs, Volume= 0.022 af, Atten= 5%, Lag= 1.5 min
Primary = 0.46 cfs @ 11.91 hrs, Volume= 0.022 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.60' @ 11.92 hrs Surf.Area= 1,576 sf Storage= 124 cf

Plug-Flow detention time= 52.6 min calculated for 0.022 af (92% of inflow)
Center-of-Mass det. time= 14.4 min (859.4 - 845.0)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

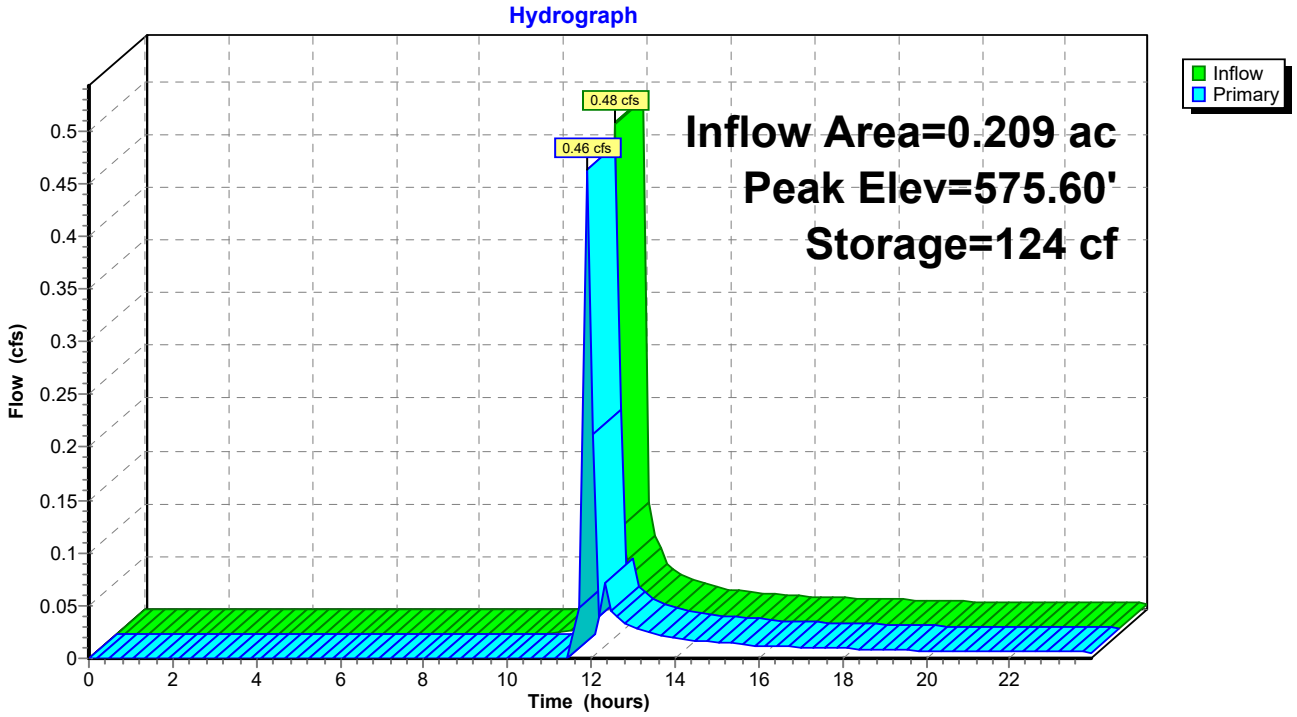
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.43 cfs @ 11.91 hrs HW=575.60' TW=575.15' (Dynamic Tailwater)
↑**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.43 cfs @ 0.61 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING



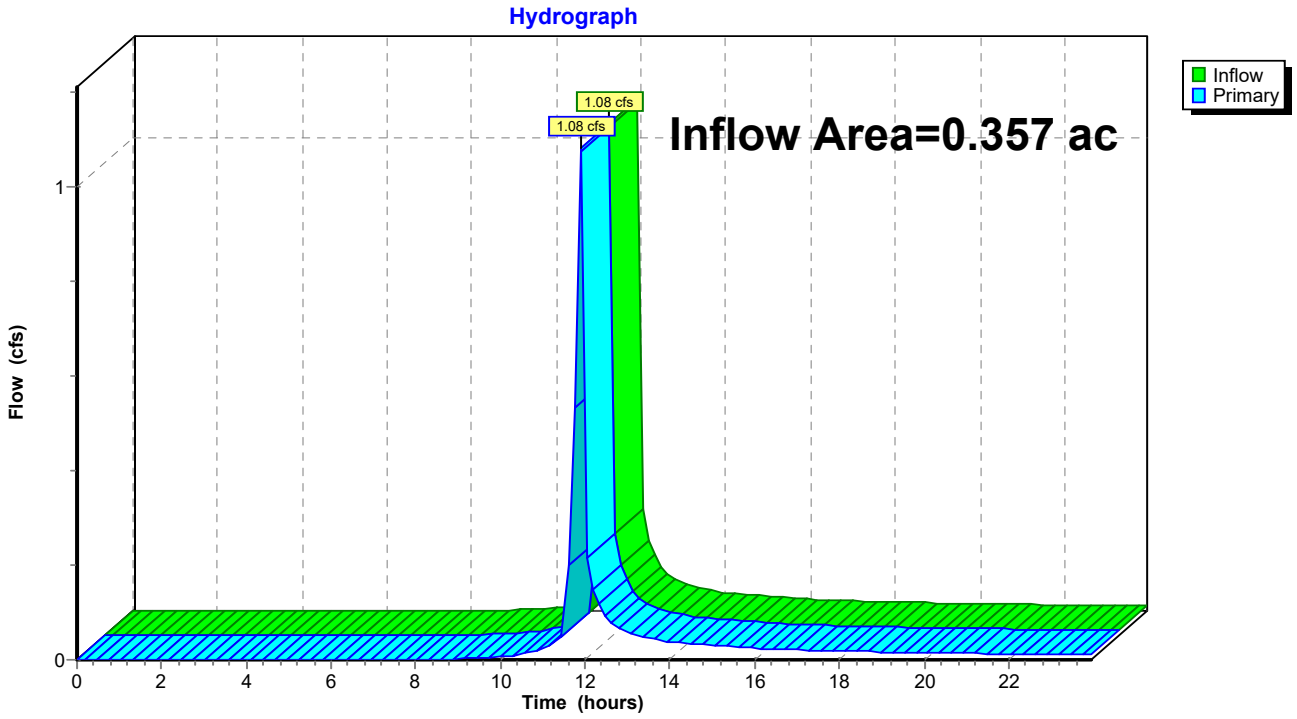
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 1.76" for 25-yr event
Inflow = 1.08 cfs @ 11.88 hrs, Volume= 0.052 af
Primary = 1.08 cfs @ 11.88 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



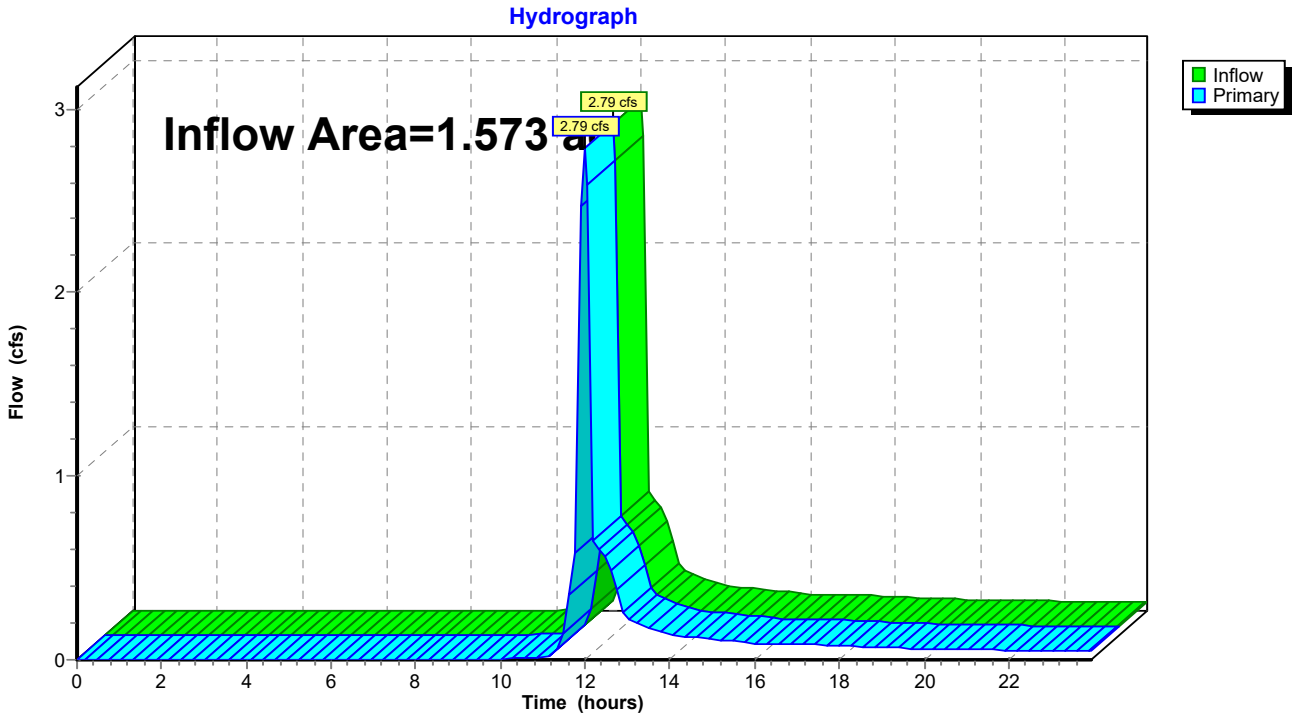
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 1.40" for 25-yr event
Inflow = 2.79 cfs @ 11.98 hrs, Volume= 0.183 af
Primary = 2.79 cfs @ 11.98 hrs, Volume= 0.183 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



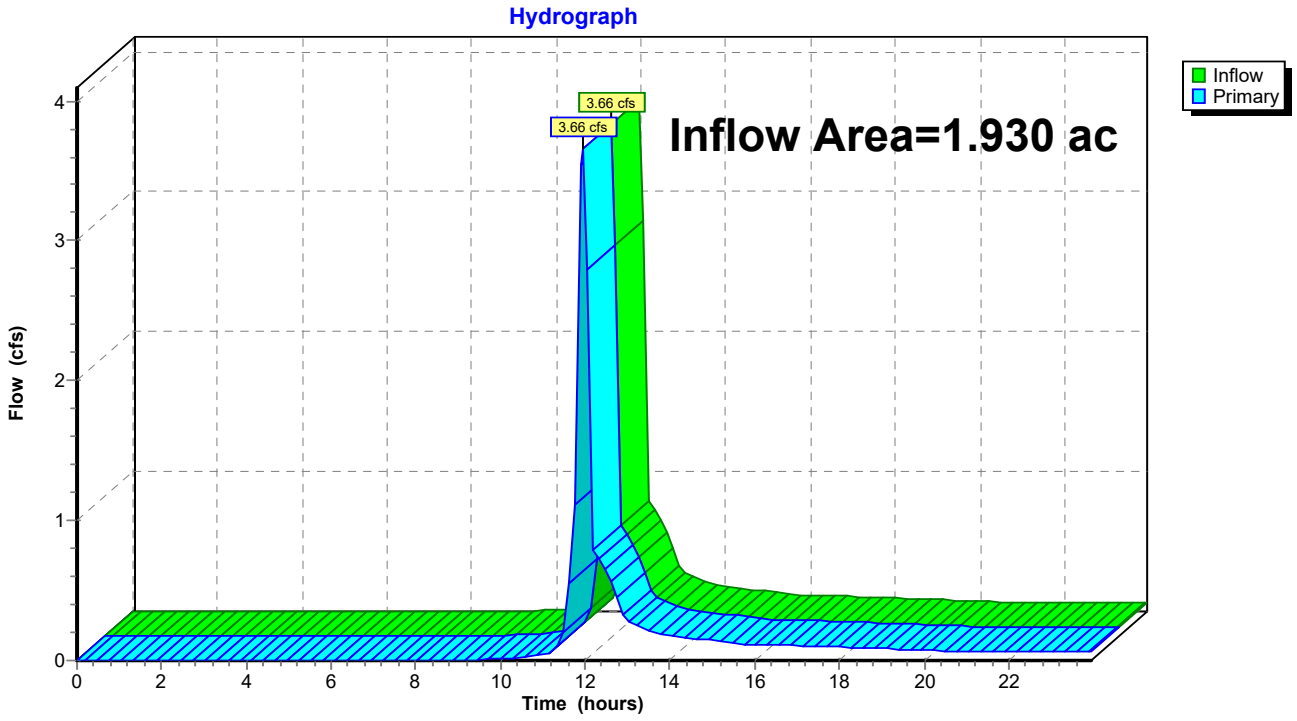
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 1.47" for 25-yr event
Inflow = 3.66 cfs @ 11.94 hrs, Volume= 0.236 af
Primary = 3.66 cfs @ 11.94 hrs, Volume= 0.236 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: North Ponding Area Runoff Area=15,540 sf 0.00% Impervious Runoff Depth>2.81"
Tc=0.0 min CN=80 Runoff=1.70 cfs 0.084 af

Subcatchment2S: West Ponding Area Runoff Area=18,737 sf 0.00% Impervious Runoff Depth>2.29"
Tc=0.0 min CN=74 Runoff=1.69 cfs 0.082 af

Subcatchment3S: Center Ponding Area Runoff Area=7,210 sf 0.00% Impervious Runoff Depth>2.29"
Tc=0.0 min CN=74 Runoff=0.65 cfs 0.032 af

Subcatchment4S: East Ponding Area Runoff Area=9,090 sf 0.00% Impervious Runoff Depth>2.29"
Tc=0.0 min CN=74 Runoff=0.82 cfs 0.040 af

Subcatchment5S: South Ponding Area Runoff Area=22,050 sf 0.00% Impervious Runoff Depth>2.81"
Tc=0.0 min CN=80 Runoff=2.41 cfs 0.119 af

Subcatchment6S: Area to 6" Culvert Runoff Area=11,430 sf 0.00% Impervious Runoff Depth>2.81"
Tc=0.0 min CN=80 Runoff=1.25 cfs 0.062 af

Pond 2P: 3S PONDING Peak Elev=575.37' Storage=676 cf Inflow=0.65 cfs 0.032 af
Outflow=0.10 cfs 0.017 af

Pond 3P: 5S PONDING Peak Elev=575.20' Storage=757 cf Inflow=4.84 cfs 0.256 af
Outflow=4.09 cfs 0.252 af

Pond 4P: 6S PONDING Peak Elev=574.98' Storage=798 cf Inflow=5.31 cfs 0.314 af
Outflow=5.86 cfs 0.314 af

Pond 5P: 2S PONDING Peak Elev=575.44' Storage=0 cf Inflow=1.69 cfs 0.082 af
Outflow=1.69 cfs 0.082 af

Pond 6P: 4S PONDING Peak Elev=575.61' Storage=147 cf Inflow=0.82 cfs 0.040 af
Outflow=0.74 cfs 0.038 af

Link 1L: Discharge to the North Inflow=1.70 cfs 0.084 af
Primary=1.70 cfs 0.084 af

Link 2L: Discharge to Ellicott Creek Inflow=5.86 cfs 0.314 af
Primary=5.86 cfs 0.314 af

Link 3L: Total Site Flow Inflow=7.51 cfs 0.397 af
Primary=7.51 cfs 0.397 af

Total Runoff Area = 1.930 ac Runoff Volume = 0.418 af Average Runoff Depth = 2.60"
100.00% Pervious = 1.930 ac 0.00% Impervious = 0.000 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

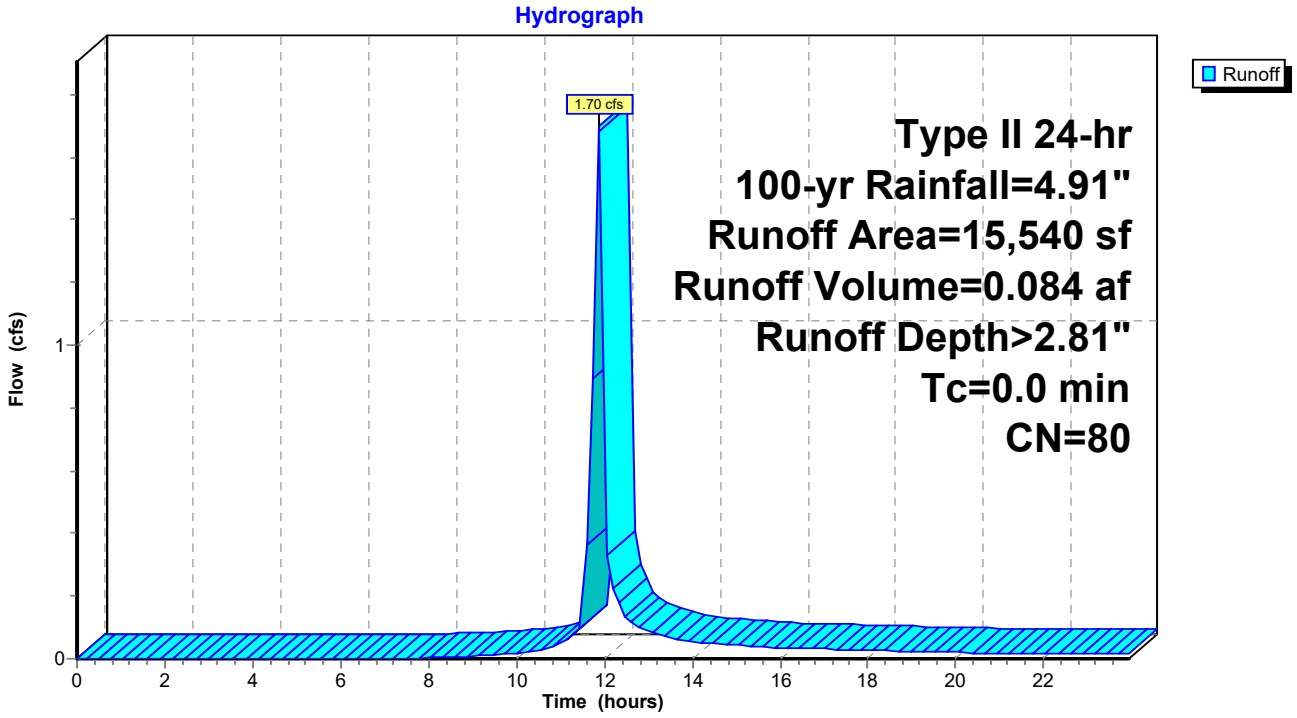
Summary for Subcatchment 1S: North Ponding Area

Runoff = 1.70 cfs @ 11.88 hrs, Volume= 0.084 af, Depth> 2.81"
Routed to Link 1L : Discharge to the North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
15,540	80	>75% Grass cover, Good, HSG D
15,540		100.00% Pervious Area

Subcatchment 1S: North Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

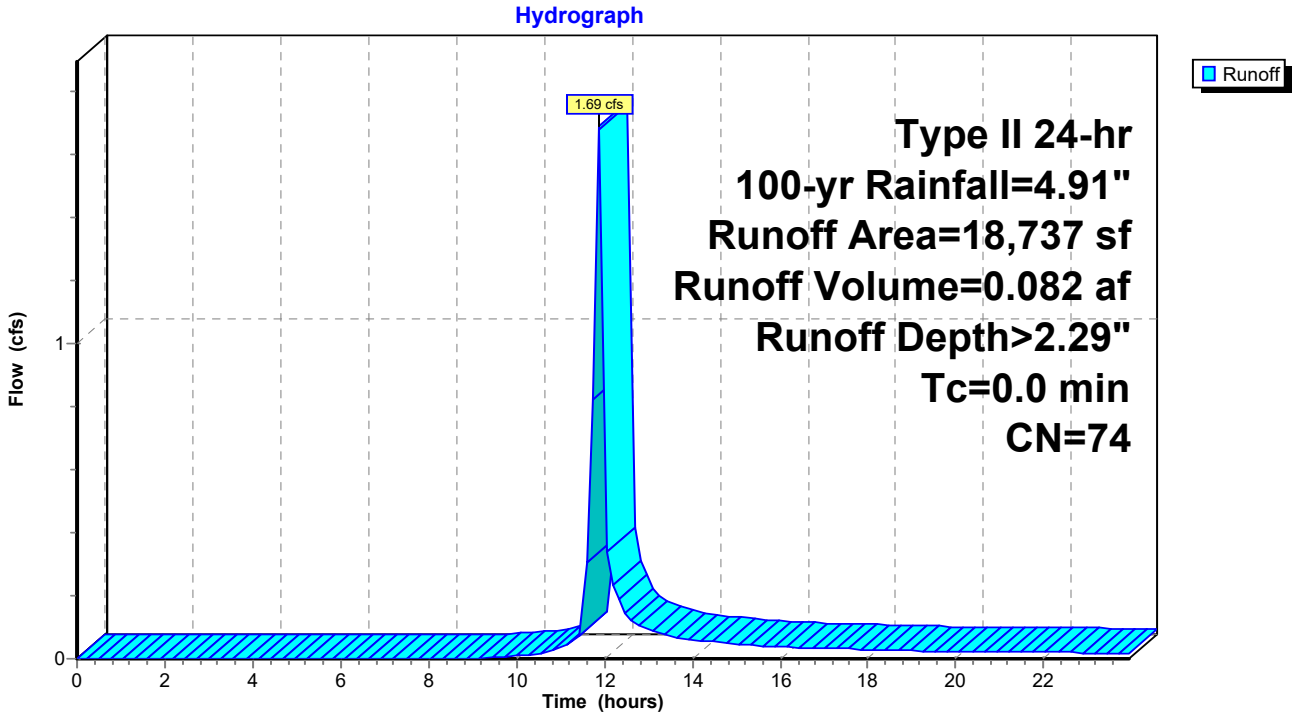
Summary for Subcatchment 2S: West Ponding Area

Runoff = 1.69 cfs @ 11.88 hrs, Volume= 0.082 af, Depth> 2.29"
Routed to Pond 5P : 2S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
18,737	74	>75% Grass cover, Good, HSG C
18,737		100.00% Pervious Area

Subcatchment 2S: West Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

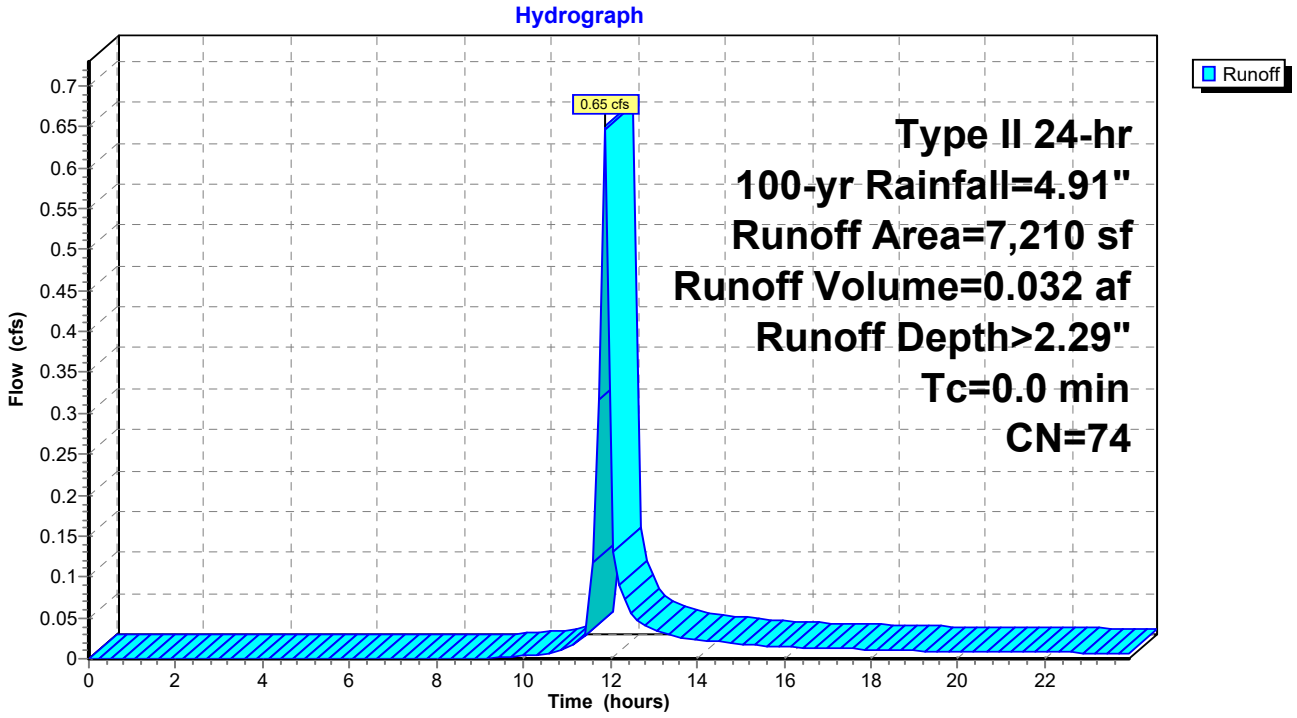
Summary for Subcatchment 3S: Center Ponding Area

Runoff = 0.65 cfs @ 11.88 hrs, Volume= 0.032 af, Depth> 2.29"
Routed to Pond 2P : 3S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
7,210	74	>75% Grass cover, Good, HSG C
7,210		100.00% Pervious Area

Subcatchment 3S: Center Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

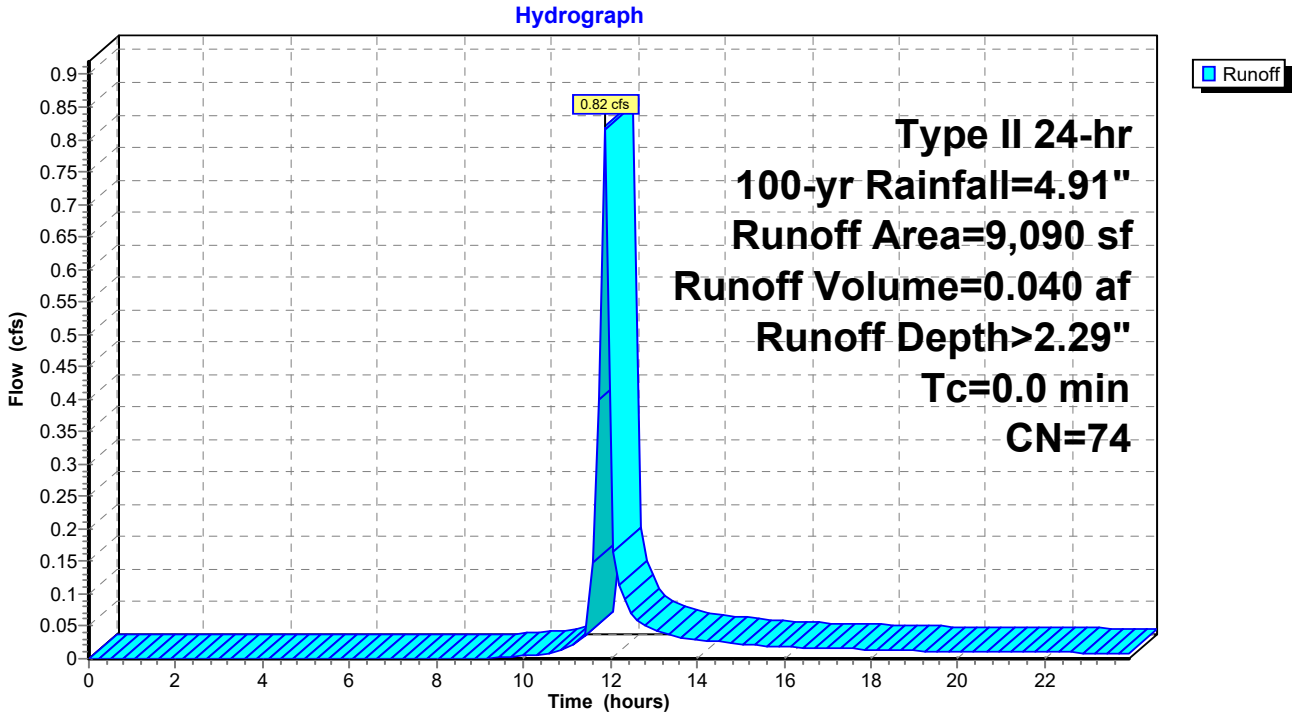
Summary for Subcatchment 4S: East Ponding Area

Runoff = 0.82 cfs @ 11.88 hrs, Volume= 0.040 af, Depth> 2.29"
Routed to Pond 6P : 4S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
9,090	74	>75% Grass cover, Good, HSG C
9,090		100.00% Pervious Area

Subcatchment 4S: East Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

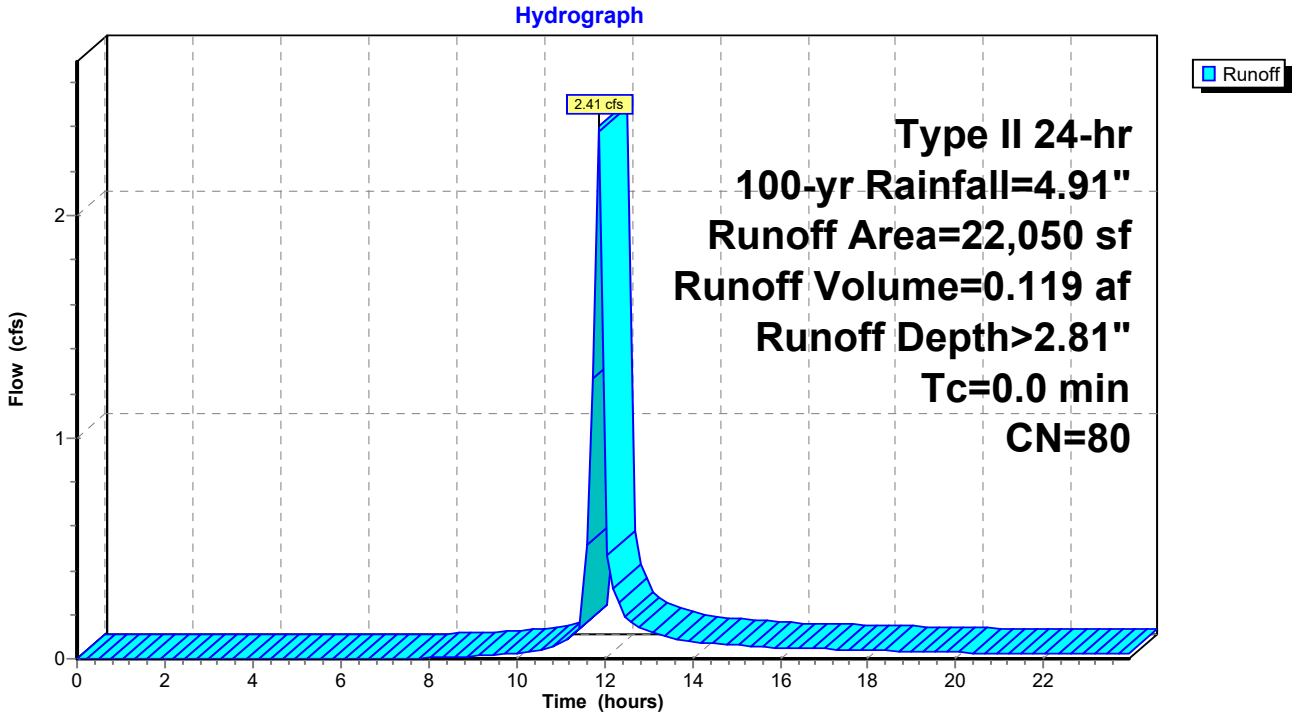
Summary for Subcatchment 5S: South Ponding Area

Runoff = 2.41 cfs @ 11.88 hrs, Volume= 0.119 af, Depth> 2.81"
Routed to Pond 3P : 5S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
22,050	80	>75% Grass cover, Good, HSG D
22,050		100.00% Pervious Area

Subcatchment 5S: South Ponding Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

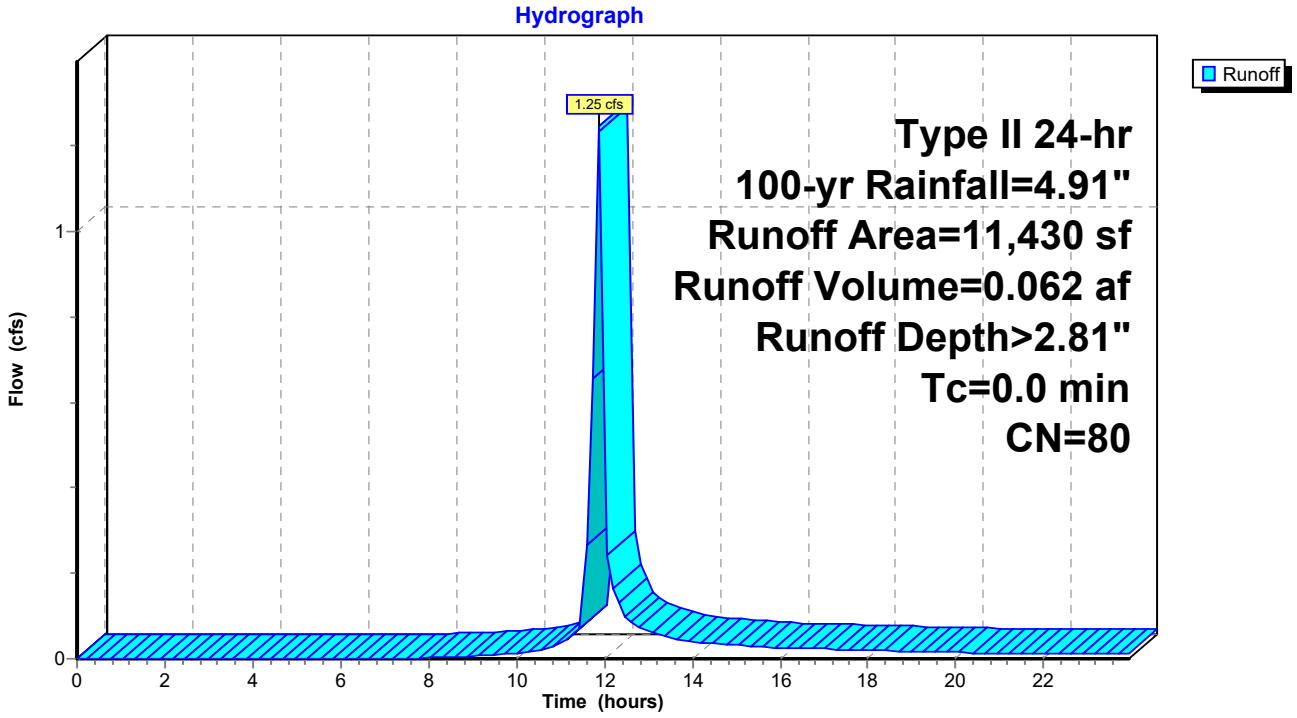
Summary for Subcatchment 6S: Area to 6" Culvert

Runoff = 1.25 cfs @ 11.88 hrs, Volume= 0.062 af, Depth> 2.81"
Routed to Pond 4P : 6S PONDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.91"

Area (sf)	CN	Description
11,430	80	>75% Grass cover, Good, HSG D
11,430		100.00% Pervious Area

Subcatchment 6S: Area to 6" Culvert



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 2P: 3S PONDING

Inflow Area = 0.166 ac, 0.00% Impervious, Inflow Depth > 2.29" for 100-yr event
Inflow = 0.65 cfs @ 11.88 hrs, Volume= 0.032 af
Outflow = 0.10 cfs @ 12.24 hrs, Volume= 0.017 af, Atten= 85%, Lag= 21.0 min
Primary = 0.10 cfs @ 12.24 hrs, Volume= 0.017 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.37' @ 12.18 hrs Surf.Area= 3,528 sf Storage= 676 cf

Plug-Flow detention time= 236.8 min calculated for 0.017 af (53% of inflow)
Center-of-Mass det. time= 114.7 min (944.2 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.94'	2,809 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

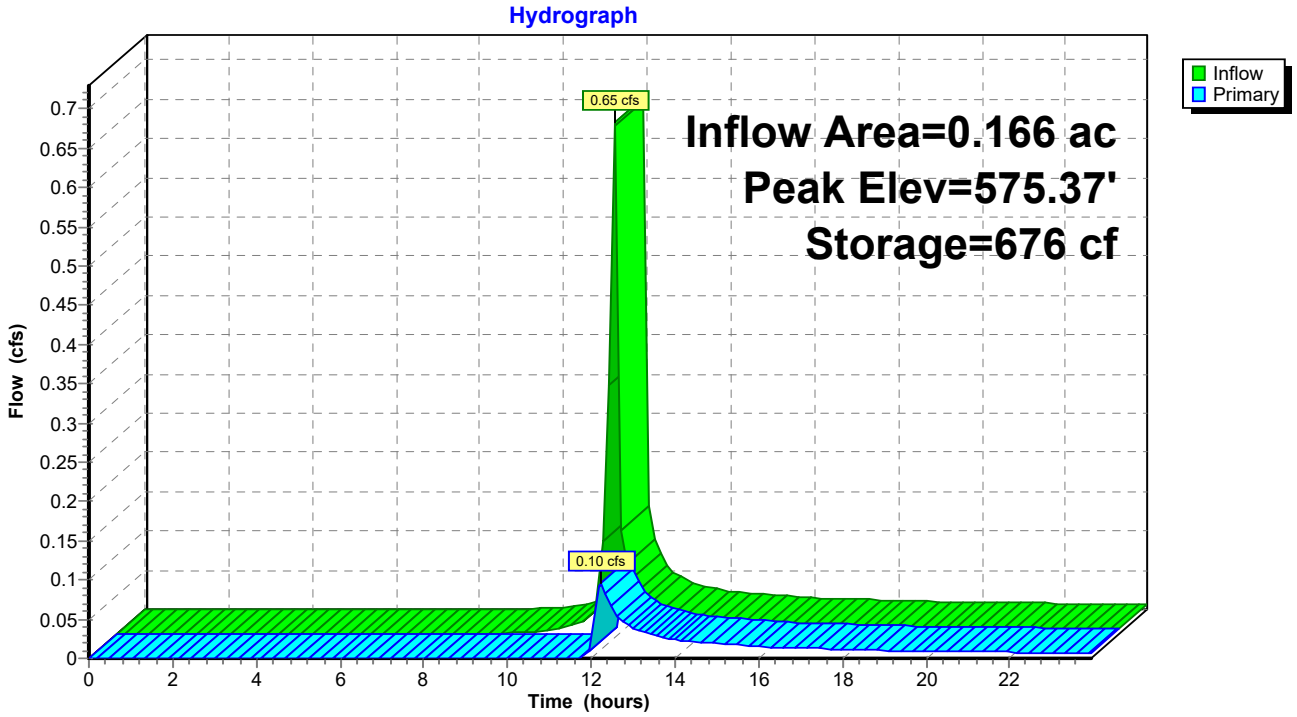
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.94	10	0	0
575.00	88	3	3
575.77	7,200	2,806	2,809

Device	Routing	Invert	Outlet Devices
#1	Primary	575.36'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.09 cfs @ 12.24 hrs HW=575.37' TW=575.08' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.09 cfs @ 0.36 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 2P: 3S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 3P: 5S PONDING

Inflow Area = 1.311 ac, 0.00% Impervious, Inflow Depth > 2.34" for 100-yr event
Inflow = 4.84 cfs @ 11.89 hrs, Volume= 0.256 af
Outflow = 4.09 cfs @ 11.91 hrs, Volume= 0.252 af, Atten= 15%, Lag= 1.8 min
Primary = 4.09 cfs @ 11.91 hrs, Volume= 0.252 af
Routed to Pond 4P : 6S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.20' @ 11.92 hrs Surf.Area= 5,734 sf Storage= 757 cf

Plug-Flow detention time= 14.5 min calculated for 0.251 af (98% of inflow)
Center-of-Mass det. time= 6.0 min (837.4 - 831.3)

Volume	Invert	Avail.Storage	Storage Description
#1	574.82'	10,233 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

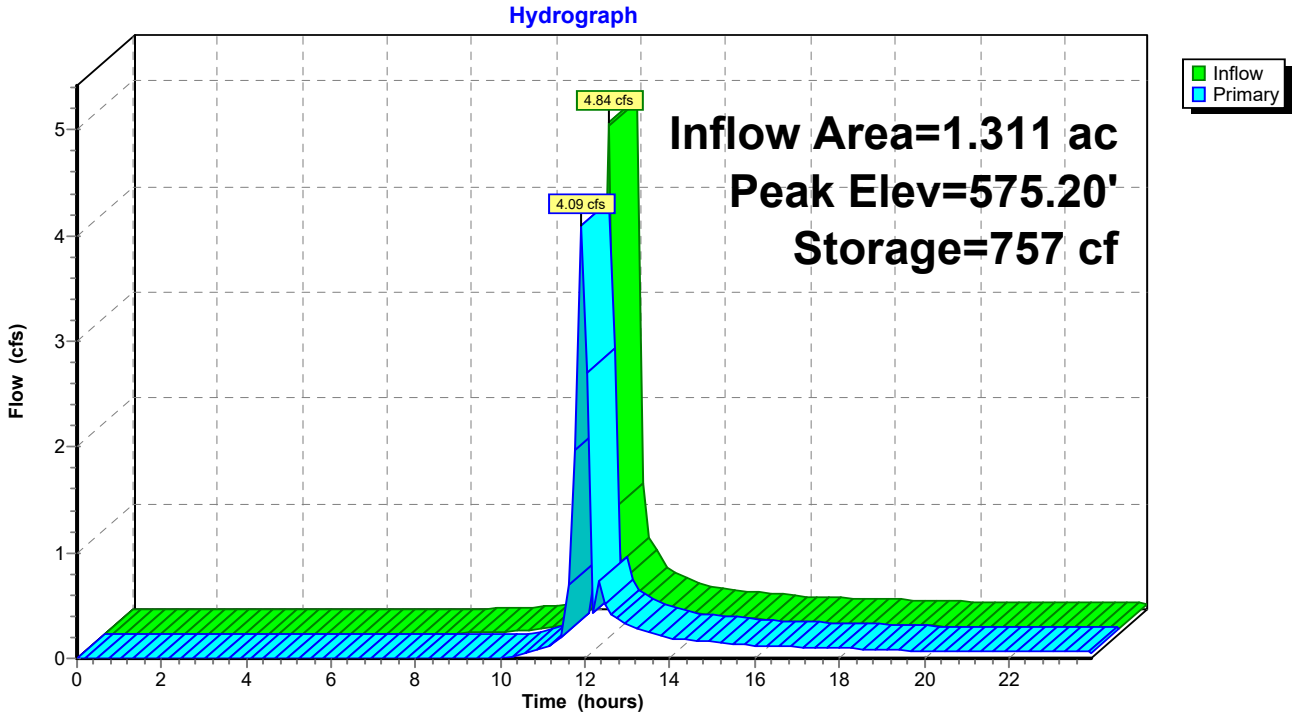
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.82	10	0	0
575.00	1,000	91	91
575.88	22,050	10,142	10,233

Device	Routing	Invert	Outlet Devices
#1	Primary	575.04'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.92 cfs @ 11.91 hrs HW=575.19' TW=574.97' (Dynamic Tailwater)
↳**1=Sharp-Crested Rectangular Weir** (Weir Controls 3.92 cfs @ 1.28 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 3P: 5S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 4P: 6S PONDING

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 2.39" for 100-yr event
Inflow = 5.31 cfs @ 11.90 hrs, Volume= 0.314 af
Outflow = 5.86 cfs @ 11.92 hrs, Volume= 0.314 af, Atten= 0%, Lag= 0.6 min
Primary = 5.86 cfs @ 11.92 hrs, Volume= 0.314 af
Routed to Link 2L : Discharge to Ellicott Creek

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.98' @ 11.92 hrs Surf.Area= 1,615 sf Storage= 798 cf

Plug-Flow detention time= 3.3 min calculated for 0.314 af (100% of inflow)
Center-of-Mass det. time= 3.3 min (836.1 - 832.8)

Volume	Invert	Avail.Storage	Storage Description
#1	573.70'	9,543 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

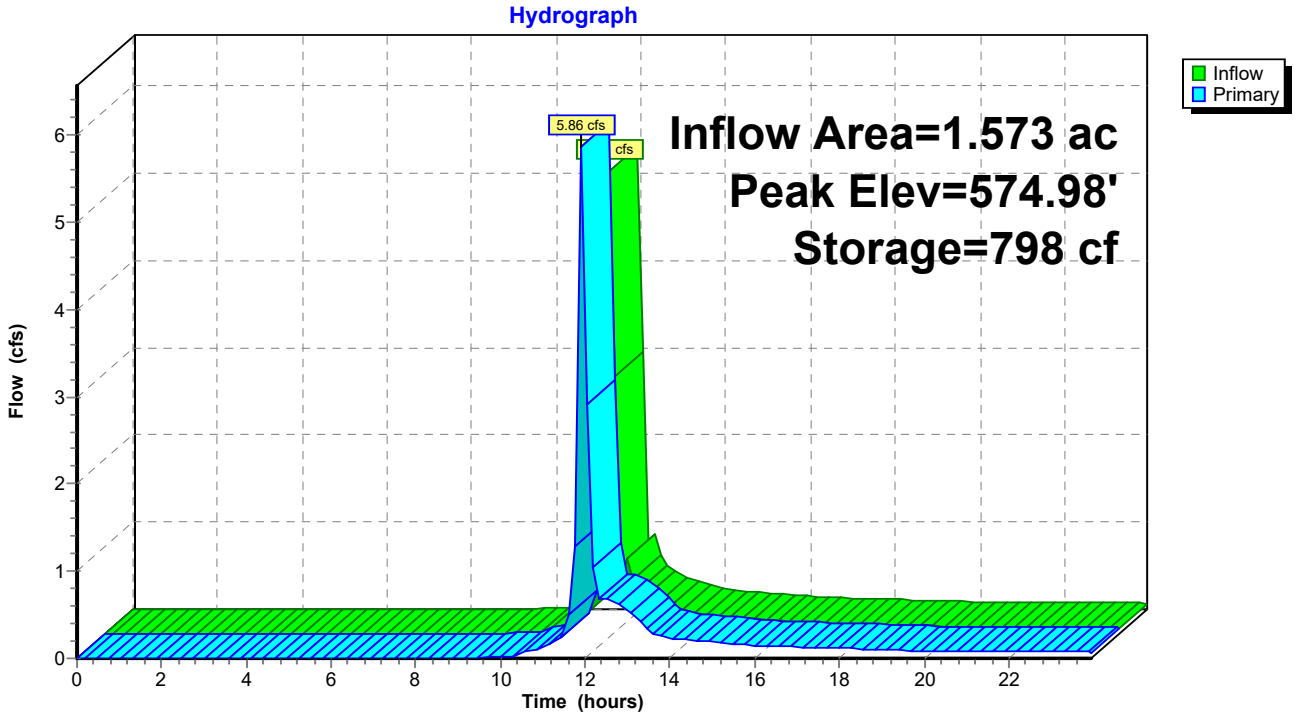
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.70	1	0	0
574.00	6	1	1
575.00	1,641	824	825
576.00	3,052	2,347	3,171
576.88	11,430	6,372	9,543

Device	Routing	Invert	Outlet Devices
#1	Primary	573.70'	**6.0" Round 6" CULVERT** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 573.70' / 573.14' S= 0.0280 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	574.80'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=5.46 cfs @ 11.92 hrs HW=574.97' TW=0.00' (Dynamic Tailwater)
└─**1=6" CULVERT** (Inlet Controls 0.76 cfs @ 3.85 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 4.71 cfs @ 1.36 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 4P: 6S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: 2S PONDING

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth > 2.29" for 100-yr event
Inflow = 1.69 cfs @ 11.88 hrs, Volume= 0.082 af
Outflow = 1.69 cfs @ 11.88 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min
Primary = 1.69 cfs @ 11.88 hrs, Volume= 0.082 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.44' @ 0.00 hrs Surf.Area= 10 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (829.5 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	9,092 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

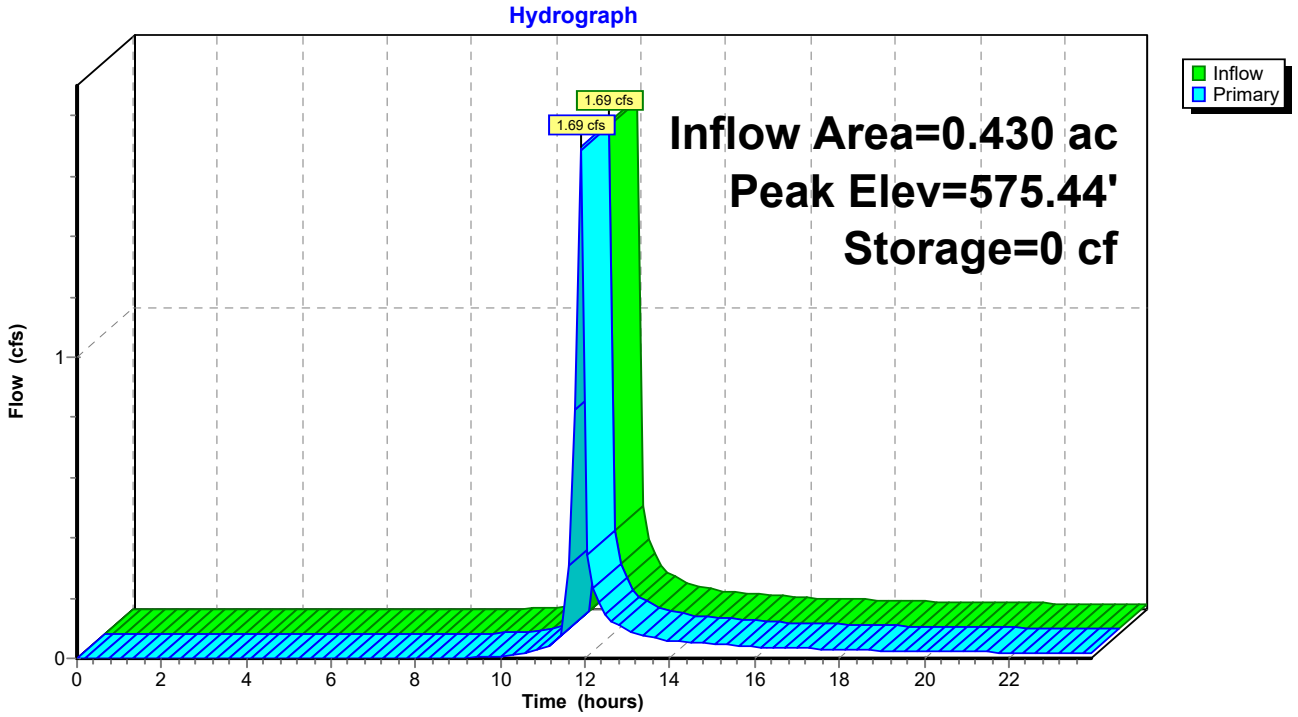
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.41	18,737	9,092	9,092

Device	Routing	Invert	Outlet Devices
#1	Primary	575.07'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.88 hrs HW=575.44' TW=575.19' (Dynamic Tailwater)
↑**1=Sharp-Crested Rectangular Weir** (Passes 0.00 cfs of 13.55 cfs potential flow)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: 2S PONDING



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: 4S PONDING

Inflow Area = 0.209 ac, 0.00% Impervious, Inflow Depth > 2.29" for 100-yr event
Inflow = 0.82 cfs @ 11.88 hrs, Volume= 0.040 af
Outflow = 0.74 cfs @ 11.90 hrs, Volume= 0.038 af, Atten= 10%, Lag= 1.0 min
Primary = 0.74 cfs @ 11.90 hrs, Volume= 0.038 af
Routed to Pond 3P : 5S PONDING

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.61' @ 11.90 hrs Surf.Area= 1,711 sf Storage= 147 cf

Plug-Flow detention time= 34.6 min calculated for 0.038 af (96% of inflow)
Center-of-Mass det. time= 10.1 min (839.5 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	575.44'	4,140 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

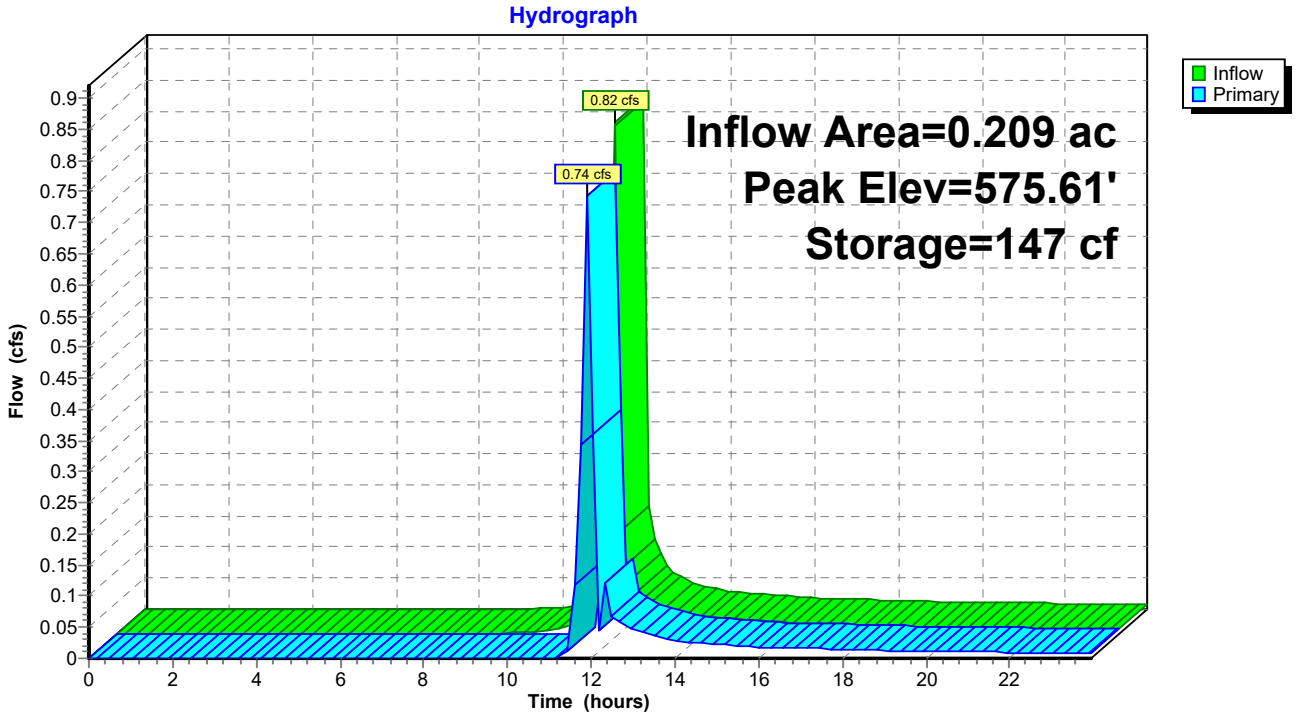
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.44	10	0	0
576.35	9,090	4,140	4,140

Device	Routing	Invert	Outlet Devices
#1	Primary	575.56'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.74 cfs @ 11.90 hrs HW=575.61' TW=575.20' (Dynamic Tailwater)
1=Sharp-Crested Rectangular Weir (Weir Controls 0.74 cfs @ 0.73 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 6P: 4S PONDING



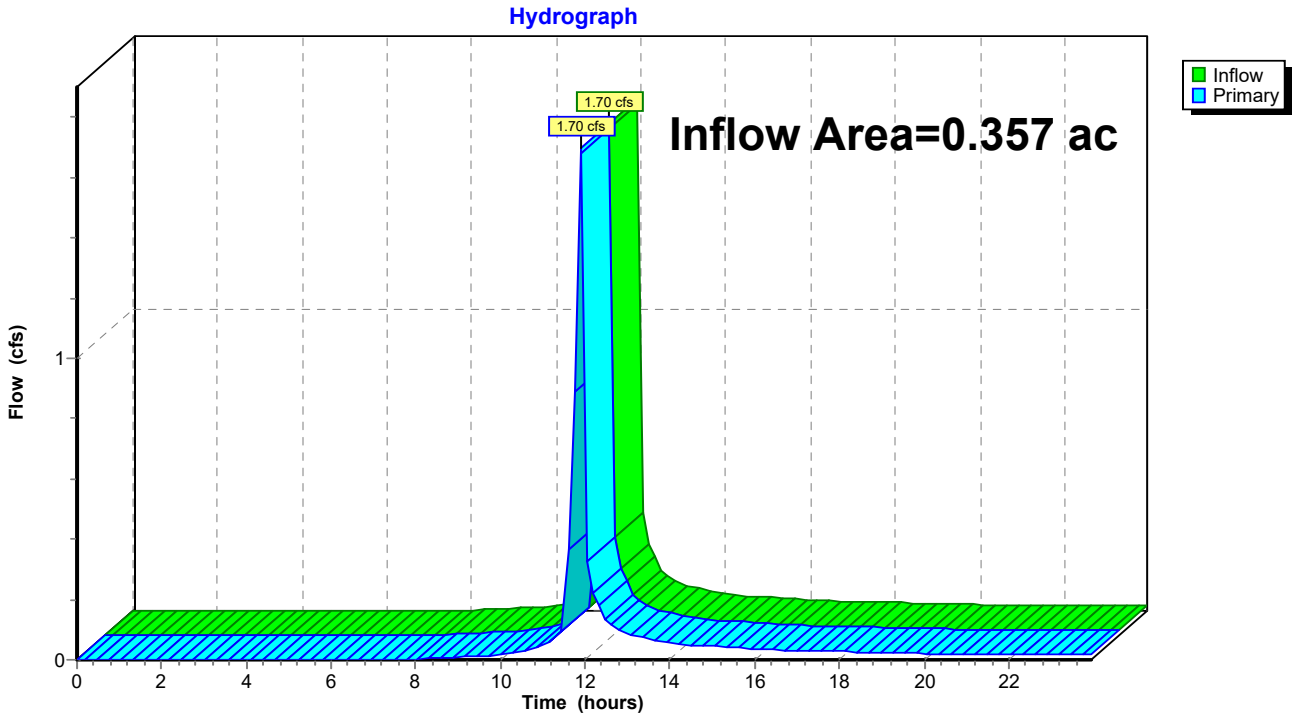
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 1L: Discharge to the North

Inflow Area = 0.357 ac, 0.00% Impervious, Inflow Depth > 2.81" for 100-yr event
Inflow = 1.70 cfs @ 11.88 hrs, Volume= 0.084 af
Primary = 1.70 cfs @ 11.88 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 1L: Discharge to the North



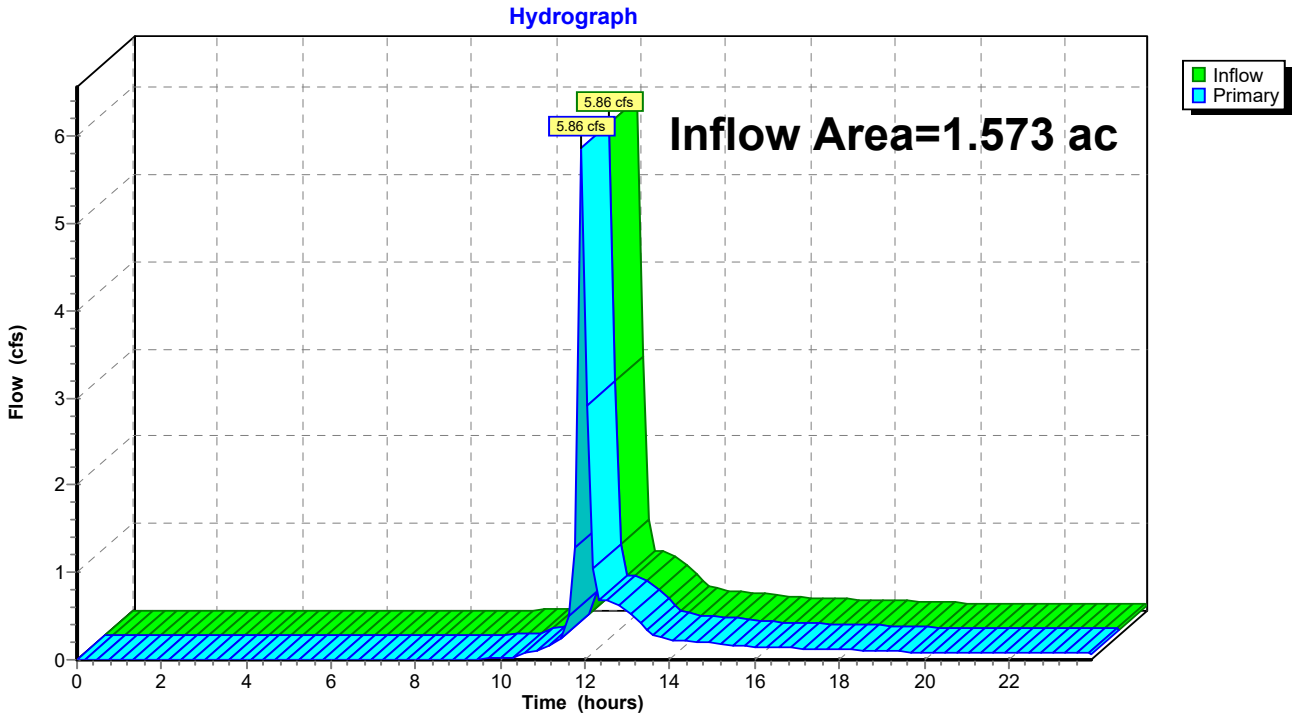
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 2L: Discharge to Ellicott Creek

Inflow Area = 1.573 ac, 0.00% Impervious, Inflow Depth > 2.39" for 100-yr event
Inflow = 5.86 cfs @ 11.92 hrs, Volume= 0.314 af
Primary = 5.86 cfs @ 11.92 hrs, Volume= 0.314 af, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Total Site Flow

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 2L: Discharge to Ellicott Creek



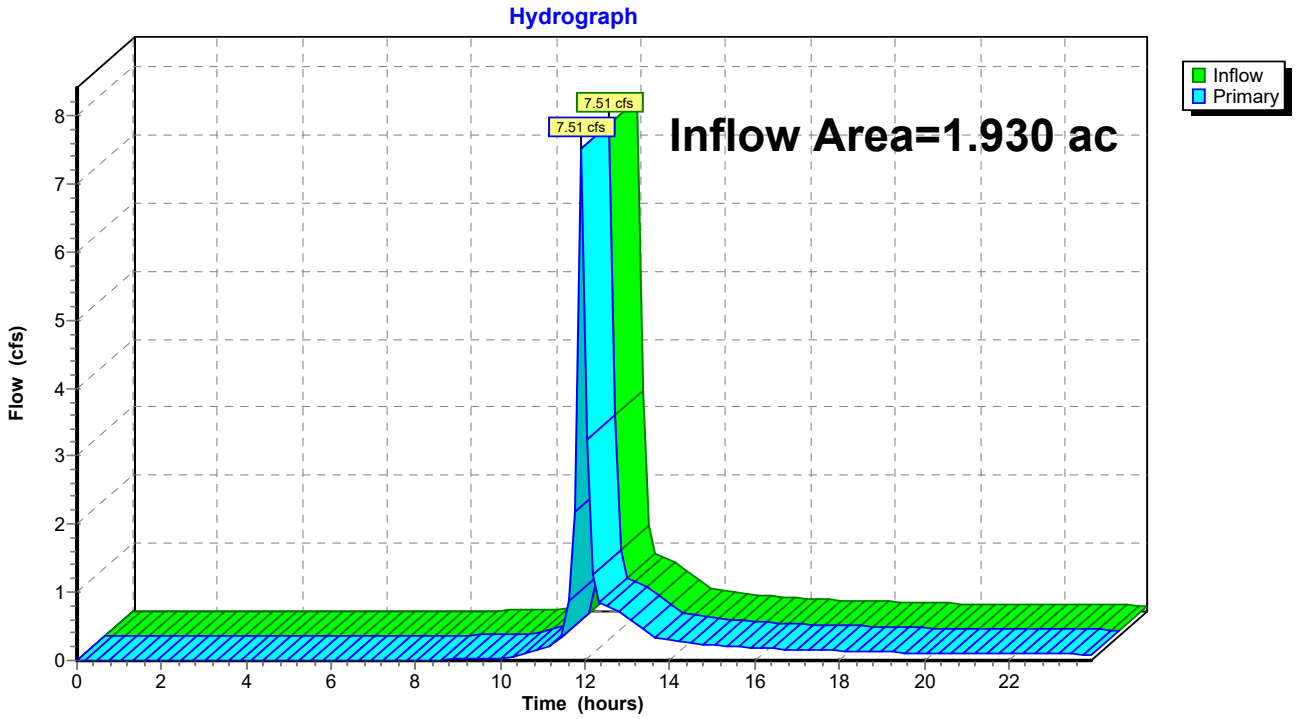
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Link 3L: Total Site Flow

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 2.47" for 100-yr event
Inflow = 7.51 cfs @ 11.91 hrs, Volume= 0.397 af
Primary = 7.51 cfs @ 11.91 hrs, Volume= 0.397 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs

Link 3L: Total Site Flow



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix A-2
Drainage Calculations
Proposed Conditions

321 Commerce, LLC

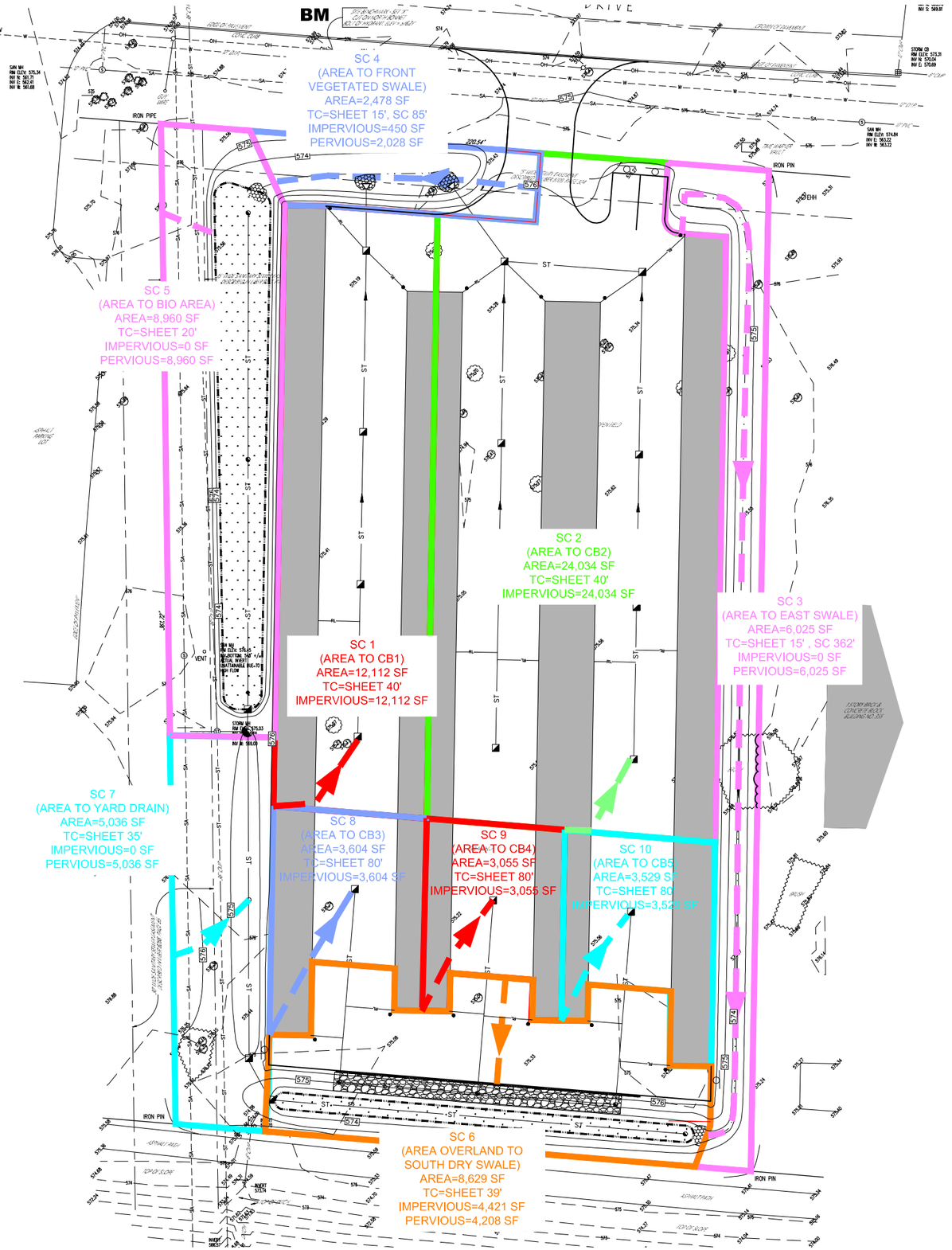
Design Report & Stormwater Pollution Prevention Plan

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C		UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
STMH	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

Prepared by:
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
765 Creekside Road
Lewiston, NY 14092
Phone(716)754-2256
Fax (716)754-4232

PROPOSED CONDITIONS DRAINAGE AREAS

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
321 Commerce Drive
Amherst, New York 14228

Project Contact: Advanced Design Group (716) 754-2256

date	project no.:	sheet
1-21-2022	21-4768	7 OF 10

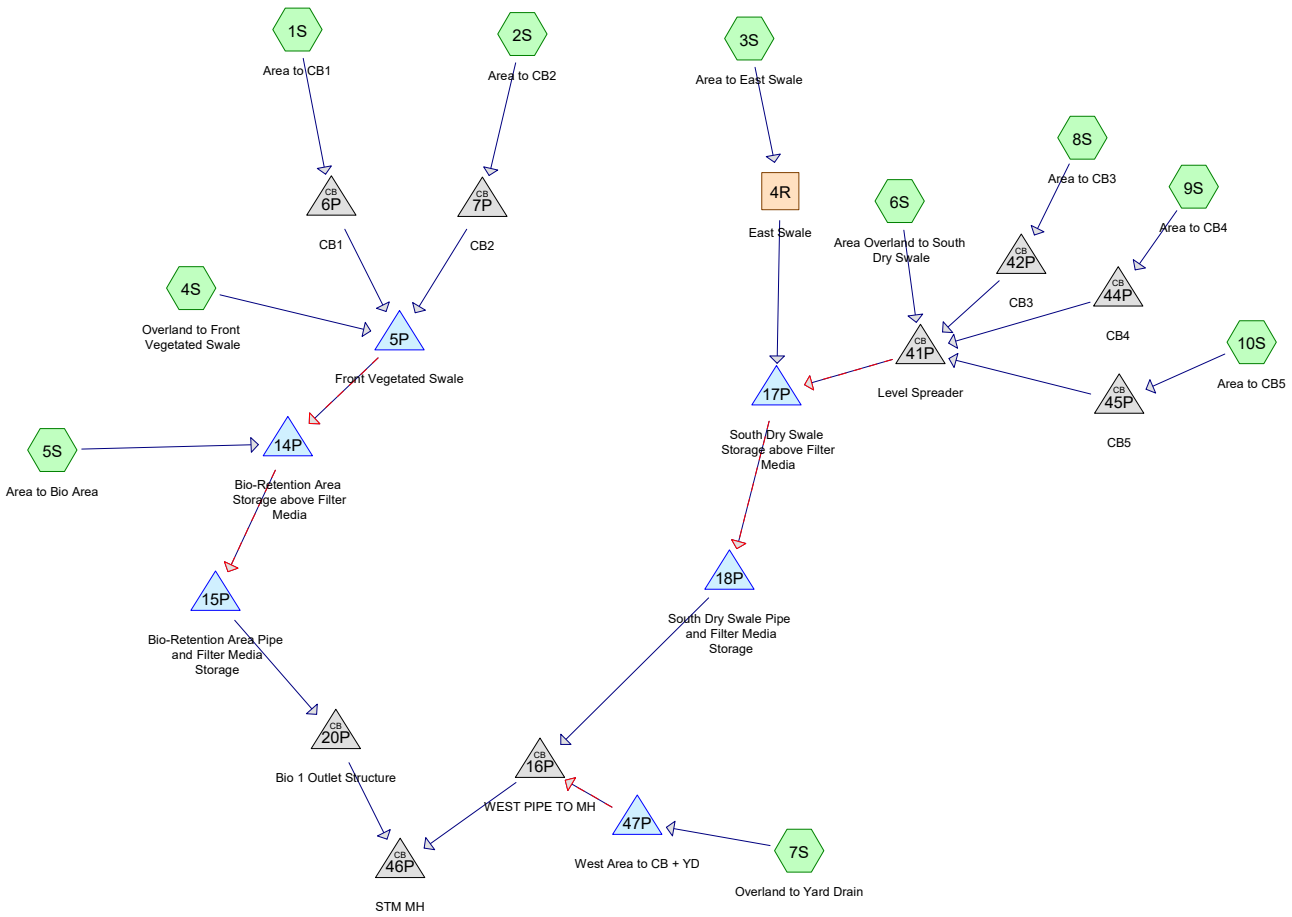
AS NOTED

Z:\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG-Layout Plan 1-21-22.dwg

Packet Pg. 899

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)



Subcat Reach Pond Link

Routing Diagram for Proposed Conditions 1-12-21
Prepared by {enter your company name here}, Printed 1/12/2022
HydroCAD® 10.10-6a s/n 03292 © 2020 HydroCAD Software Solutions LLC

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	1.91	2
2	2-yr	Type II 24-hr		Default	24.00	1	2.26	2
3	10-yr	Type II 24-hr		Default	24.00	1	3.32	2
4	25-yr	Type II 24-hr		Default	24.00	1	3.97	2
5	100-yr	Type II 24-hr		Default	24.00	1	4.99	2

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.603	80	>75% Grass cover, Good, HSG D (3S, 4S, 5S, 6S, 7S)
1.176	98	Paved parking, HSG D (1S, 2S, 4S, 6S, 8S, 9S, 10S)
1.778	**92**	**TOTAL AREA**

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.778	HSG D	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S
0.000	Other	
1.778		**TOTAL AREA**

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.603	0.000	0.603	>75% Grass cover, Good	3S, 4S, 5S, 6S, 7S
0.000	0.000	0.000	1.176	0.000	1.176	Paved parking	1S, 2S, 4S, 6S, 8S, 9S, 10S
0.000	**0.000**	**0.000**	**1.778**	**0.000**	**1.778**	**TOTAL AREA**	

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=0.62 cfs 0.039 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.22 cfs 0.077 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>0.51"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.09 cfs 0.006 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>0.63"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.06 cfs 0.003 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>0.51"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.14 cfs 0.009 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>0.95"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=0.33 cfs 0.016 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>0.51"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.07 cfs 0.005 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.21 cfs 0.012 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.18 cfs 0.010 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>1.68"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.21 cfs 0.011 af

Reach 4R: East Swale Avg. Flow Depth=0.06' Max Vel=0.44 fps Inflow=0.09 cfs 0.006 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.06 cfs 0.006 af

Pond 5P: Front Vegetated Swale Peak Elev=573.99' Storage=148 cf Inflow=1.90 cfs 0.119 af
Primary=1.77 cfs 0.108 af Secondary=0.01 cfs 0.010 af Outflow=1.78 cfs 0.118 af

Pond 6P: CB1 Peak Elev=574.03' Inflow=0.62 cfs 0.039 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=0.62 cfs 0.039 af

Pond 7P: CB2 Peak Elev=574.35' Inflow=1.22 cfs 0.077 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=1.22 cfs 0.077 af

Pond 14P: Bio-Retention Area Storage Peak Elev=573.99' Storage=2,027 cf Inflow=1.91 cfs 0.127 af
Primary=0.04 cfs 0.057 af Secondary=0.72 cfs 0.038 af Outflow=0.76 cfs 0.095 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=570.23' Storage=1,481 cf Inflow=0.76 cfs 0.095 af
Outflow=0.10 cfs 0.065 af

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=570.83' Inflow=0.54 cfs 0.049 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=0.54 cfs 0.049 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.31' Storage=313 cf Inflow=0.94 cfs 0.054 af
Primary=0.01 cfs 0.015 af Secondary=0.89 cfs 0.034 af Outflow=0.90 cfs 0.049 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=570.80' Storage=593 cf Inflow=0.90 cfs 0.049 af
Outflow=0.46 cfs 0.044 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=570.35' Inflow=0.10 cfs 0.065 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=0.10 cfs 0.065 af

Pond 41P: Level Spreader Peak Elev=573.68' Inflow=0.93 cfs 0.049 af
Primary=0.93 cfs 0.049 af Secondary=0.00 cfs 0.000 af Outflow=0.93 cfs 0.049 af

Pond 42P: CB3 Peak Elev=573.83' Inflow=0.21 cfs 0.012 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.21 cfs 0.012 af

Pond 44P: CB4 Peak Elev=573.79' Inflow=0.18 cfs 0.010 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.18 cfs 0.010 af

Pond 45P: CB5 Peak Elev=573.82' Inflow=0.21 cfs 0.011 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.21 cfs 0.011 af

Pond 46P: STM MH Peak Elev=570.35' Inflow=0.57 cfs 0.113 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=0.57 cfs 0.113 af

Pond 47P: West Area to CB + YD Peak Elev=574.78' Storage=8 cf Inflow=0.07 cfs 0.005 af
Primary=0.07 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.005 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.187 af Average Runoff Depth = 1.27"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

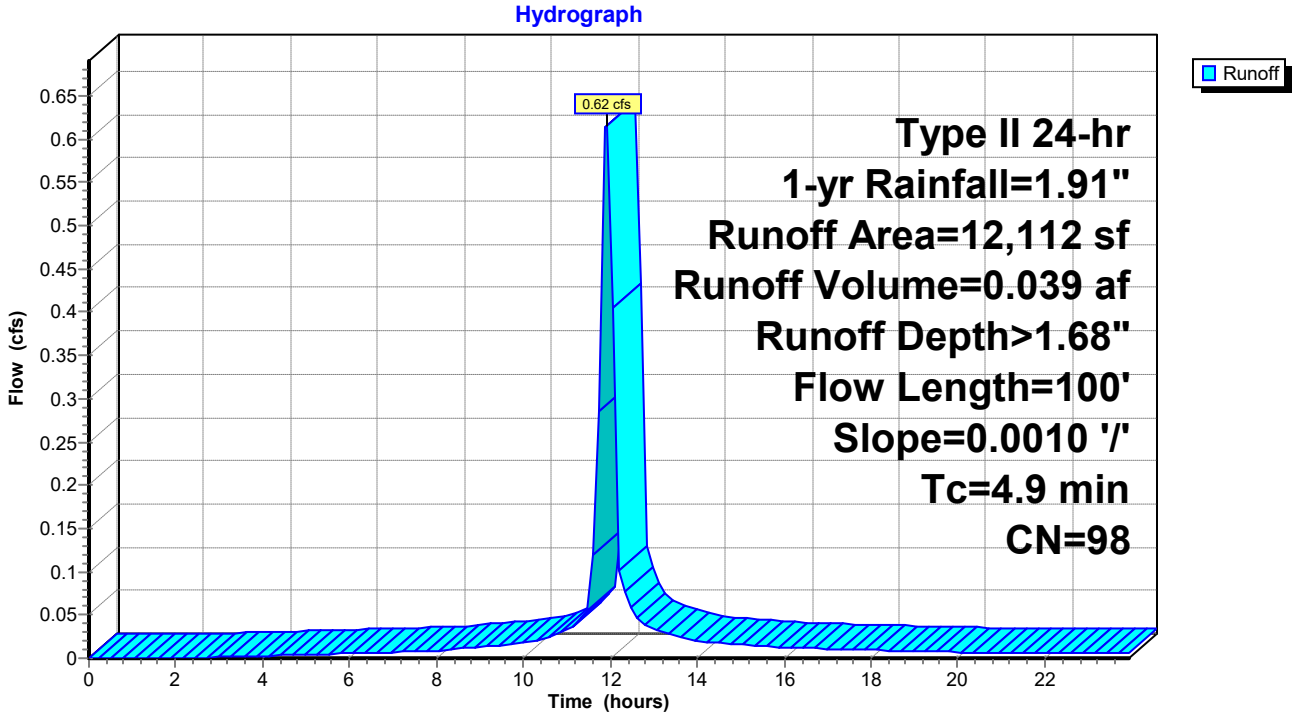
Runoff = 0.62 cfs @ 11.92 hrs, Volume= 0.039 af, Depth> 1.68"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

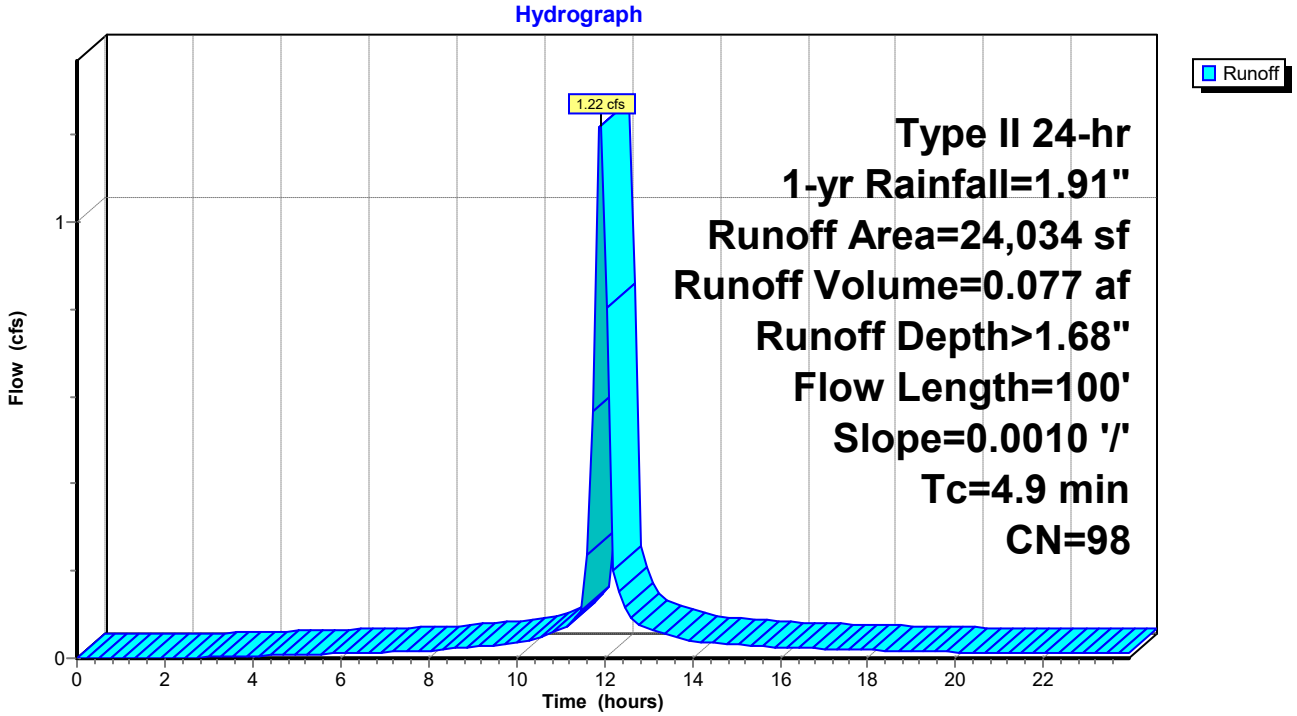
Runoff = 1.22 cfs @ 11.92 hrs, Volume= 0.077 af, Depth> 1.68"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

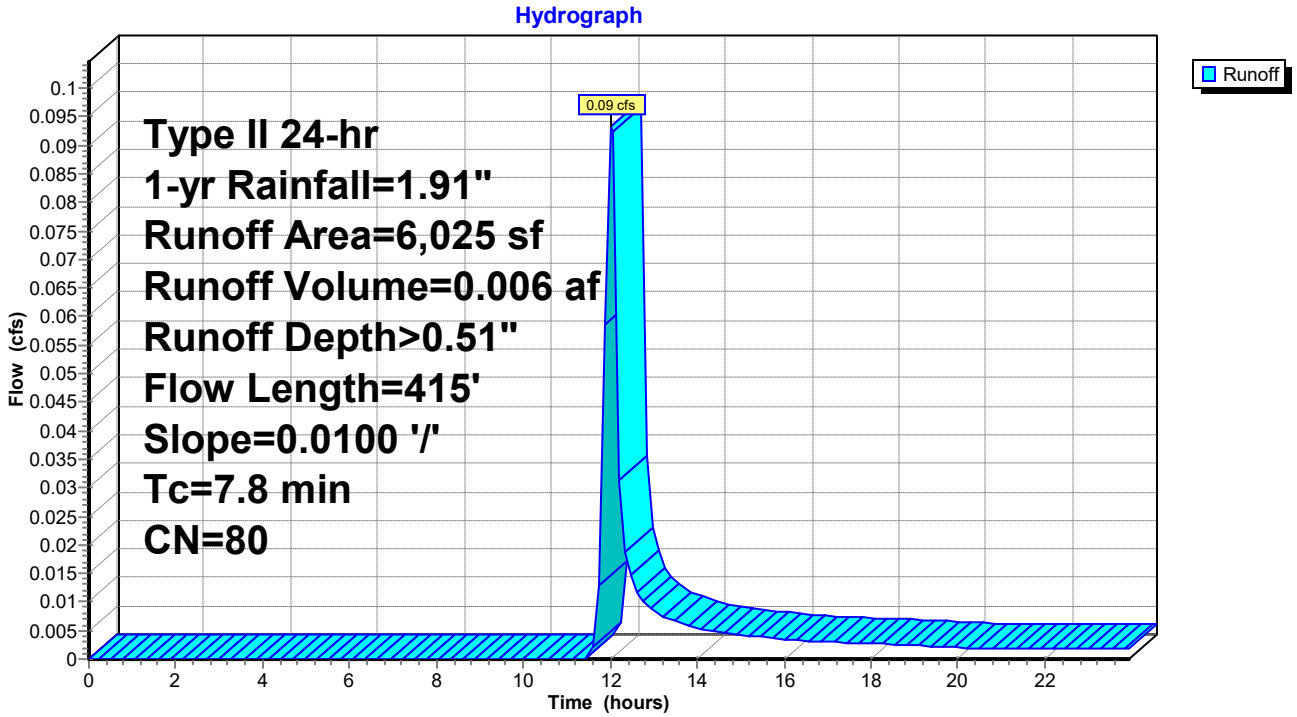
Runoff = 0.09 cfs @ 12.02 hrs, Volume= 0.006 af, Depth> 0.51"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

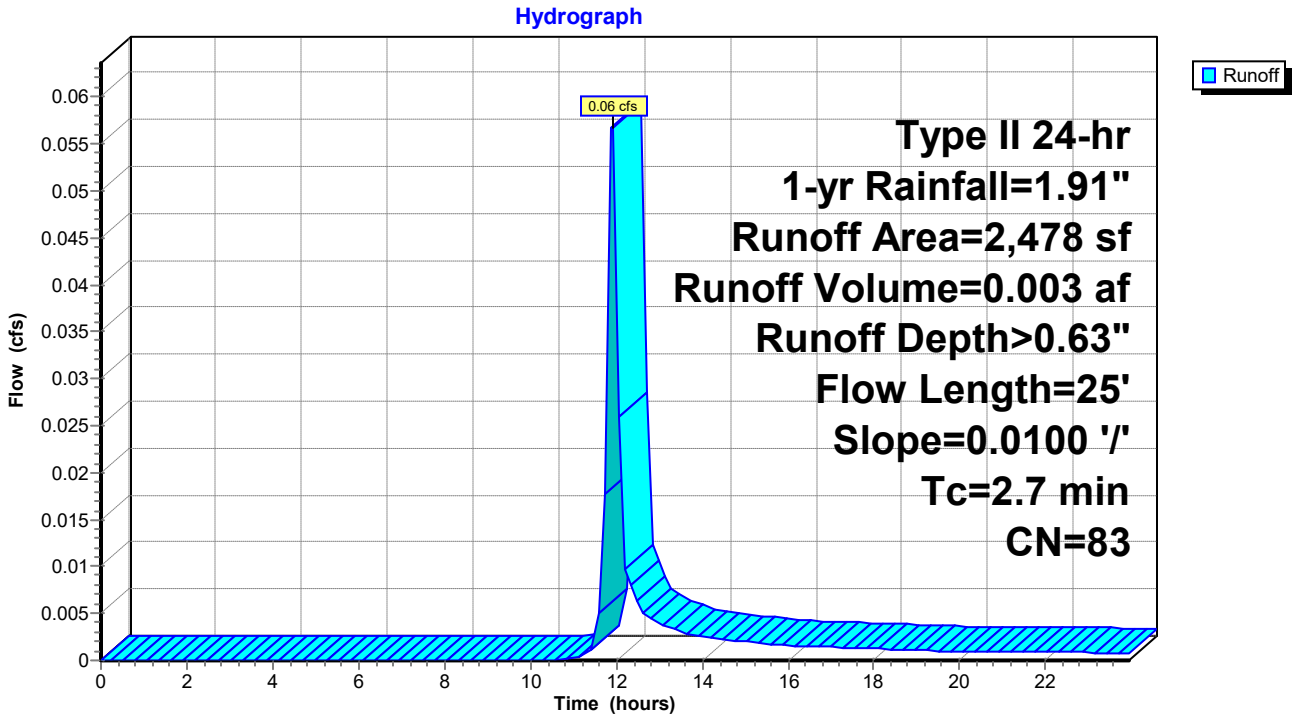
Runoff = 0.06 cfs @ 11.91 hrs, Volume= 0.003 af, Depth> 0.63"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

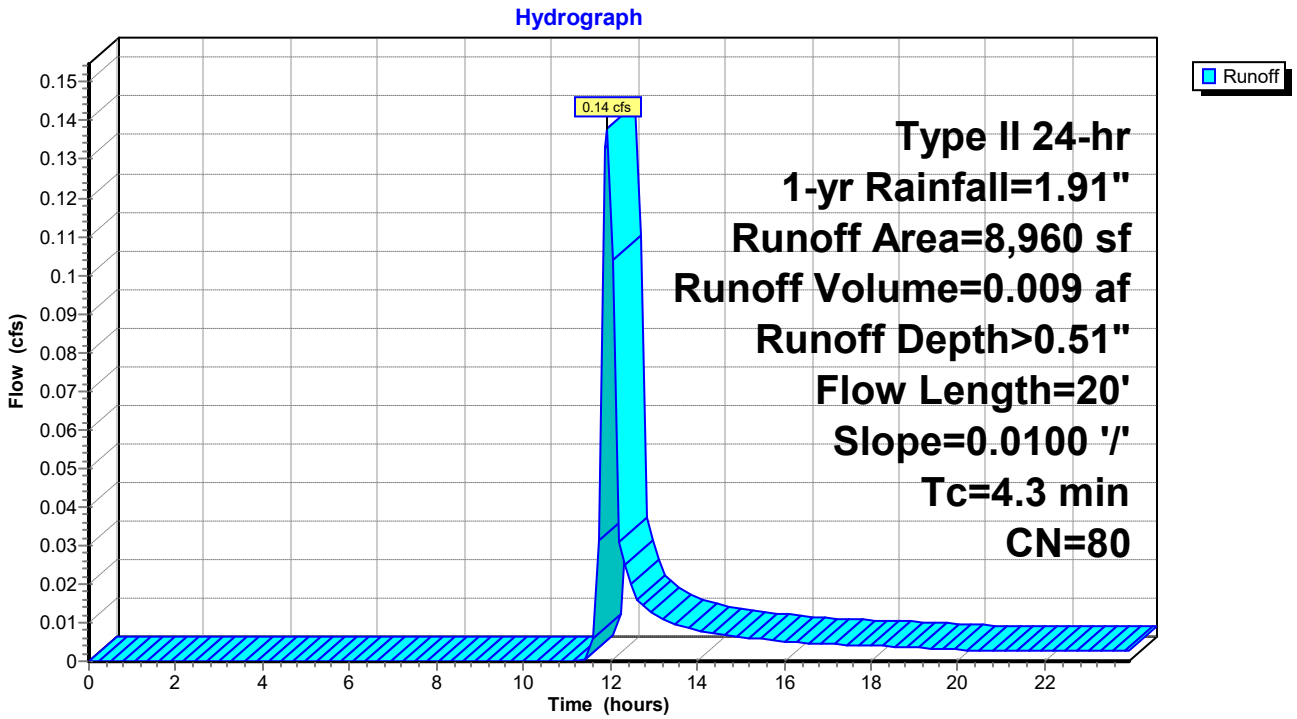
Runoff = 0.14 cfs @ 11.94 hrs, Volume= 0.009 af, Depth> 0.51"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

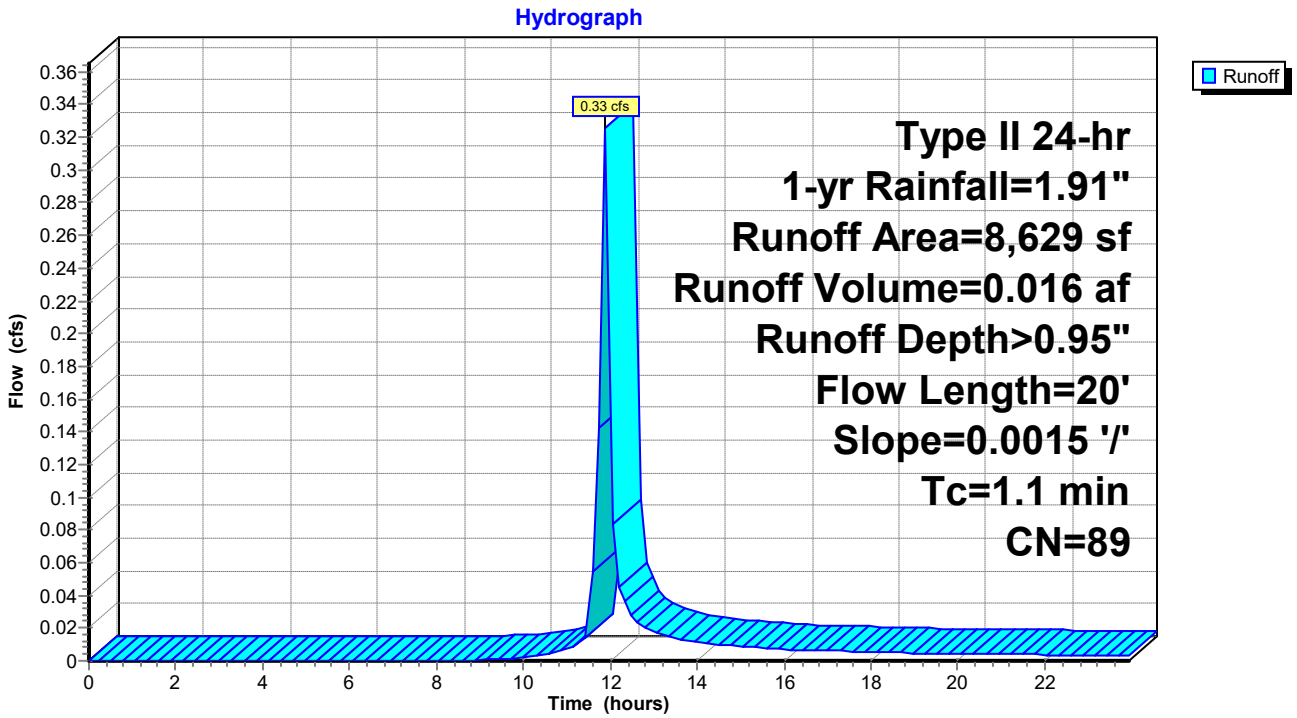
Runoff = 0.33 cfs @ 11.89 hrs, Volume= 0.016 af, Depth> 0.95"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

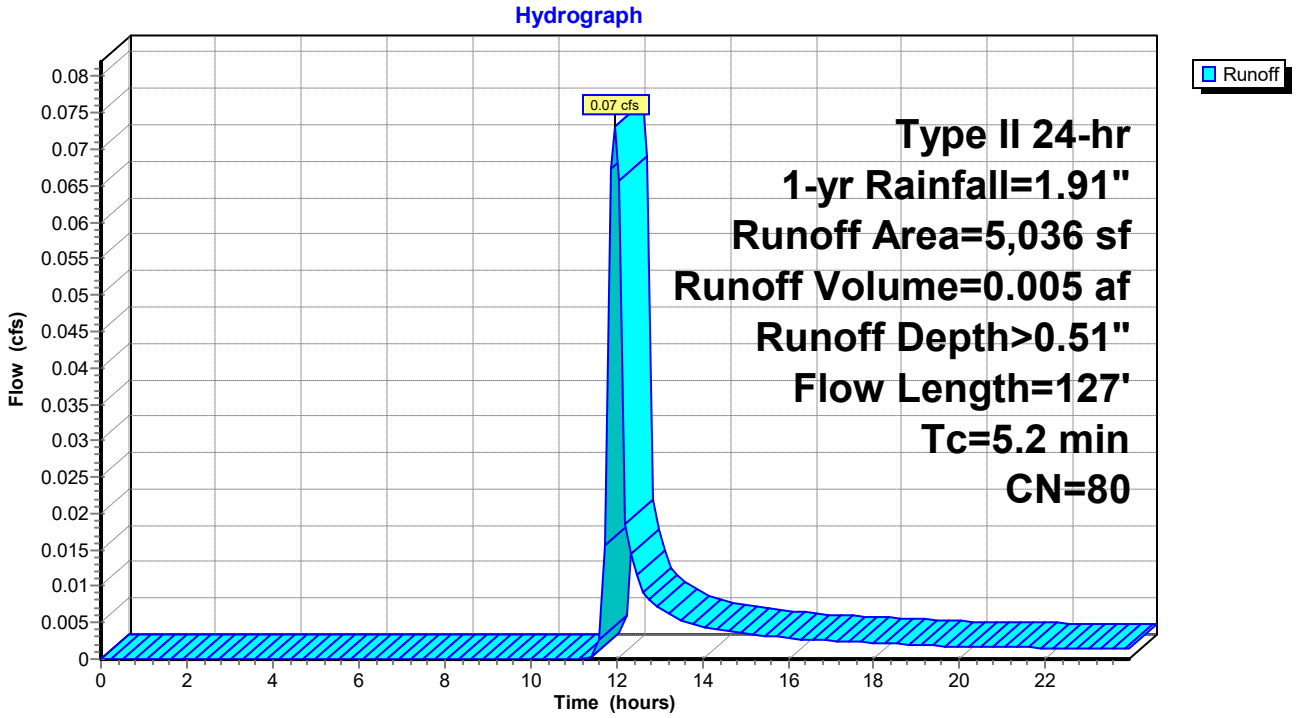
Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.005 af, Depth> 0.51"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

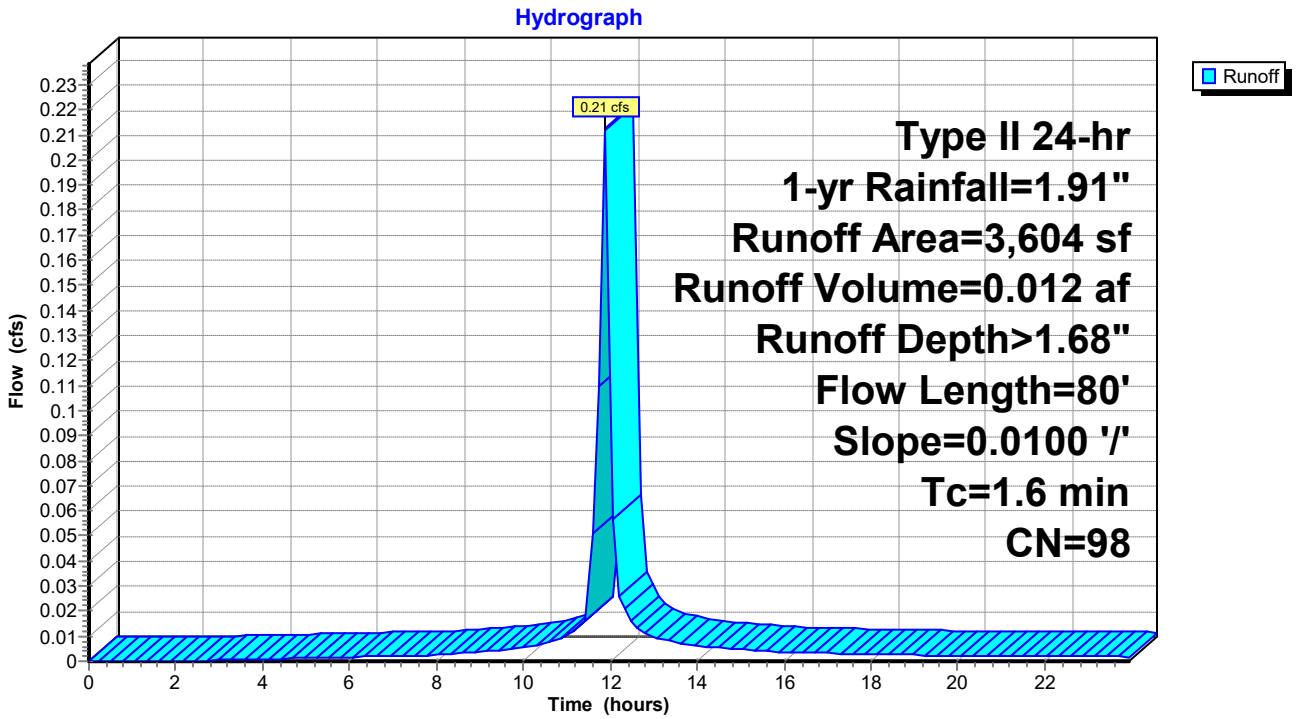
Runoff = 0.21 cfs @ 11.89 hrs, Volume= 0.012 af, Depth> 1.68"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

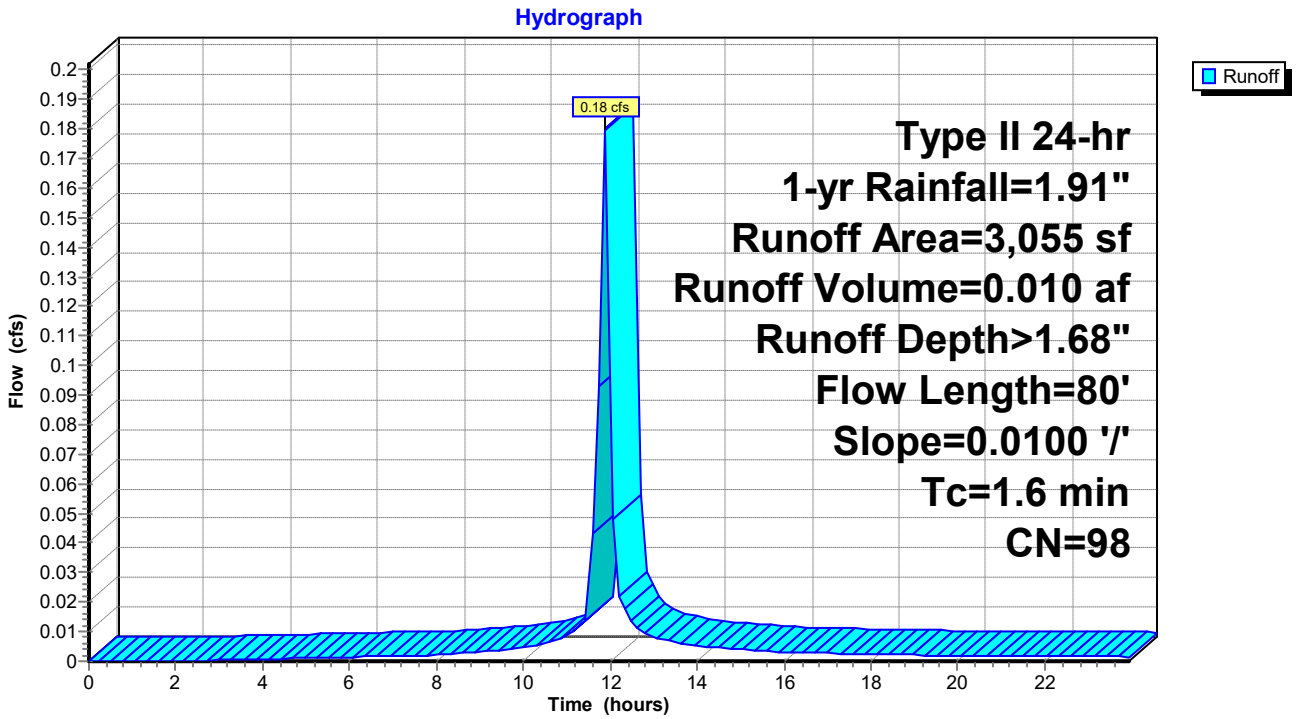
Runoff = 0.18 cfs @ 11.89 hrs, Volume= 0.010 af, Depth> 1.68"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

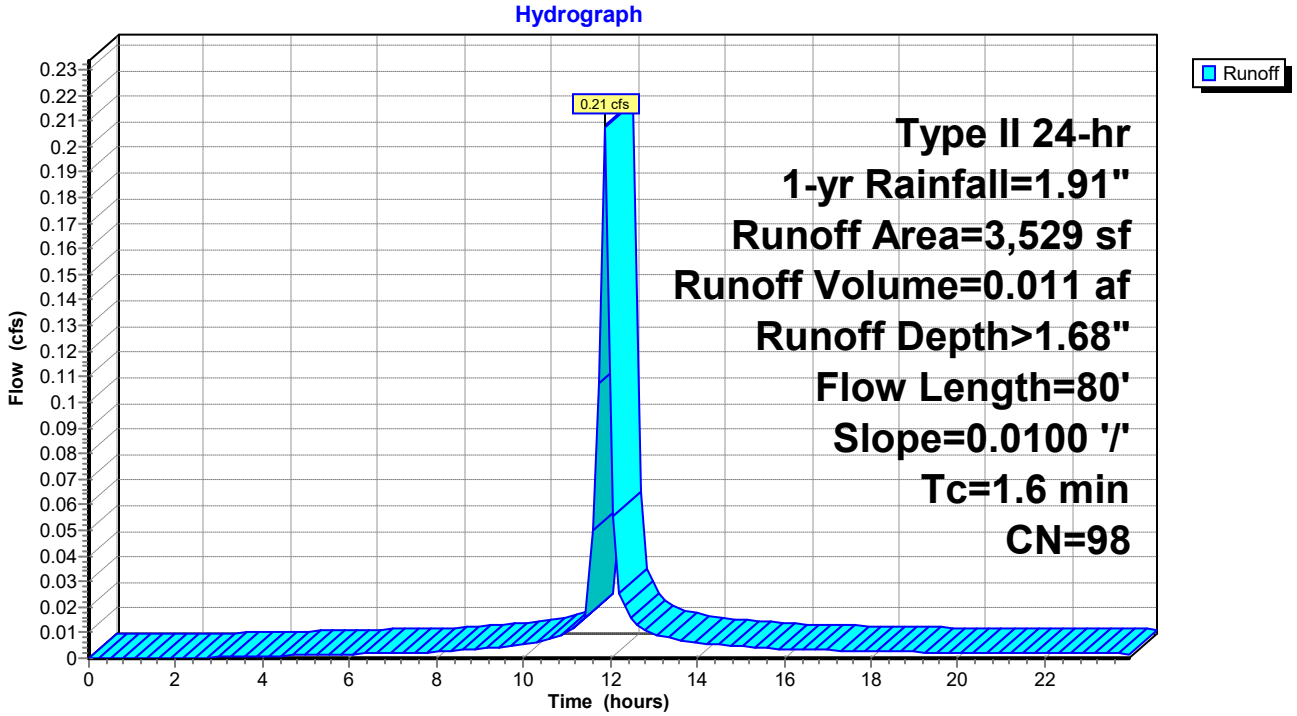
Runoff = 0.21 cfs @ 11.89 hrs, Volume= 0.011 af, Depth> 1.68"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 1-yr Rainfall=1.91"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 0.51" for 1-yr event
Inflow = 0.09 cfs @ 12.02 hrs, Volume= 0.006 af
Outflow = 0.06 cfs @ 12.15 hrs, Volume= 0.006 af, Atten= 39%, Lag= 8.1 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

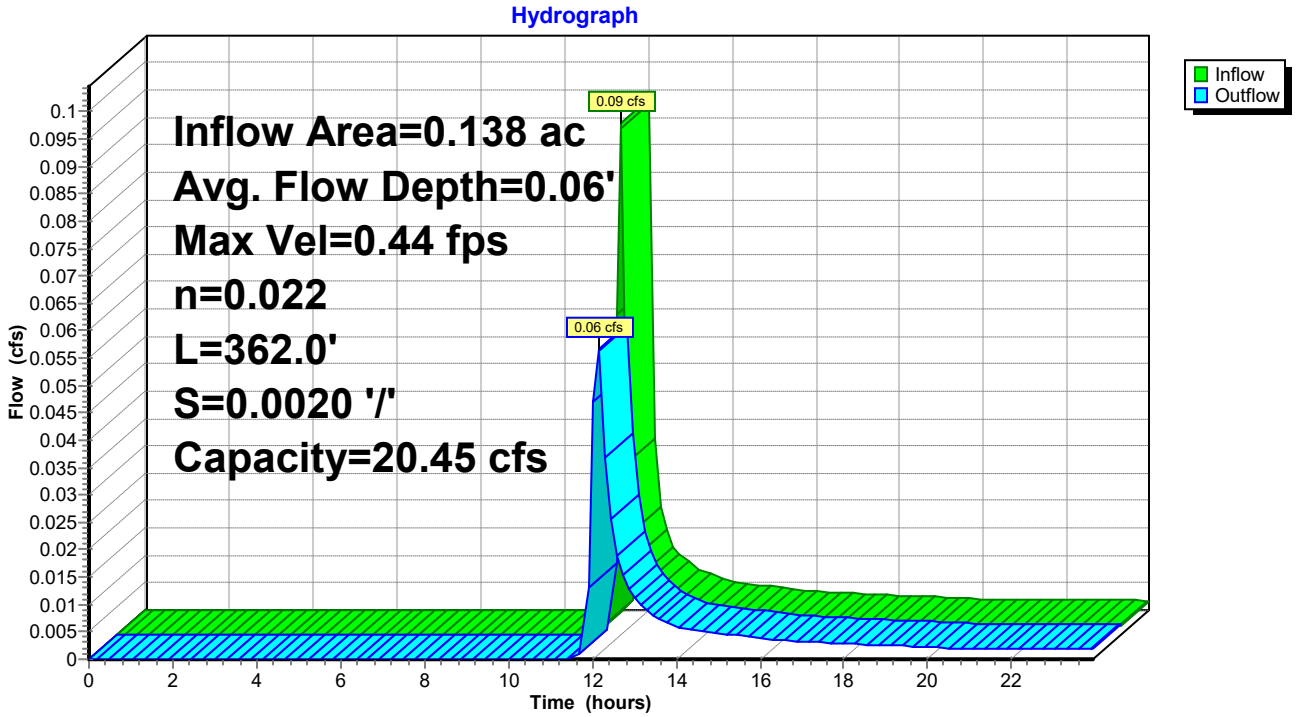
Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.44 fps, Min. Travel Time= 13.7 min
Avg. Velocity = 0.20 fps, Avg. Travel Time= 30.5 min

Peak Storage= 46 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 2.24'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



Reach 4R: East Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 1.62" for 1-yr event
Inflow = 1.90 cfs @ 11.92 hrs, Volume= 0.119 af
Outflow = 1.78 cfs @ 11.92 hrs, Volume= 0.118 af, Atten= 6%, Lag= 0.5 min
Primary = 1.77 cfs @ 11.92 hrs, Volume= 0.108 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.01 cfs @ 12.26 hrs, Volume= 0.010 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.99' @ 12.26 hrs Surf.Area= 492 sf Storage= 148 cf

Plug-Flow detention time= 13.3 min calculated for 0.118 af (99% of inflow)
Center-of-Mass det. time= 4.5 min (770.2 - 765.7)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

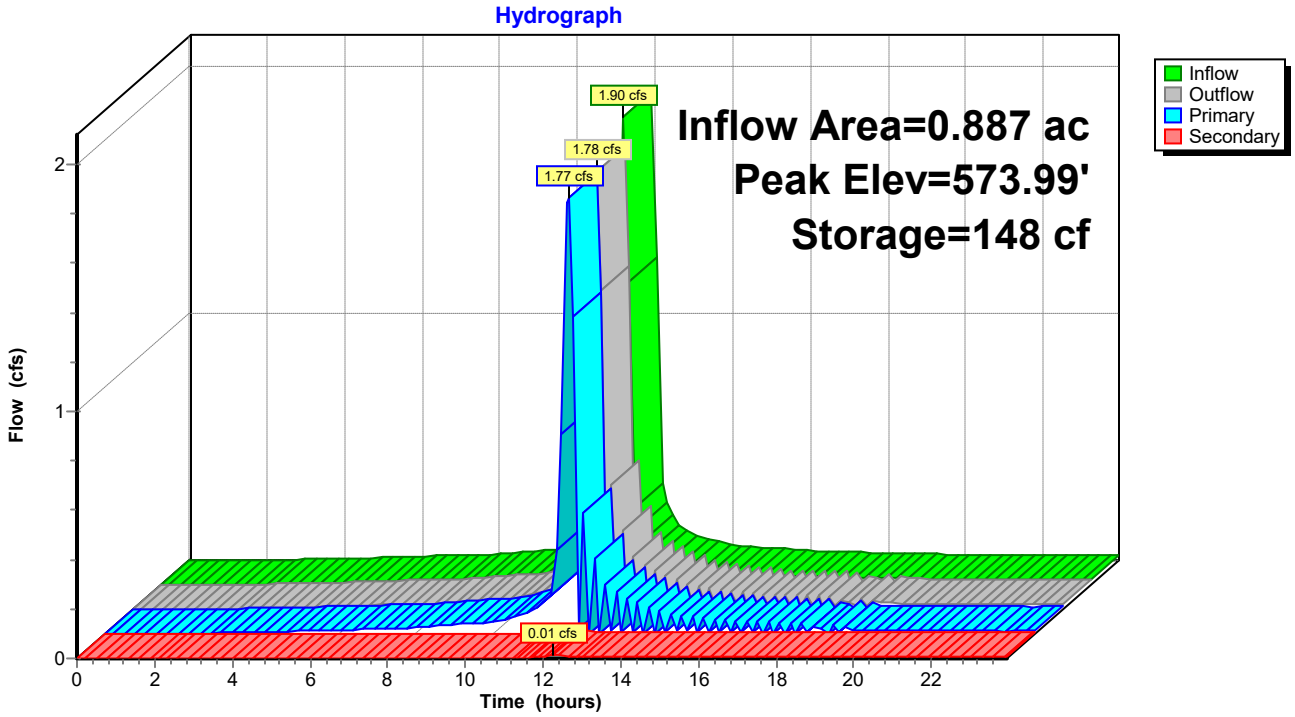
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	**1.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.00 cfs @ 11.92 hrs HW=573.82' TW=573.83' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.01 cfs @ 12.26 hrs HW=573.98' TW=573.96' (Dynamic Tailwater)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

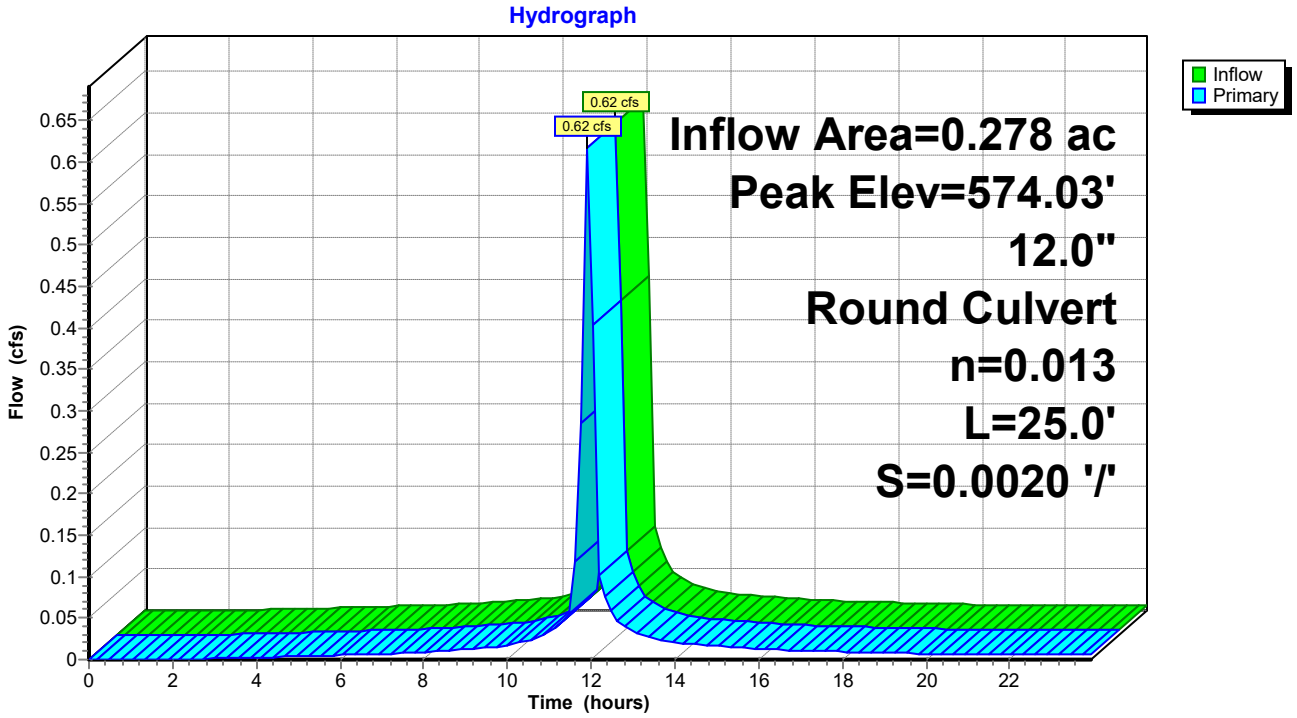
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 0.62 cfs @ 11.92 hrs, Volume= 0.039 af
Outflow = 0.62 cfs @ 11.92 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 11.92 hrs, Volume= 0.039 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.03' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	**12.0" Round 12" CULVERT** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.59 cfs @ 11.92 hrs HW=574.02' TW=573.81' (Dynamic Tailwater)
1=12" CULVERT (Barrel Controls 0.59 cfs @ 2.14 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

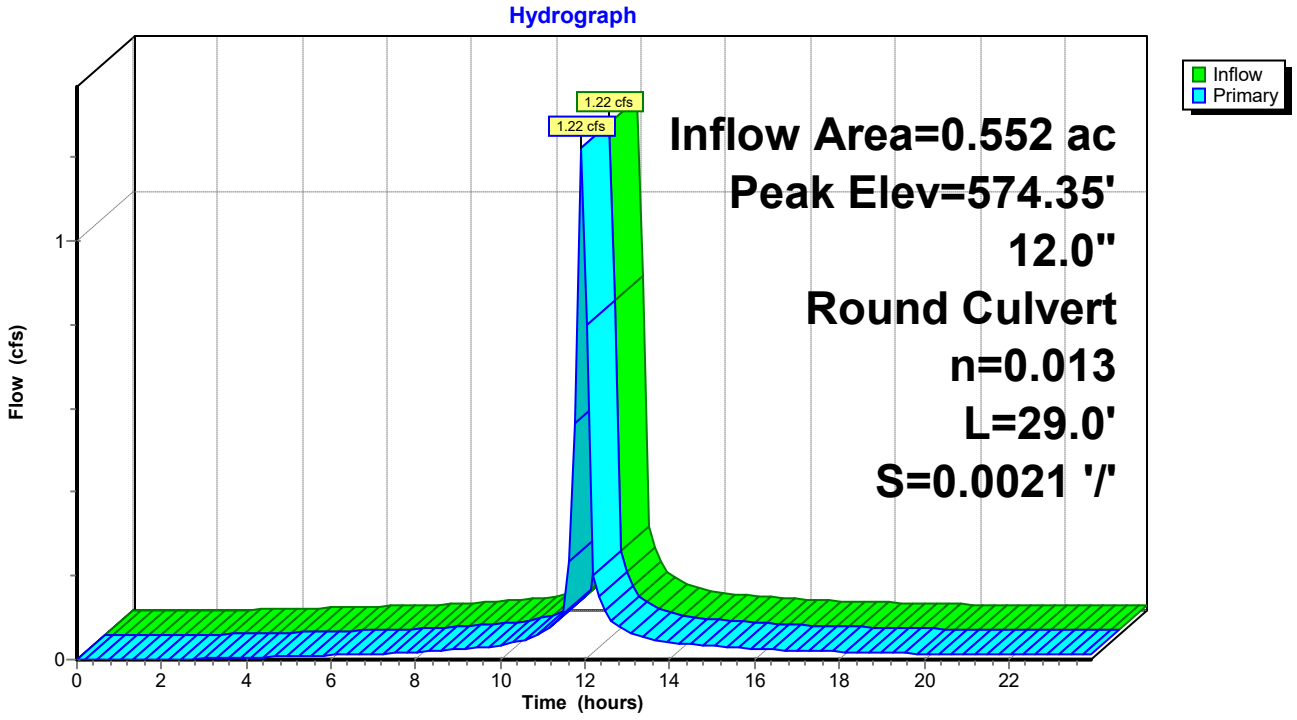
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 1.22 cfs @ 11.92 hrs, Volume= 0.077 af
Outflow = 1.22 cfs @ 11.92 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
Primary = 1.22 cfs @ 11.92 hrs, Volume= 0.077 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.35' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	**12.0" Round 12" CULVERT** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.17 cfs @ 11.92 hrs HW=574.33' TW=573.81' (Dynamic Tailwater)
1=12" CULVERT (Barrel Controls 1.17 cfs @ 2.60 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.39" for 1-yr event
Inflow = 1.91 cfs @ 11.92 hrs, Volume= 0.127 af
Outflow = 0.76 cfs @ 12.12 hrs, Volume= 0.095 af, Atten= 60%, Lag= 11.7 min
Primary = 0.04 cfs @ 12.12 hrs, Volume= 0.057 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 0.72 cfs @ 12.12 hrs, Volume= 0.038 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.99' @ 12.12 hrs Surf.Area= 3,494 sf Storage= 2,027 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 72.5 min (849.5 - 777.0)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

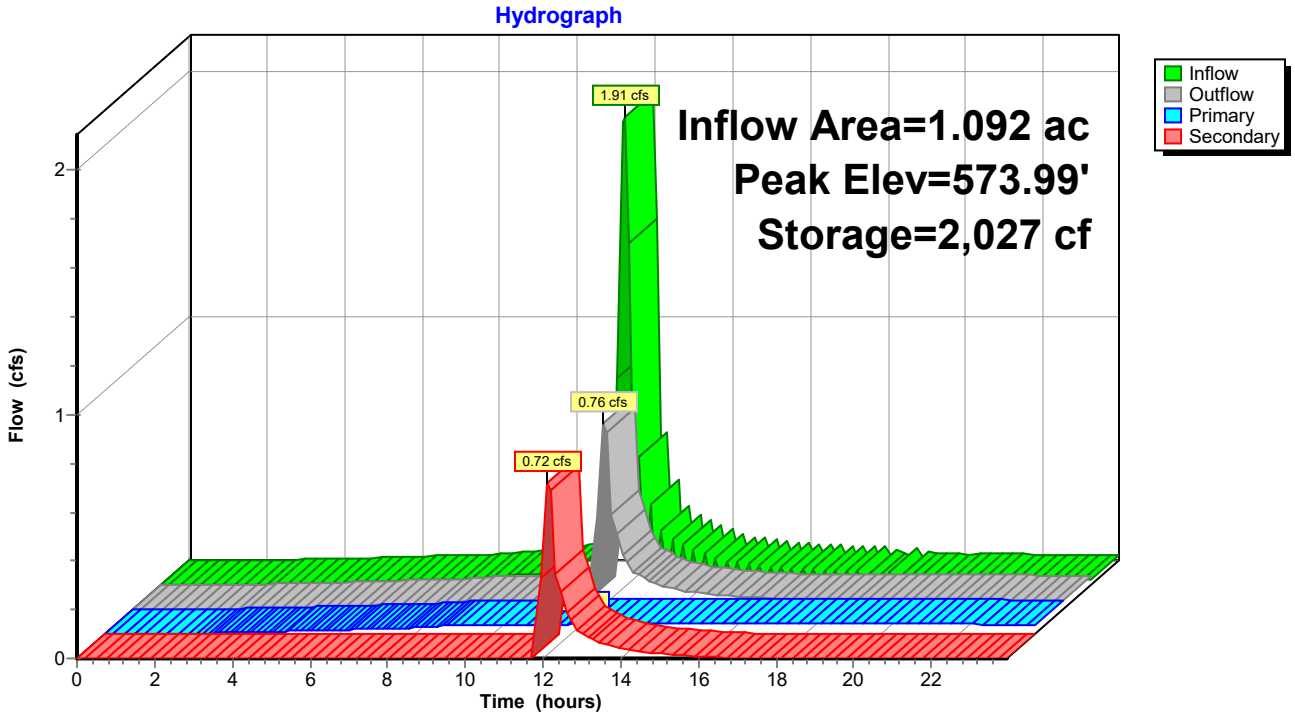
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	**6.0" Horiz. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	**0.500 in/hr Exfiltration of Soil Media over Surface area**

Primary OutFlow Max=0.04 cfs @ 12.12 hrs HW=573.98' TW=569.62' (Dynamic Tailwater)
└**3=Exfiltration of Soil Media** (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=0.68 cfs @ 12.12 hrs HW=573.98' TW=569.62' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Weir Controls 0.68 cfs @ 1.05 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.05" for 1-yr event
Inflow = 0.76 cfs @ 12.12 hrs, Volume= 0.095 af
Outflow = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af, Atten= 87%, Lag= 105.1 min
Primary = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.23' @ 14.12 hrs Surf.Area= 2,931 sf Storage= 1,481 cf

Plug-Flow detention time= 211.2 min calculated for 0.064 af (67% of inflow)
Center-of-Mass det. time= 65.0 min (914.5 - 849.5)

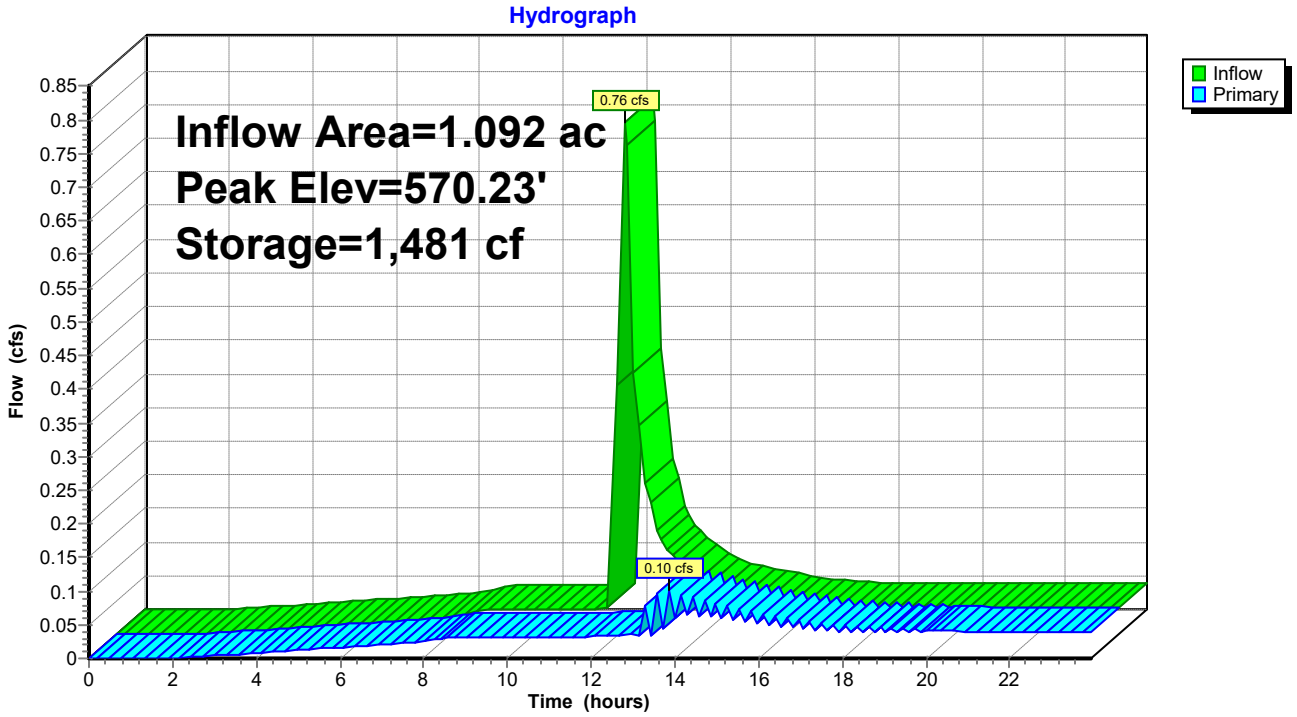
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	**6.0" Round 6" Perforated HDPE** Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	**16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5** 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	**6.0" Round Culvert after elbow assembly** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.06 cfs @ 13.87 hrs HW=570.23' TW=570.22' (Dynamic Tailwater)
└─**1=Culvert after elbow assembly** (Outlet Controls 0.03 cfs @ 0.55 fps)
└─**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

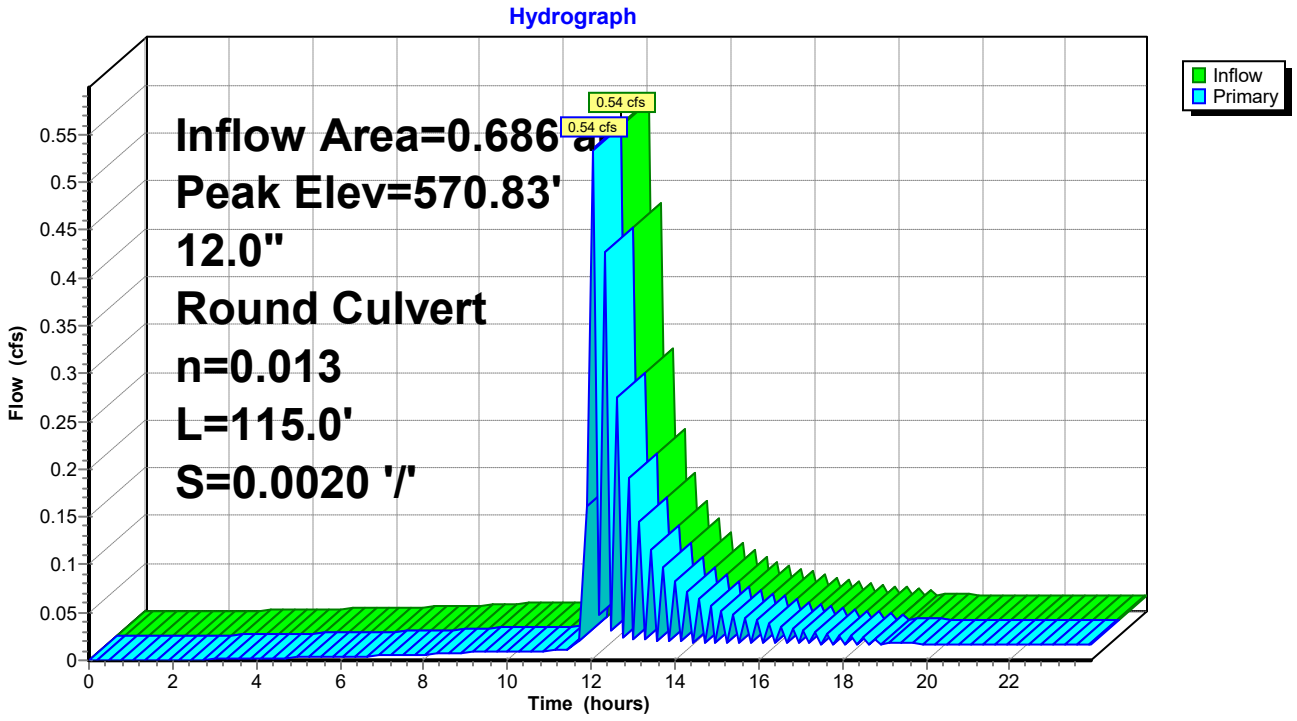
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 0.85" for 1-yr event
Inflow = 0.54 cfs @ 12.03 hrs, Volume= 0.049 af
Outflow = 0.54 cfs @ 12.03 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.03 hrs, Volume= 0.049 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.83' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	**12.0" Round Culvert** L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.03 hrs HW=570.81' TW=570.34' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.50 cfs @ 1.90 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.14" for 1-yr event
Inflow = 0.94 cfs @ 11.89 hrs, Volume= 0.054 af
Outflow = 0.90 cfs @ 11.90 hrs, Volume= 0.049 af, Atten= 4%, Lag= 0.8 min
Primary = 0.01 cfs @ 11.90 hrs, Volume= 0.015 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 0.89 cfs @ 11.90 hrs, Volume= 0.034 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.31' @ 11.90 hrs Surf.Area= 943 sf Storage= 313 cf

Plug-Flow detention time= 71.6 min calculated for 0.049 af (90% of inflow)
Center-of-Mass det. time= 22.3 min (815.3 - 793.1)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

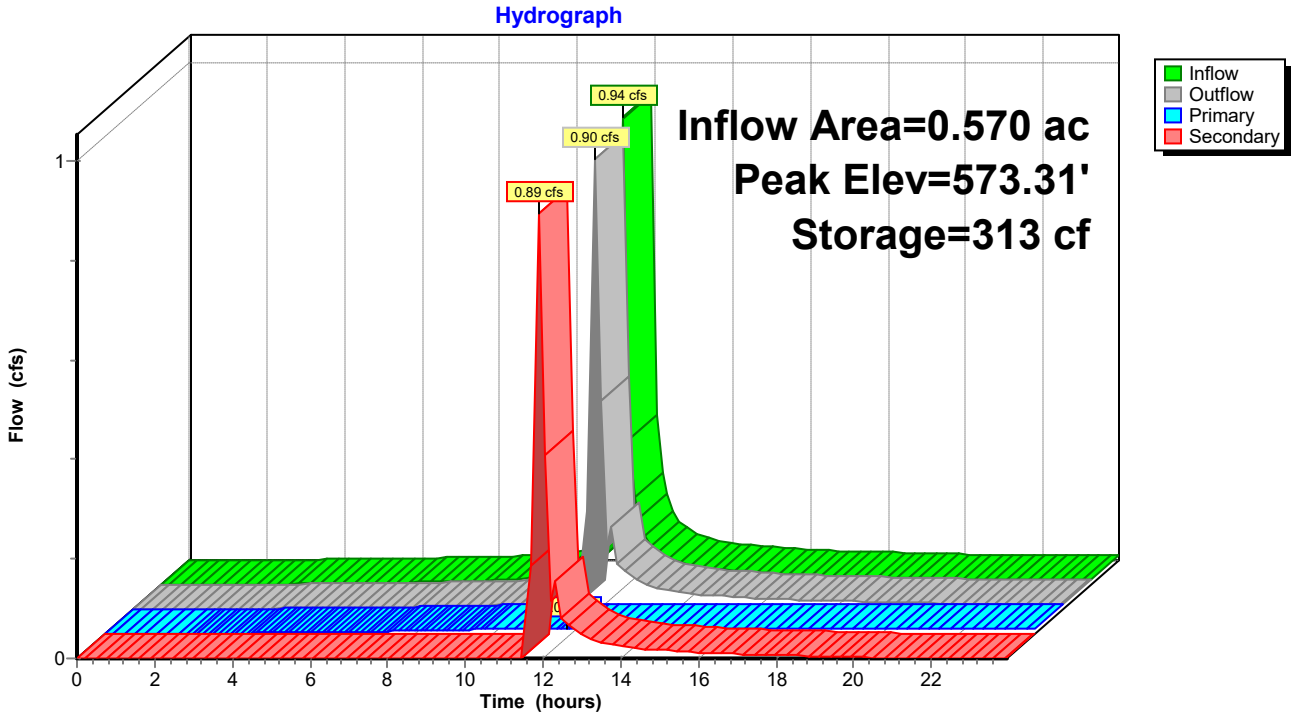
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	**4.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	**0.500 in/hr Exfiltration through soil media over Surface area**

Primary OutFlow Max=0.01 cfs @ 11.90 hrs HW=573.31' TW=570.55' (Dynamic Tailwater)
└**3=Exfiltration through soil media** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.88 cfs @ 11.90 hrs HW=573.31' TW=570.55' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Weir Controls 0.79 cfs @ 0.80 fps)
└**2=Orifice/Grate** (Weir Controls 0.09 cfs @ 0.98 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.03" for 1-yr event
Inflow = 0.90 cfs @ 11.90 hrs, Volume= 0.049 af
Outflow = 0.46 cfs @ 12.03 hrs, Volume= 0.044 af, Atten= 49%, Lag= 7.8 min
Primary = 0.46 cfs @ 12.03 hrs, Volume= 0.044 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.80' @ 12.16 hrs Surf.Area= 1,355 sf Storage= 593 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 45.7 min (861.0 - 815.3)

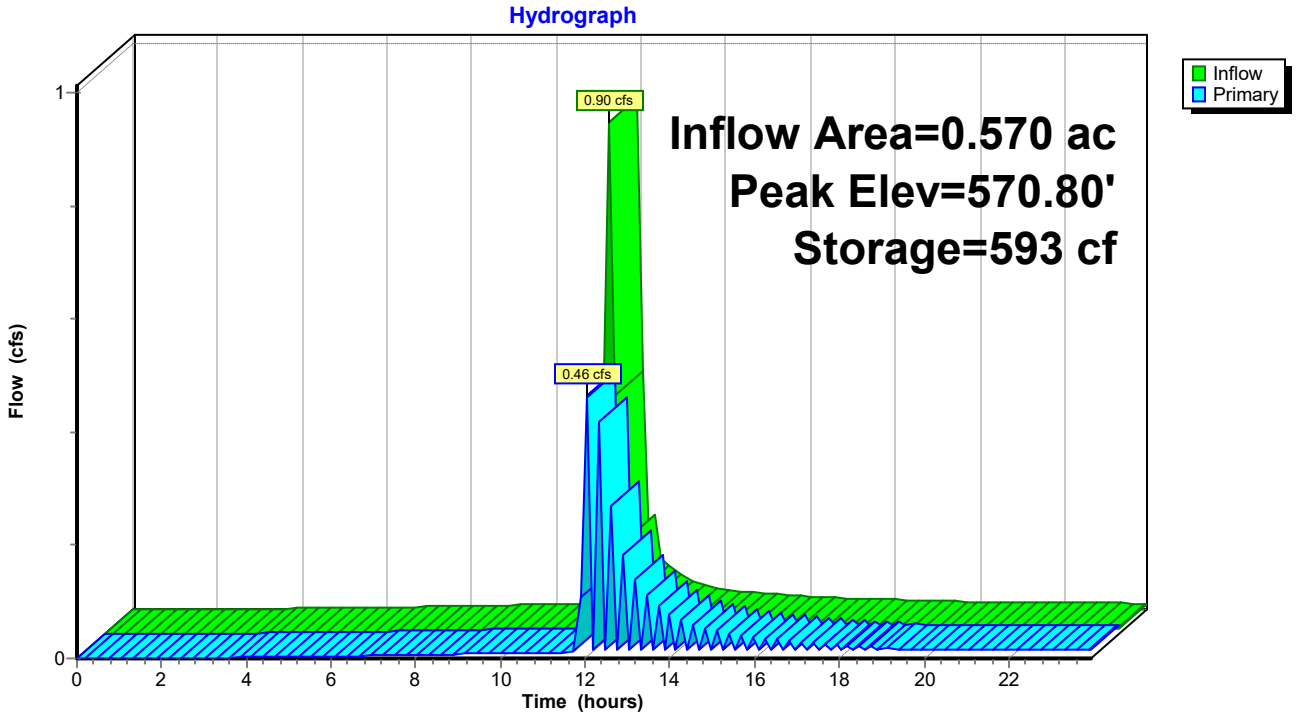
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	**8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5** 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	**8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5** 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	**4.0" Round 4" Perforated HDPE** Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	**12.0" Round 12" Culvert** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.02 cfs @ 12.03 hrs HW=570.76' TW=570.82' (Dynamic Tailwater)
1=12" Culvert (Controls 0.00 cfs)
2=Exfiltration (Exfiltration Controls 0.02 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

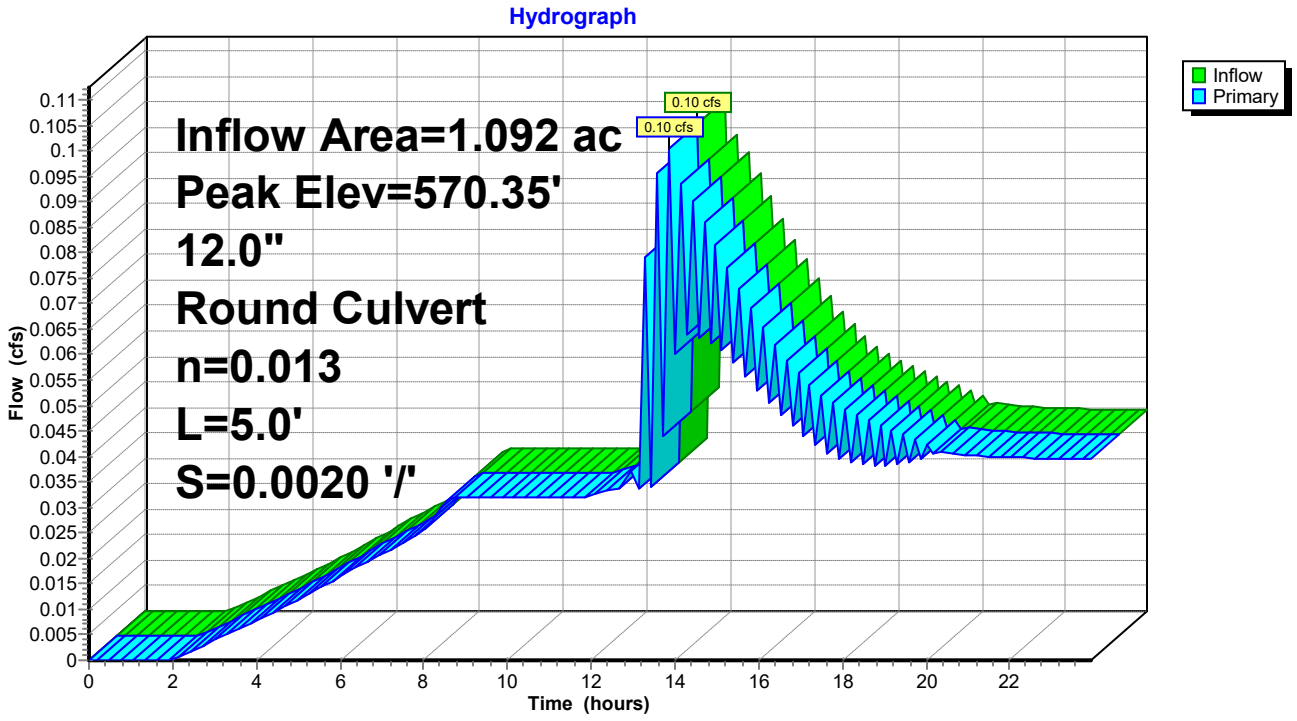
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 0.71" for 1-yr event
Inflow = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af
Outflow = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 13.87 hrs, Volume= 0.065 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.35' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	**12.0" Round 12 " Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 13.87 hrs HW=570.22' TW=570.16' (Dynamic Tailwater)
1=12 " Culvert (Outlet Controls 0.11 cfs @ 1.37 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 1.35" for 1-yr event
Inflow = 0.93 cfs @ 11.89 hrs, Volume= 0.049 af
Outflow = 0.93 cfs @ 11.89 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 11.89 hrs, Volume= 0.049 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.68' @ 11.89 hrs
Flood Elev= 576.20'

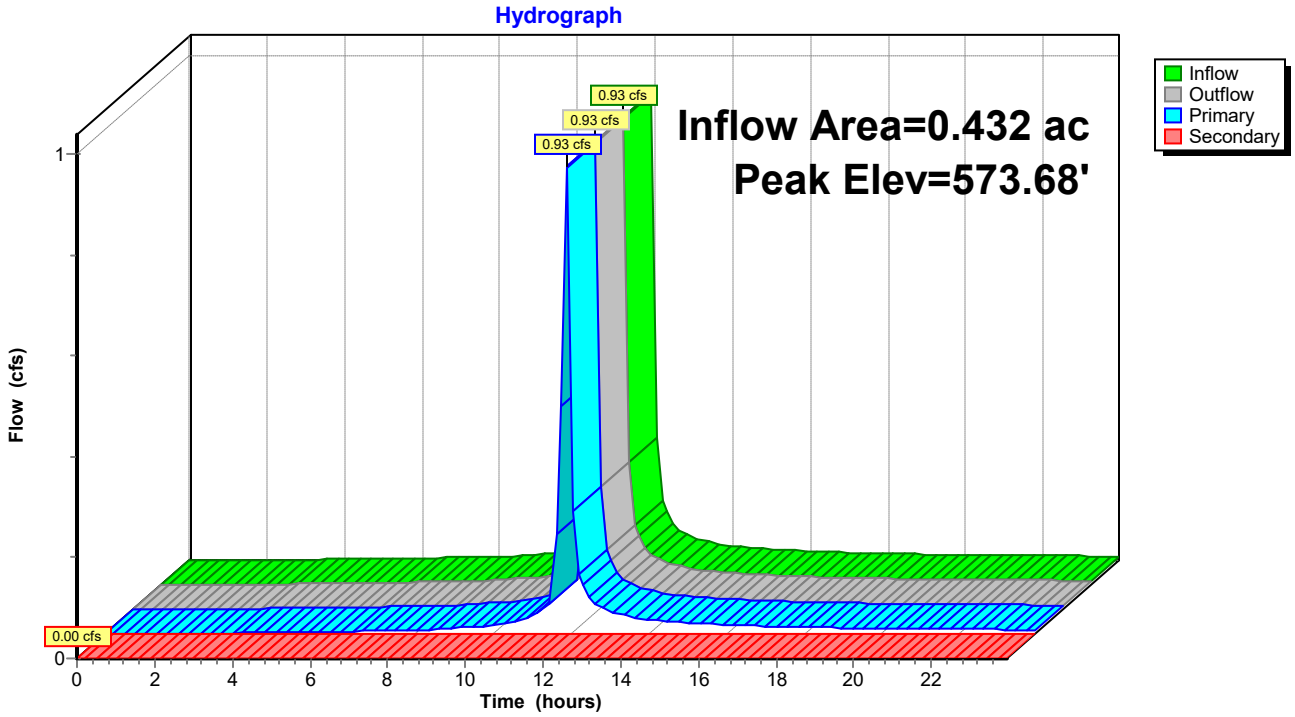
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	**6.0" Horiz. Orifice/Grate X 5.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.86 cfs @ 11.89 hrs HW=573.67' TW=573.31' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.27 cfs @ 2.88 fps)
- **2=Orifice/Grate** (Orifice Controls 0.42 cfs @ 2.19 fps)
- **3=Orifice/Grate** (Orifice Controls 0.17 cfs @ 0.89 fps)
- **4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- **5=Orifice/Grate** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

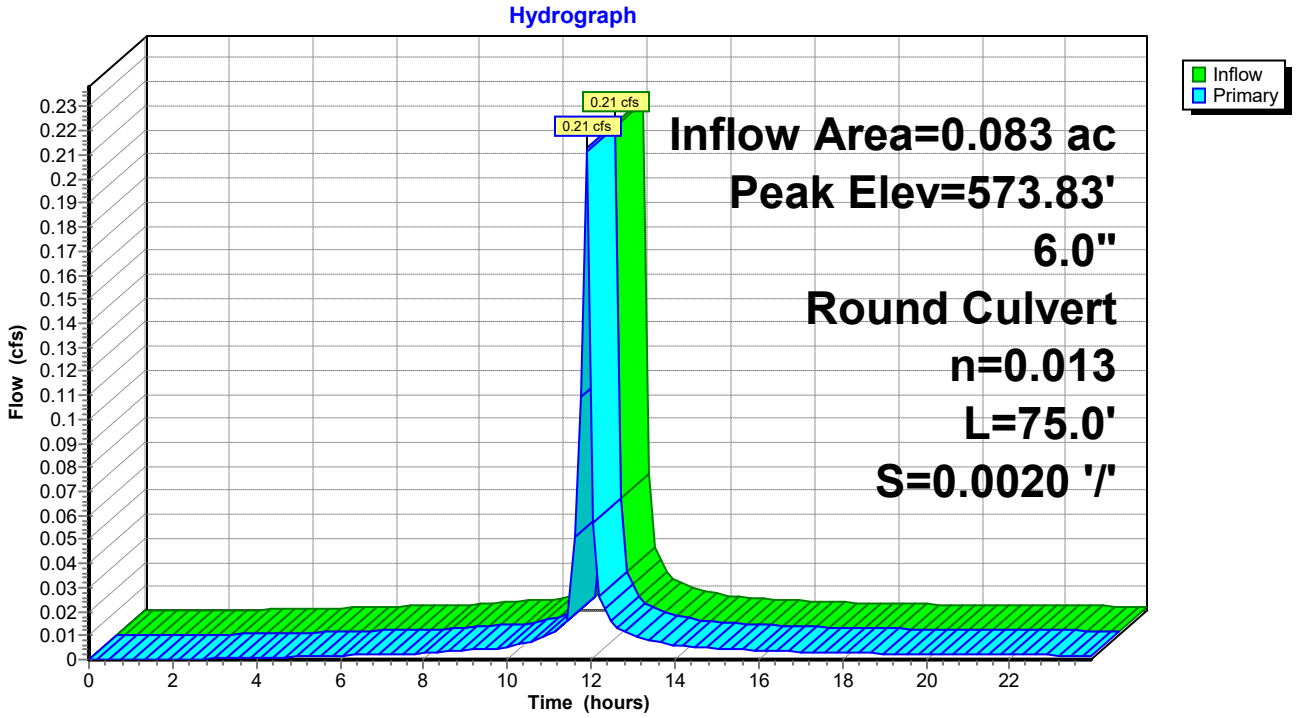
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 0.21 cfs @ 11.89 hrs, Volume= 0.012 af
Outflow = 0.21 cfs @ 11.89 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 11.89 hrs, Volume= 0.012 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.83' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.15 cfs @ 11.89 hrs HW=573.81' TW=573.66' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.15 cfs @ 1.21 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

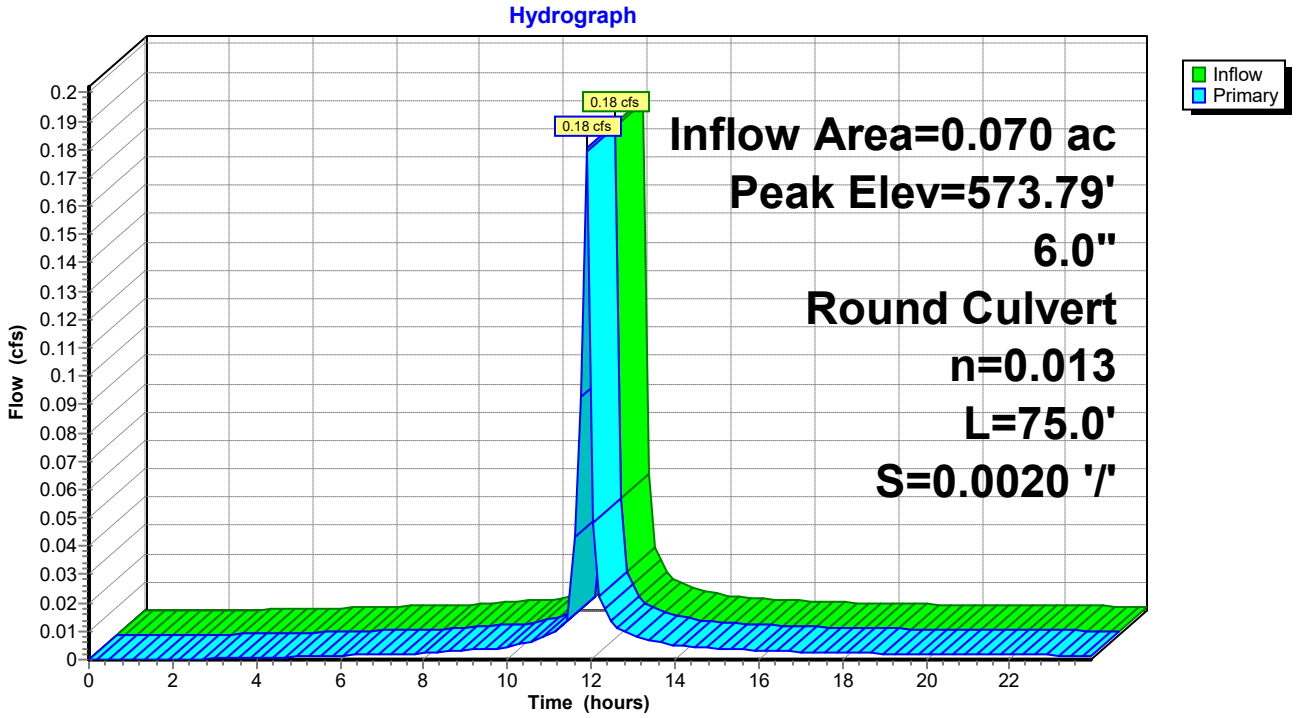
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 0.18 cfs @ 11.89 hrs, Volume= 0.010 af
Outflow = 0.18 cfs @ 11.89 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 11.89 hrs, Volume= 0.010 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.79' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.11 cfs @ 11.89 hrs HW=573.77' TW=573.66' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.11 cfs @ 1.01 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

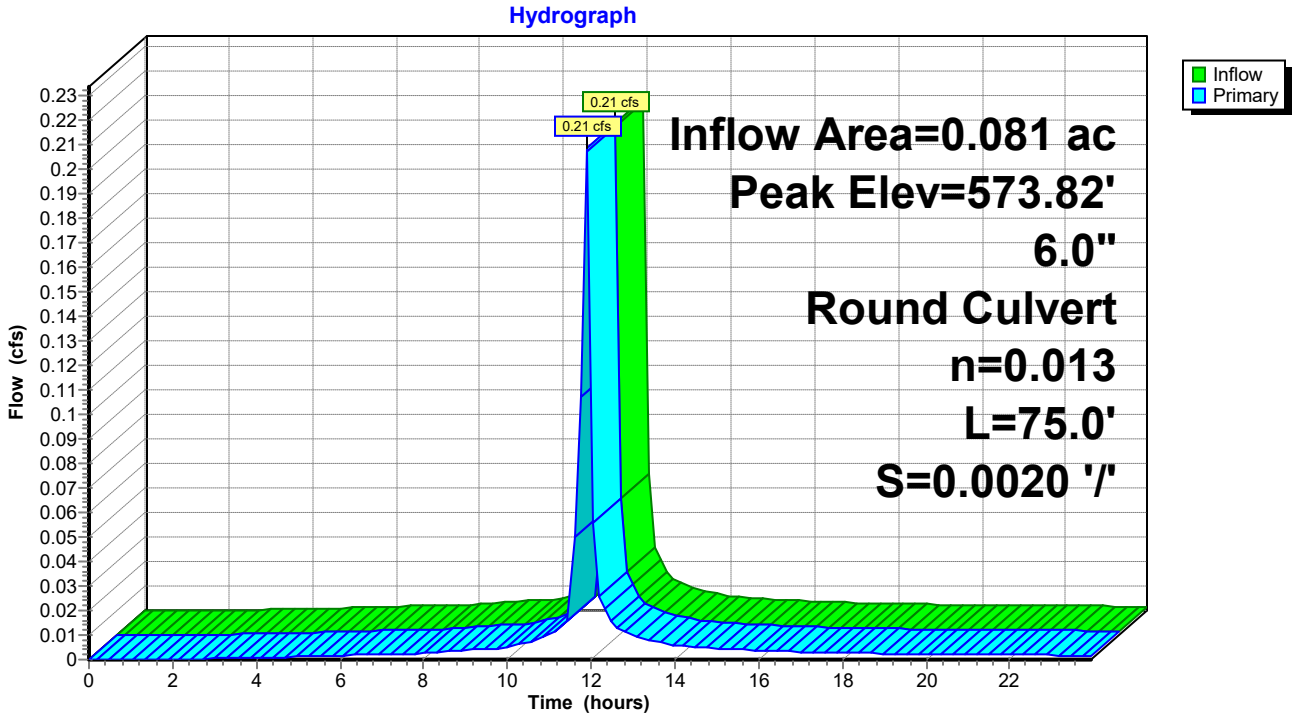
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 1.68" for 1-yr event
Inflow = 0.21 cfs @ 11.89 hrs, Volume= 0.011 af
Outflow = 0.21 cfs @ 11.89 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 11.89 hrs, Volume= 0.011 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.82' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.15 cfs @ 11.89 hrs HW=573.81' TW=573.66' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.15 cfs @ 1.18 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

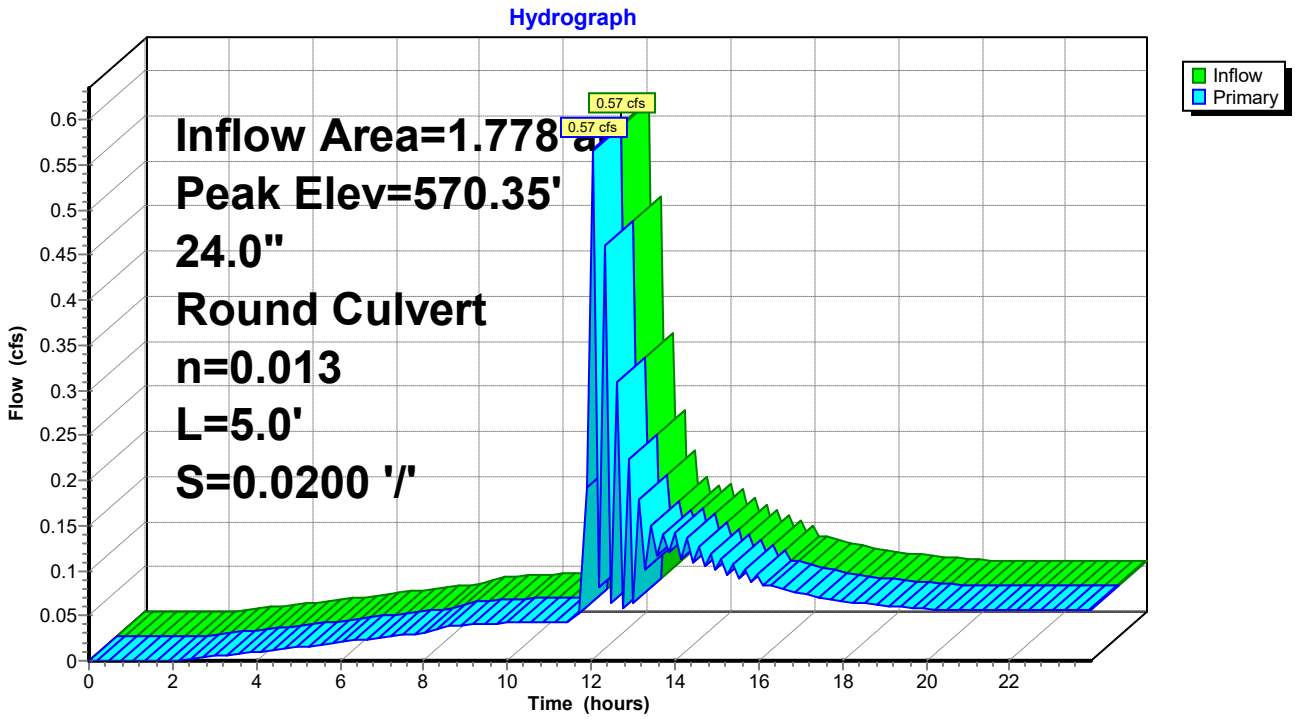
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 0.76" for 1-yr event
Inflow = 0.57 cfs @ 12.03 hrs, Volume= 0.113 af
Outflow = 0.57 cfs @ 12.03 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.03 hrs, Volume= 0.113 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.35' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	**24.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=0.54 cfs @ 12.03 hrs HW=570.34' (Free Discharge)
1=Culvert (Barrel Controls 0.54 cfs @ 2.33 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 0.51" for 1-yr event
Inflow = 0.07 cfs @ 11.97 hrs, Volume= 0.005 af
Outflow = 0.07 cfs @ 12.01 hrs, Volume= 0.005 af, Atten= 2%, Lag= 2.9 min
Primary = 0.07 cfs @ 12.01 hrs, Volume= 0.005 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.78' @ 12.01 hrs Surf.Area= 257 sf Storage= 8 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (870.2 - 869.1)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

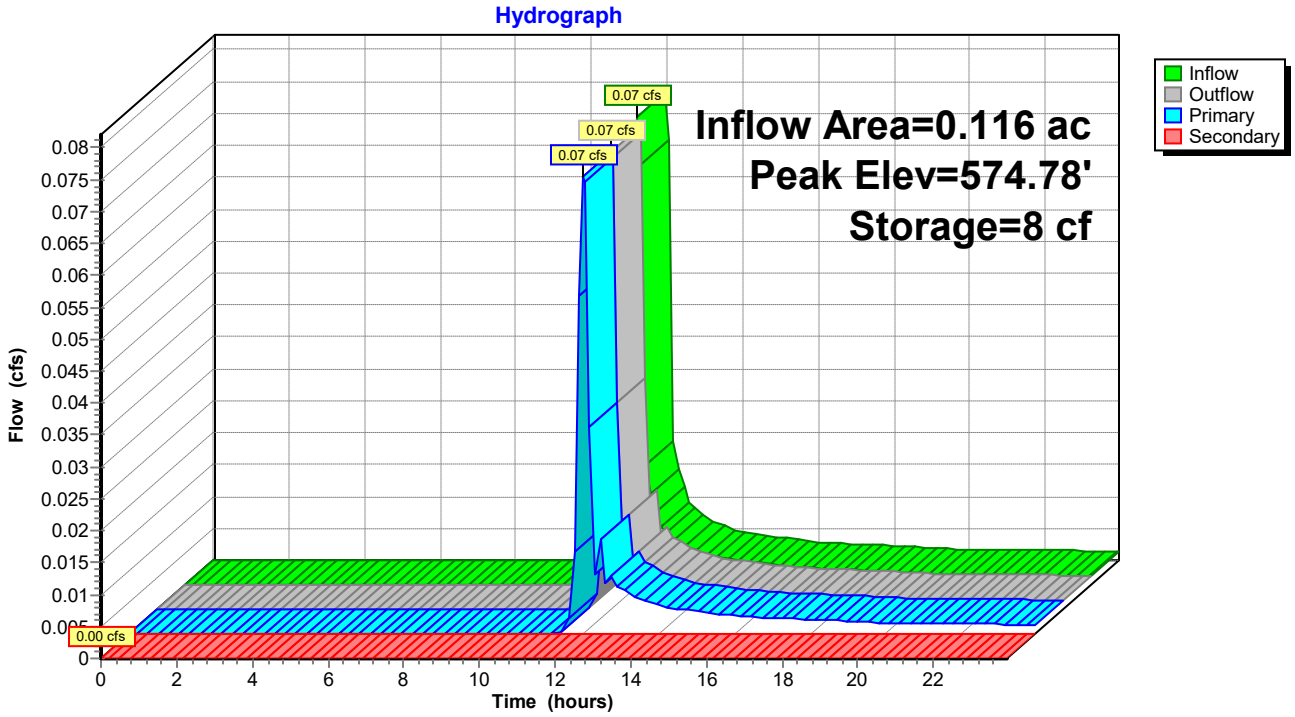
Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	**6.0" Horiz. 6" Yard Drain** C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	**1.7" x 3.2" Horiz. CB Grate X 7.00 columns** X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

Primary OutFlow Max=0.07 cfs @ 12.01 hrs HW=574.78' TW=570.79' (Dynamic Tailwater)
↑—**1=6" Yard Drain** (Weir Controls 0.07 cfs @ 0.77 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
↑—**2=CB Grate** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=0.74 cfs 0.047 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.46 cfs 0.093 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>0.73"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.14 cfs 0.008 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>0.88"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.08 cfs 0.004 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>0.73"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.21 cfs 0.012 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>1.25"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=0.42 cfs 0.021 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>0.73"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.11 cfs 0.007 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.25 cfs 0.014 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.22 cfs 0.012 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>2.03"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.25 cfs 0.014 af

Reach 4R: East Swale Avg. Flow Depth=0.08' Max Vel=0.52 fps Inflow=0.14 cfs 0.008 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.09 cfs 0.008 af

Pond 5P: Front Vegetated Swale Peak Elev=574.05' Storage=176 cf Inflow=2.28 cfs 0.145 af
Primary=2.10 cfs 0.133 af Secondary=0.01 cfs 0.010 af Outflow=2.11 cfs 0.143 af

Pond 6P: CB1 Peak Elev=574.09' Inflow=0.74 cfs 0.047 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=0.74 cfs 0.047 af

Pond 7P: CB2 Peak Elev=574.44' Inflow=1.46 cfs 0.093 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=1.46 cfs 0.093 af

Pond 14P: Bio-Retention Area Storage Peak Elev=574.05' Storage=2,242 cf Inflow=2.32 cfs 0.155 af
Primary=0.04 cfs 0.060 af Secondary=1.89 cfs 0.061 af Outflow=1.93 cfs 0.121 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=570.43' Storage=1,835 cf Inflow=1.93 cfs 0.121 af
Outflow=0.30 cfs 0.091 af

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=570.95' Inflow=0.79 cfs 0.064 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=0.79 cfs 0.064 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.32' Storage=321 cf Inflow=1.17 cfs 0.068 af
Primary=0.01 cfs 0.016 af Secondary=1.07 cfs 0.047 af Outflow=1.08 cfs 0.063 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=570.93' Storage=700 cf Inflow=1.08 cfs 0.063 af
Outflow=0.68 cfs 0.057 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=570.43' Inflow=0.30 cfs 0.091 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=0.30 cfs 0.091 af

Pond 41P: Level Spreader Peak Elev=573.75' Inflow=1.14 cfs 0.060 af
Primary=1.14 cfs 0.060 af Secondary=0.00 cfs 0.000 af Outflow=1.14 cfs 0.060 af

Pond 42P: CB3 Peak Elev=573.88' Inflow=0.25 cfs 0.014 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.25 cfs 0.014 af

Pond 44P: CB4 Peak Elev=573.83' Inflow=0.22 cfs 0.012 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.22 cfs 0.012 af

Pond 45P: CB5 Peak Elev=573.87' Inflow=0.25 cfs 0.014 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.25 cfs 0.014 af

Pond 46P: STM MH Peak Elev=570.43' Inflow=0.82 cfs 0.155 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=0.82 cfs 0.155 af

Pond 47P: West Area to CB + YD Peak Elev=574.80' Storage=13 cf Inflow=0.11 cfs 0.007 af
Primary=0.11 cfs 0.007 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.007 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.233 af Average Runoff Depth = 1.57"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

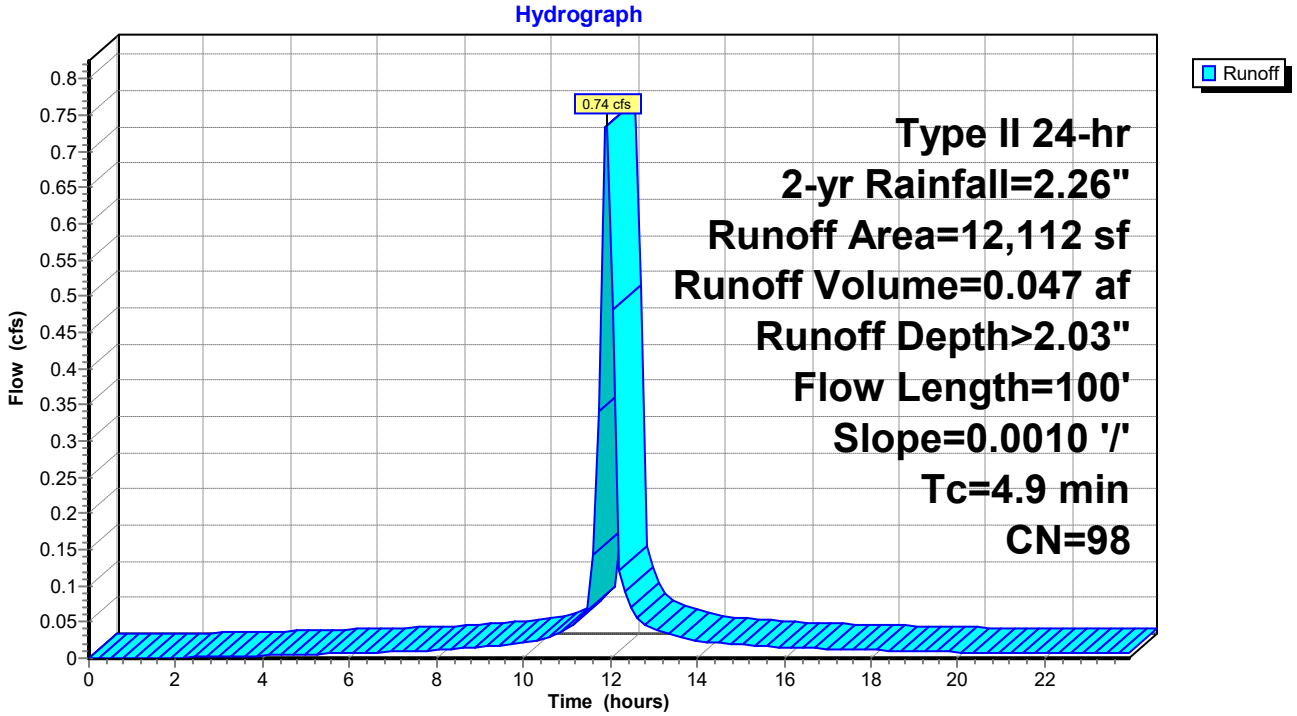
Runoff = 0.74 cfs @ 11.92 hrs, Volume= 0.047 af, Depth> 2.03"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

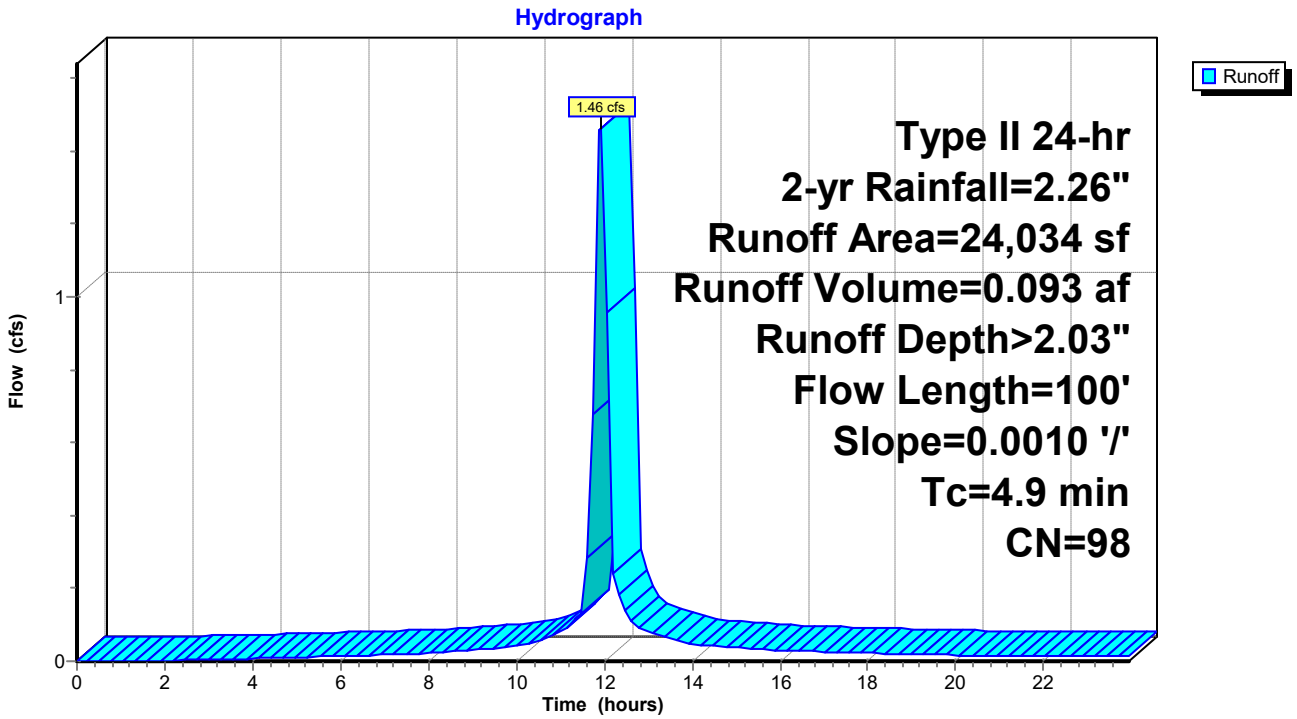
Runoff = 1.46 cfs @ 11.92 hrs, Volume= 0.093 af, Depth> 2.03"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

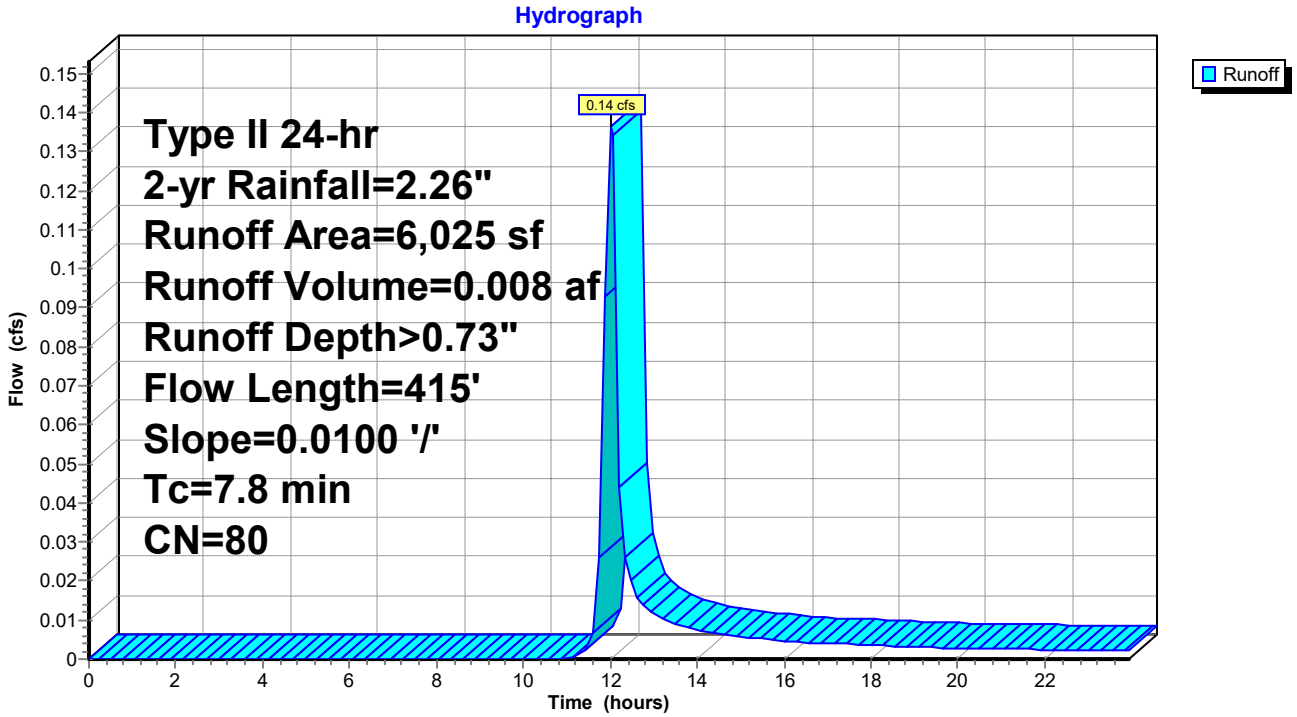
Runoff = 0.14 cfs @ 12.01 hrs, Volume= 0.008 af, Depth> 0.73"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

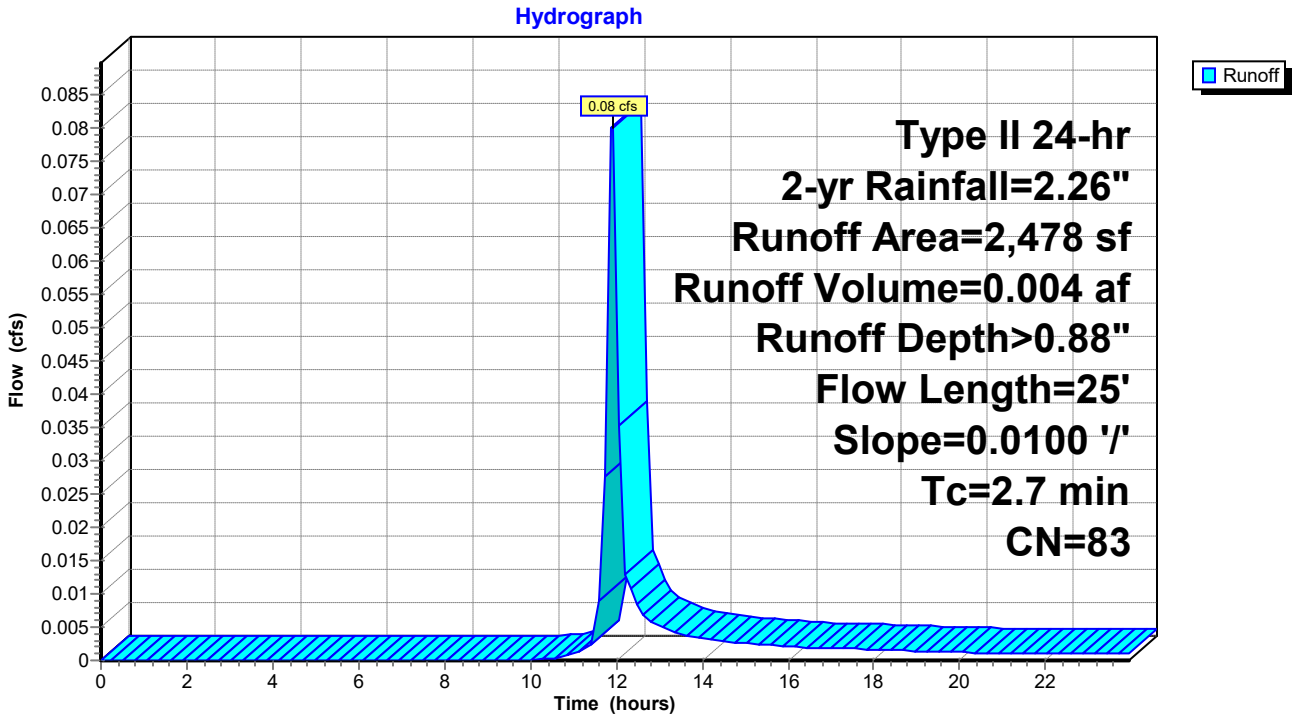
Runoff = 0.08 cfs @ 11.91 hrs, Volume= 0.004 af, Depth> 0.88"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

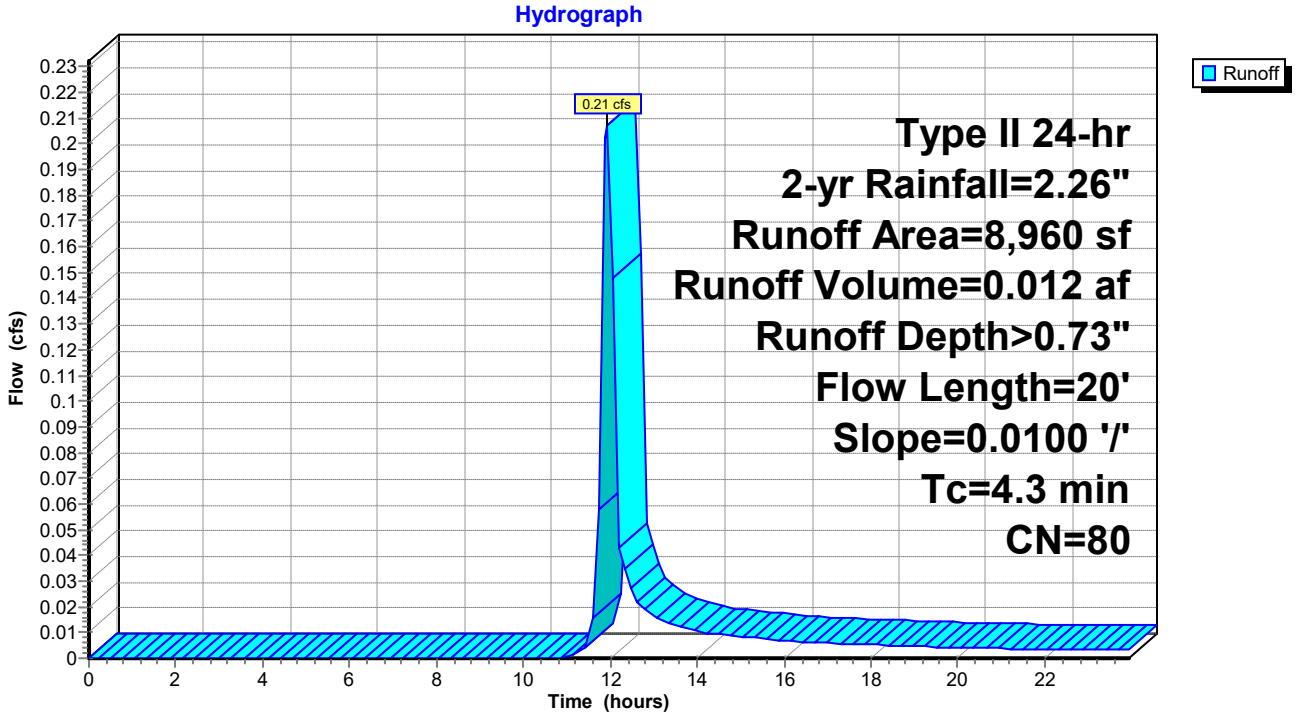
Runoff = 0.21 cfs @ 11.93 hrs, Volume= 0.012 af, Depth> 0.73"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

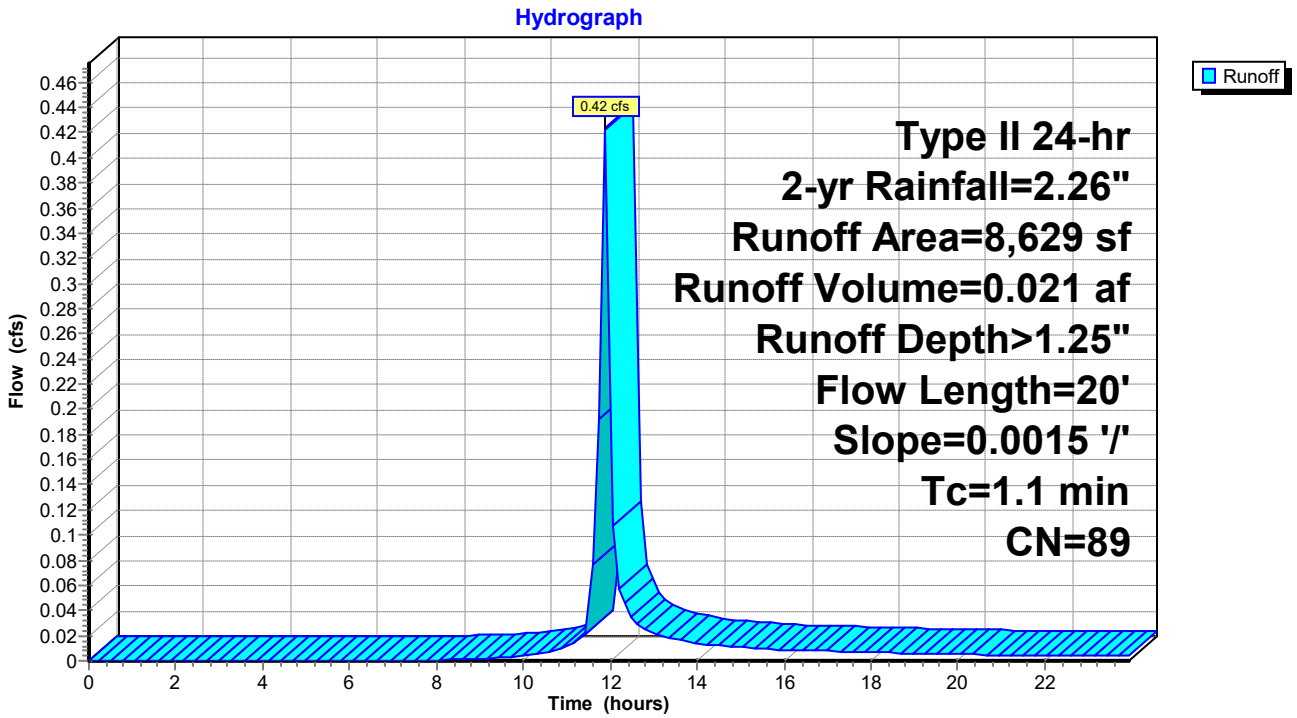
Runoff = 0.42 cfs @ 11.89 hrs, Volume= 0.021 af, Depth> 1.25"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

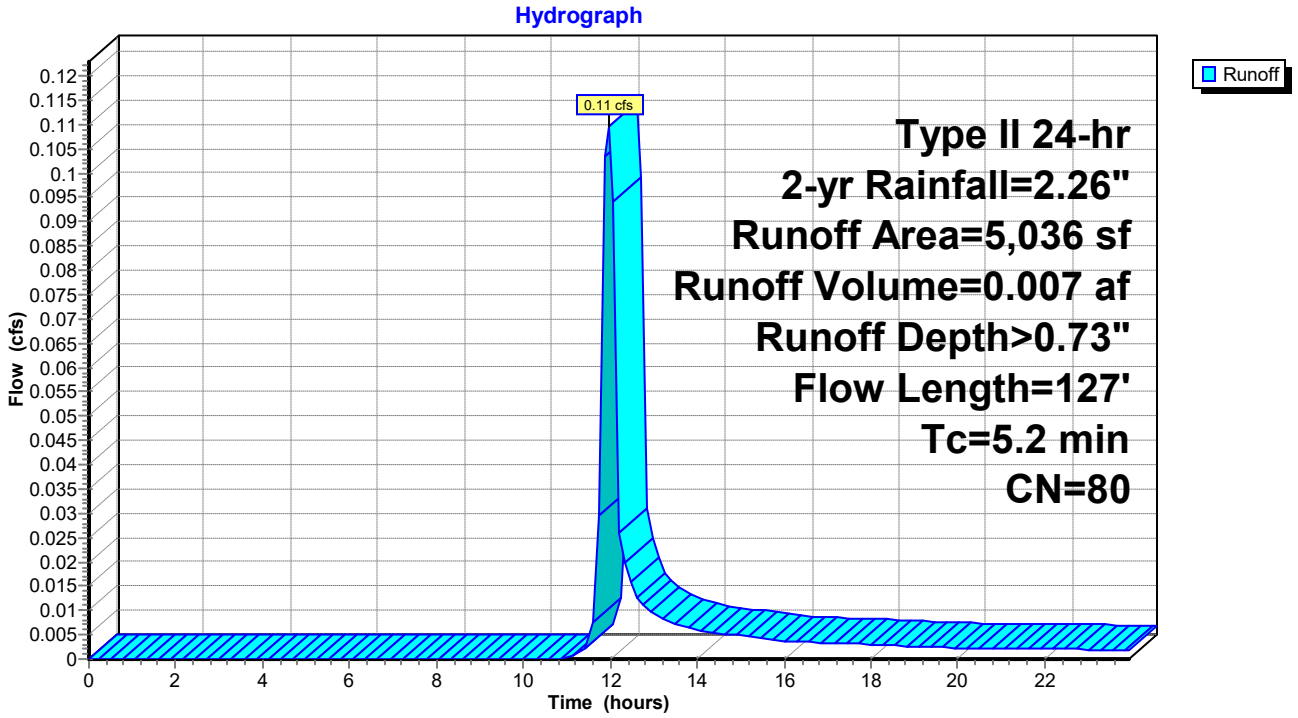
Runoff = 0.11 cfs @ 11.95 hrs, Volume= 0.007 af, Depth> 0.73"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

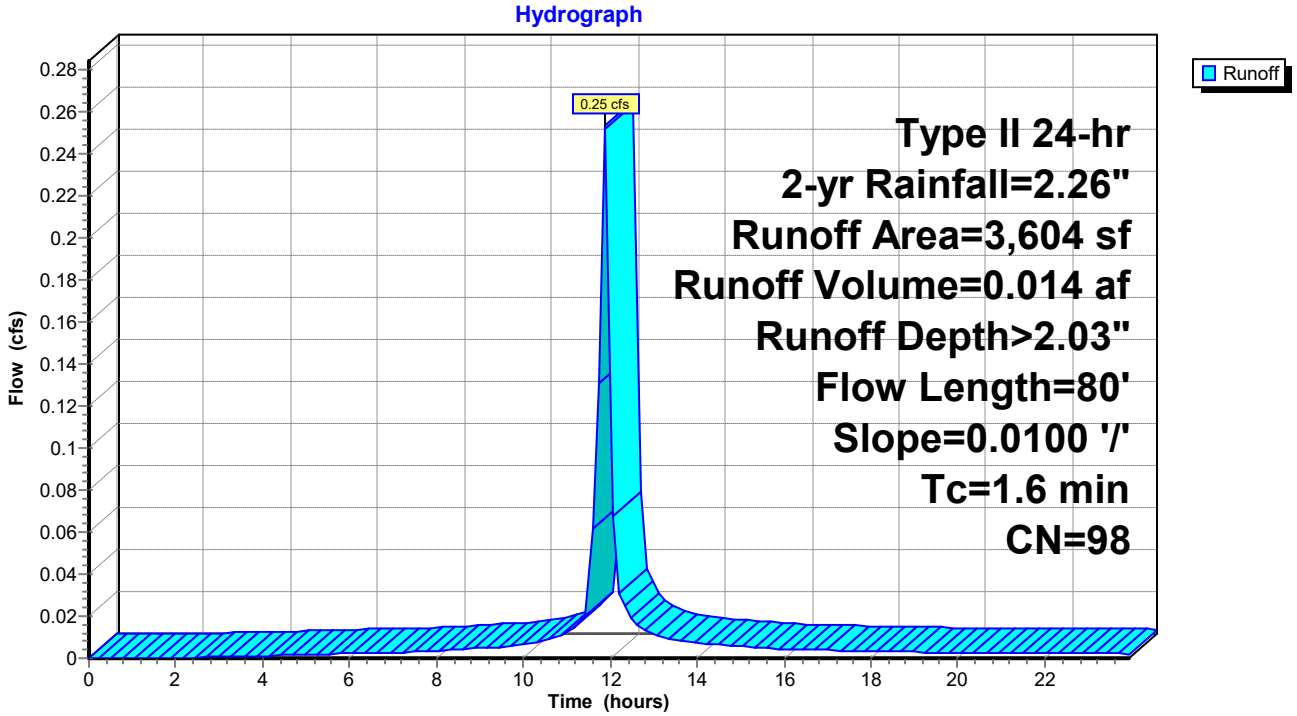
Runoff = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af, Depth> 2.03"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

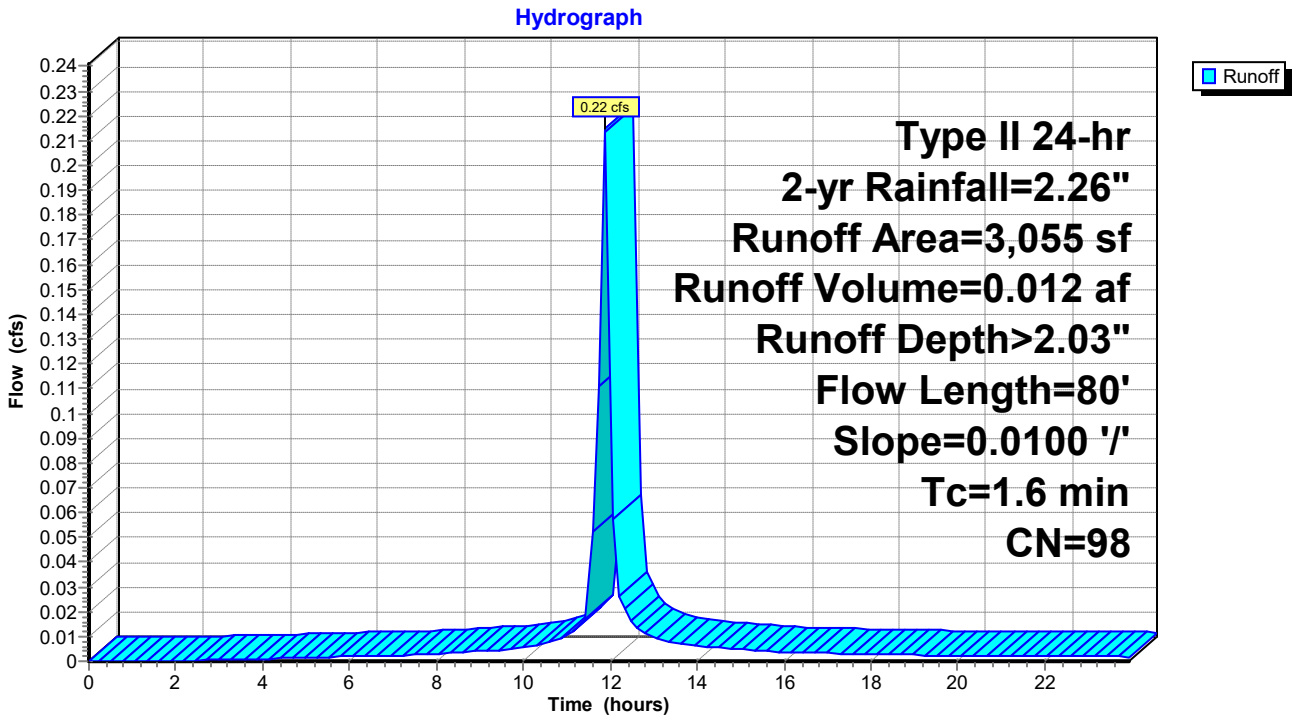
Runoff = 0.22 cfs @ 11.89 hrs, Volume= 0.012 af, Depth> 2.03"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

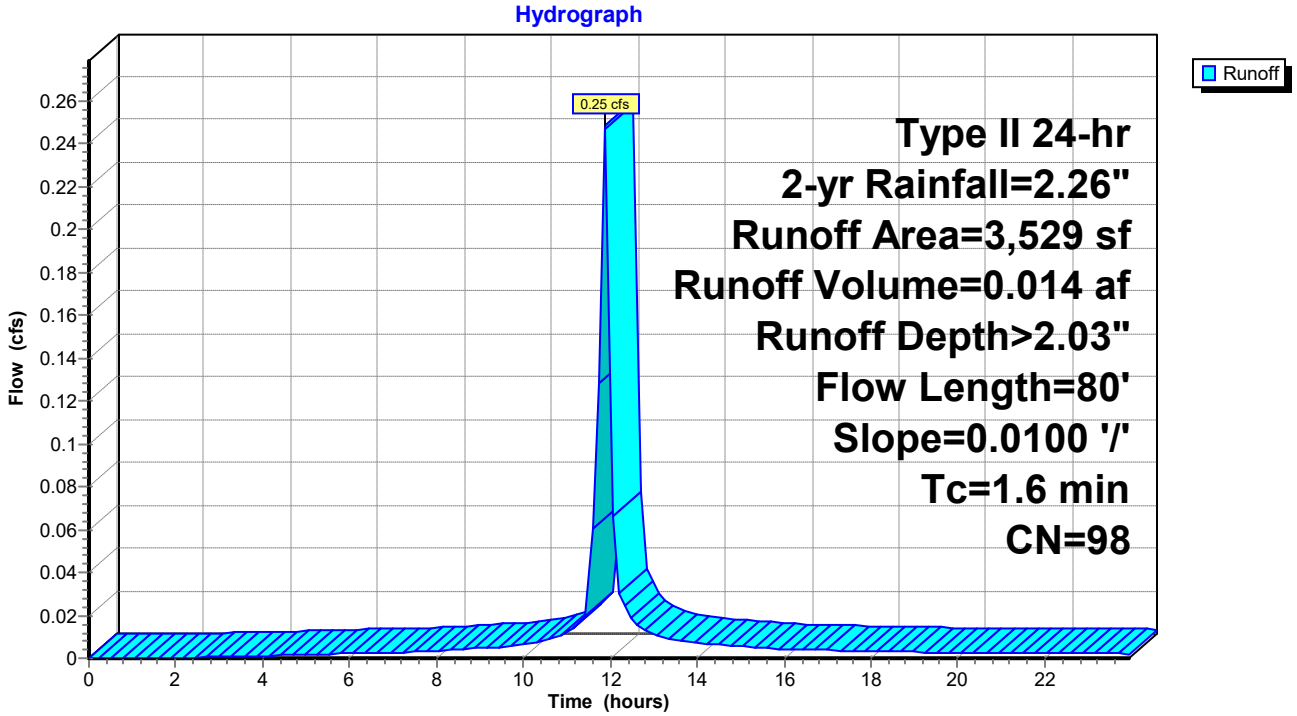
Runoff = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af, Depth> 2.03"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 2-yr Rainfall=2.26"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 0.73" for 2-yr event
Inflow = 0.14 cfs @ 12.01 hrs, Volume= 0.008 af
Outflow = 0.09 cfs @ 12.12 hrs, Volume= 0.008 af, Atten= 33%, Lag= 6.5 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

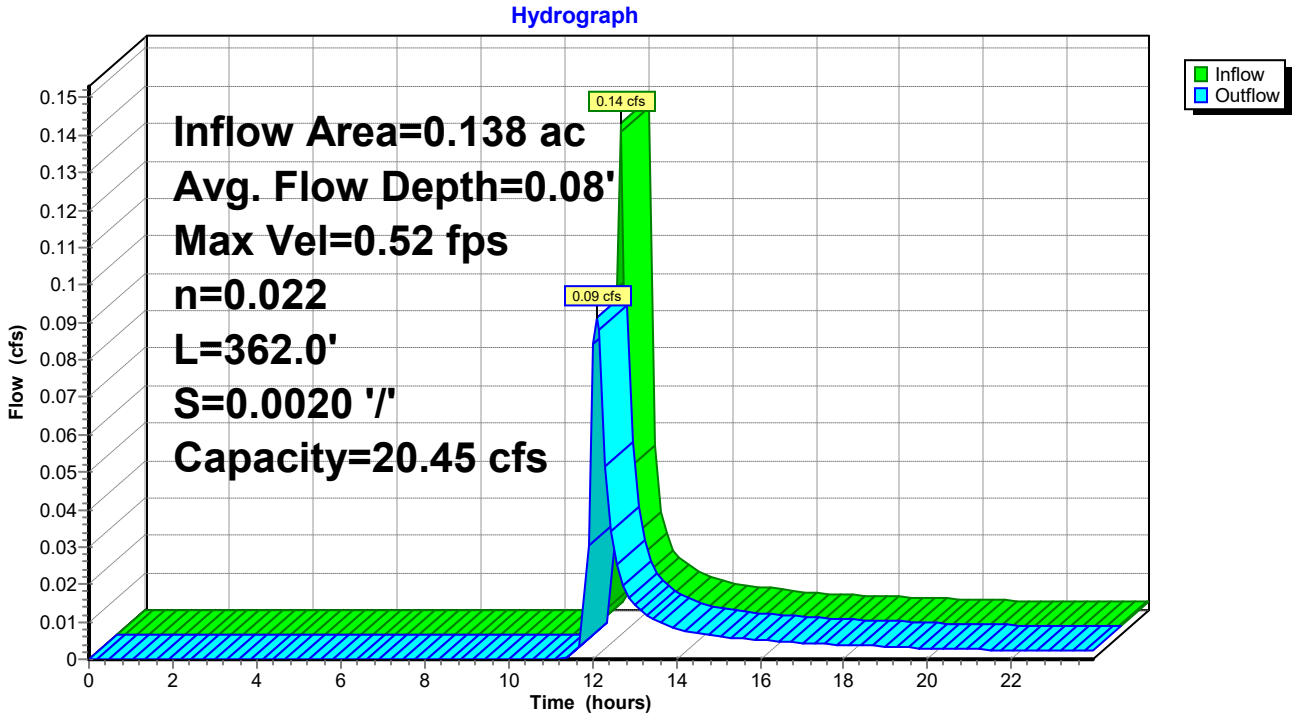
Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.52 fps, Min. Travel Time= 11.6 min
Avg. Velocity = 0.21 fps, Avg. Travel Time= 29.3 min

Peak Storage= 63 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 2.32'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



Reach 4R: East Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 1.96" for 2-yr event
Inflow = 2.28 cfs @ 11.91 hrs, Volume= 0.145 af
Outflow = 2.11 cfs @ 11.92 hrs, Volume= 0.143 af, Atten= 7%, Lag= 0.4 min
Primary = 2.10 cfs @ 11.92 hrs, Volume= 0.133 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.01 cfs @ 12.20 hrs, Volume= 0.010 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.05' @ 12.20 hrs Surf.Area= 523 sf Storage= 176 cf

Plug-Flow detention time= 11.3 min calculated for 0.142 af (98% of inflow)
Center-of-Mass det. time= 3.3 min (764.8 - 761.5)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

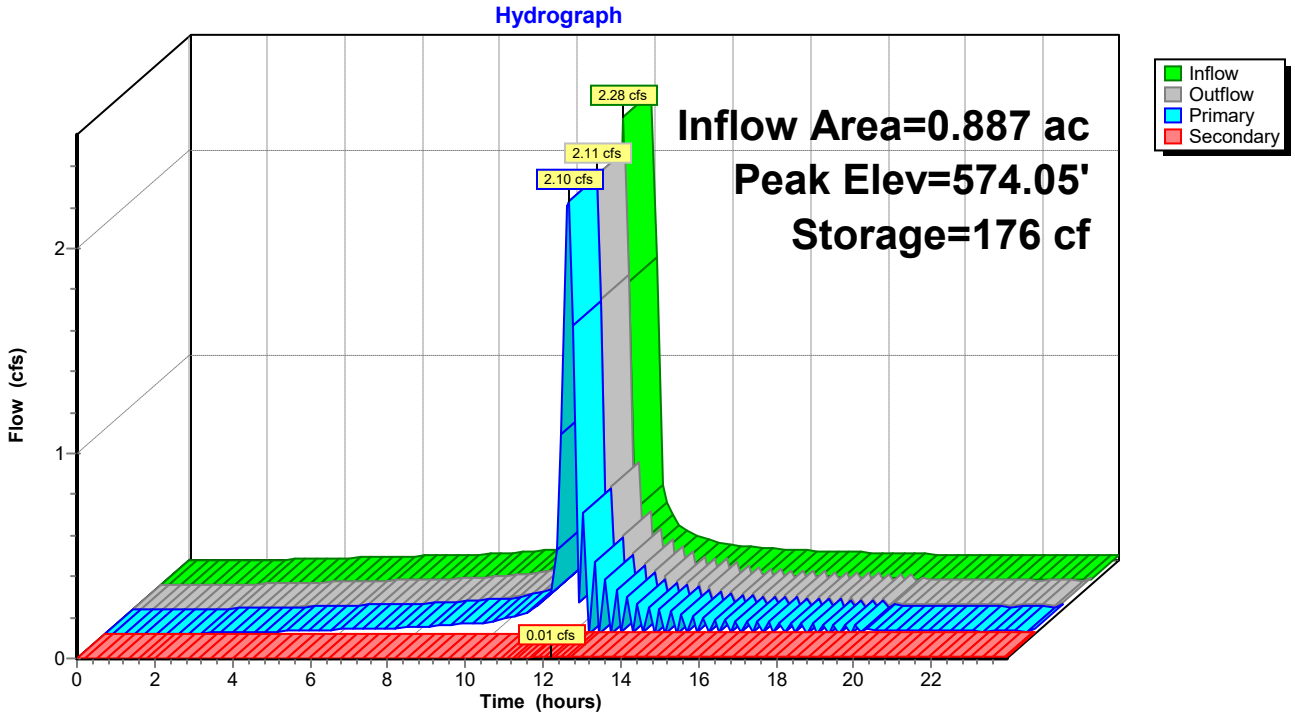
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	**1.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.00 cfs @ 11.92 hrs HW=573.89' TW=573.93' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.01 cfs @ 12.20 hrs HW=574.04' TW=573.98' (Dynamic Tailwater)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

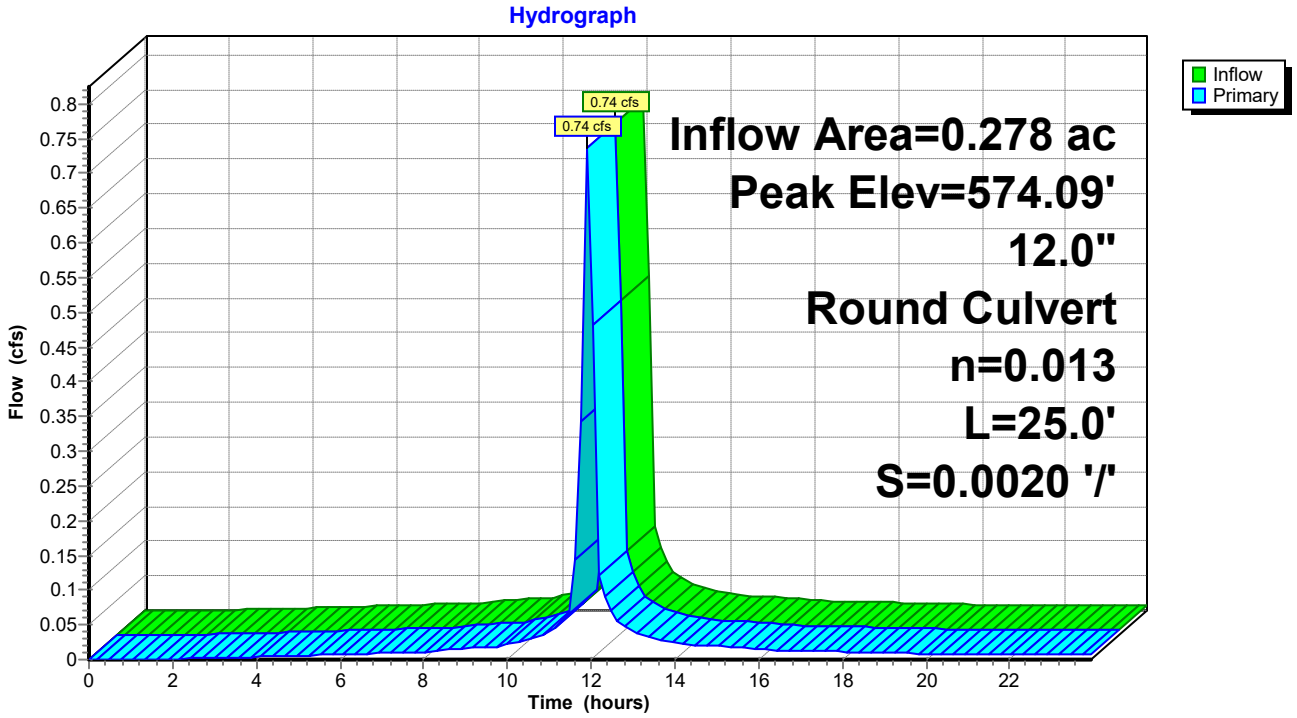
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 0.74 cfs @ 11.92 hrs, Volume= 0.047 af
Outflow = 0.74 cfs @ 11.92 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 11.92 hrs, Volume= 0.047 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.09' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	**12.0" Round 12" CULVERT** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 11.92 hrs HW=574.07' TW=573.89' (Dynamic Tailwater)
1=12" CULVERT (Outlet Controls 0.71 cfs @ 2.24 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

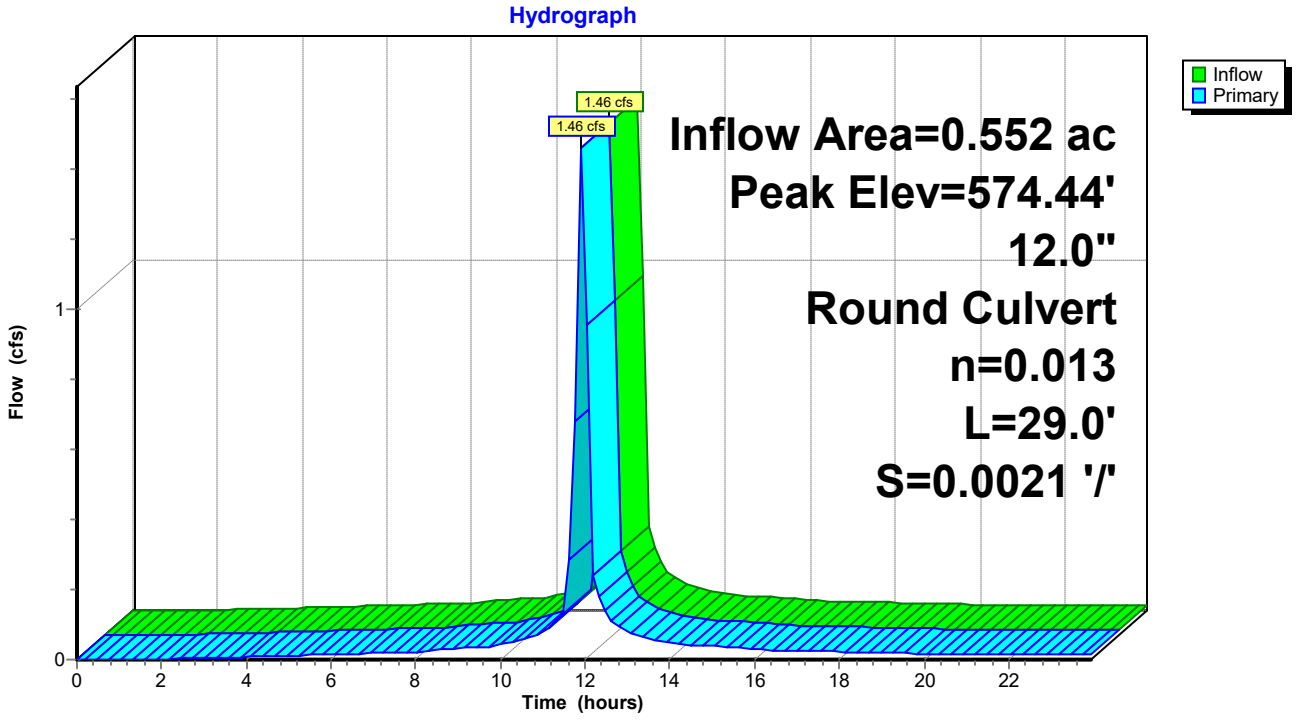
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 1.46 cfs @ 11.92 hrs, Volume= 0.093 af
Outflow = 1.46 cfs @ 11.92 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.0 min
Primary = 1.46 cfs @ 11.92 hrs, Volume= 0.093 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.44' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	**12.0" Round 12" CULVERT** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.40 cfs @ 11.92 hrs HW=574.41' TW=573.89' (Dynamic Tailwater)
1=12" CULVERT (Barrel Controls 1.40 cfs @ 2.74 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.70" for 2-yr event
Inflow = 2.32 cfs @ 11.92 hrs, Volume= 0.155 af
Outflow = 1.93 cfs @ 12.05 hrs, Volume= 0.121 af, Atten= 17%, Lag= 7.9 min
Primary = 0.04 cfs @ 12.06 hrs, Volume= 0.060 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 1.89 cfs @ 12.05 hrs, Volume= 0.061 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.05' @ 12.07 hrs Surf.Area= 3,549 sf Storage= 2,242 cf

Plug-Flow detention time= 138.0 min calculated for 0.121 af (78% of inflow)
Center-of-Mass det. time= 50.8 min (822.9 - 772.2)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

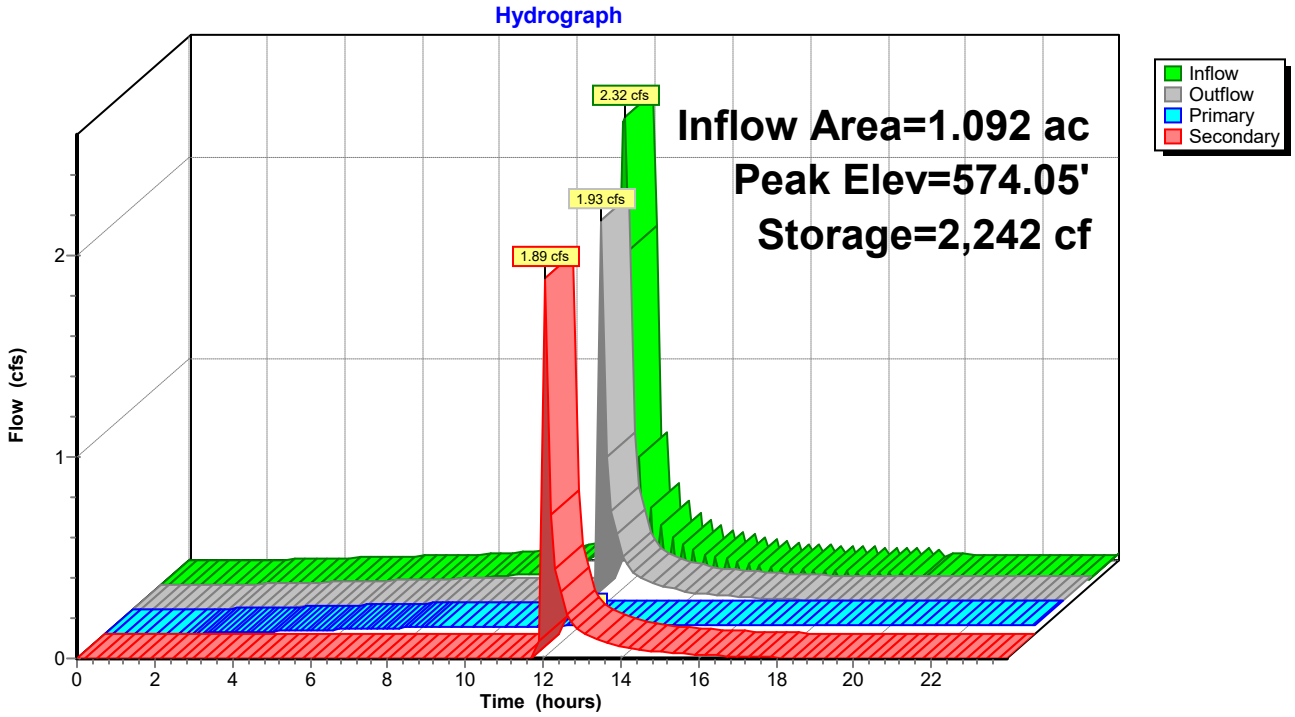
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	**6.0" Horiz. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	**0.500 in/hr Exfiltration of Soil Media over Surface area**

Primary OutFlow Max=0.04 cfs @ 12.06 hrs HW=574.04' TW=569.77' (Dynamic Tailwater)
└**3=Exfiltration of Soil Media** (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=1.70 cfs @ 12.05 hrs HW=574.04' TW=569.76' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Weir Controls 0.40 cfs @ 0.64 fps)
└**2=Orifice/Grate** (Weir Controls 1.29 cfs @ 1.30 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.33" for 2-yr event
Inflow = 1.93 cfs @ 12.05 hrs, Volume= 0.121 af
Outflow = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af, Atten= 85%, Lag= 43.2 min
Primary = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.43' @ 12.76 hrs Surf.Area= 2,969 sf Storage= 1,835 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 55.6 min (878.5 - 822.9)

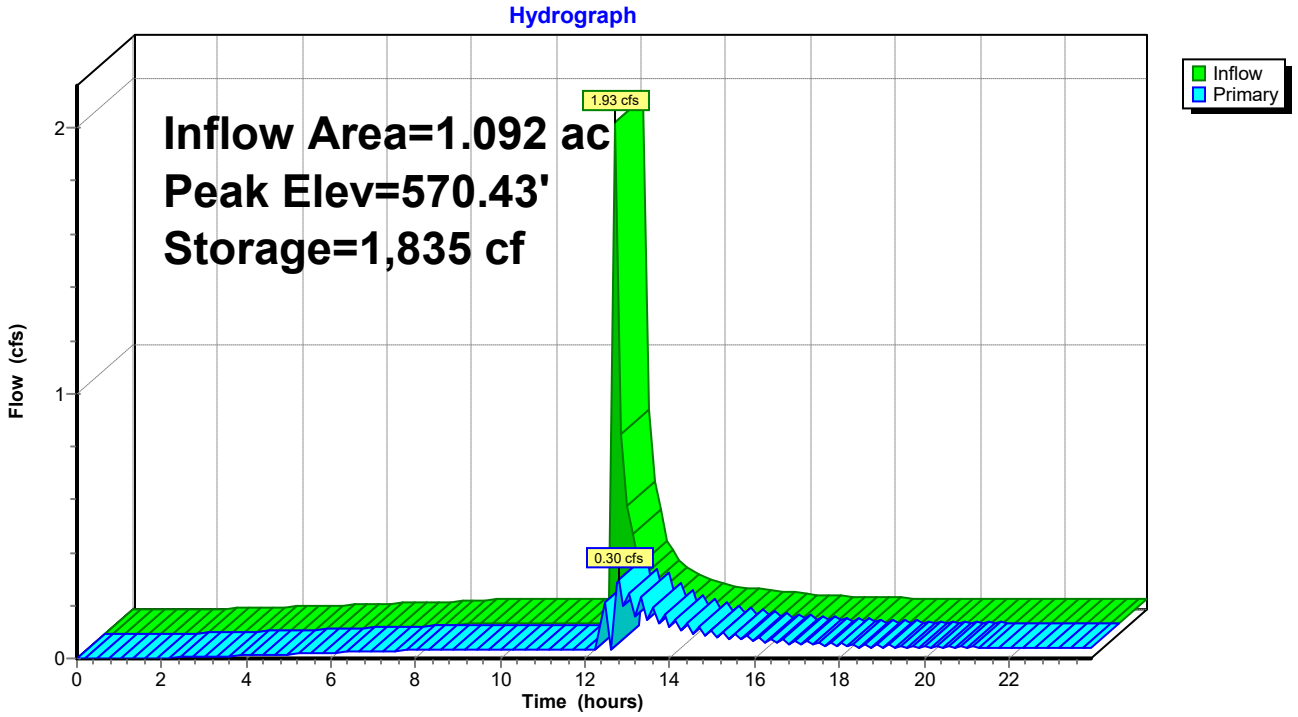
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	**6.0" Round 6" Perforated HDPE** Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	**16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5** 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	**6.0" Round Culvert after elbow assembly** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.24 cfs @ 12.77 hrs HW=570.43' TW=570.35' (Dynamic Tailwater)
1=Culvert after elbow assembly (Outlet Controls 0.20 cfs @ 1.61 fps)
2=Exfiltration (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

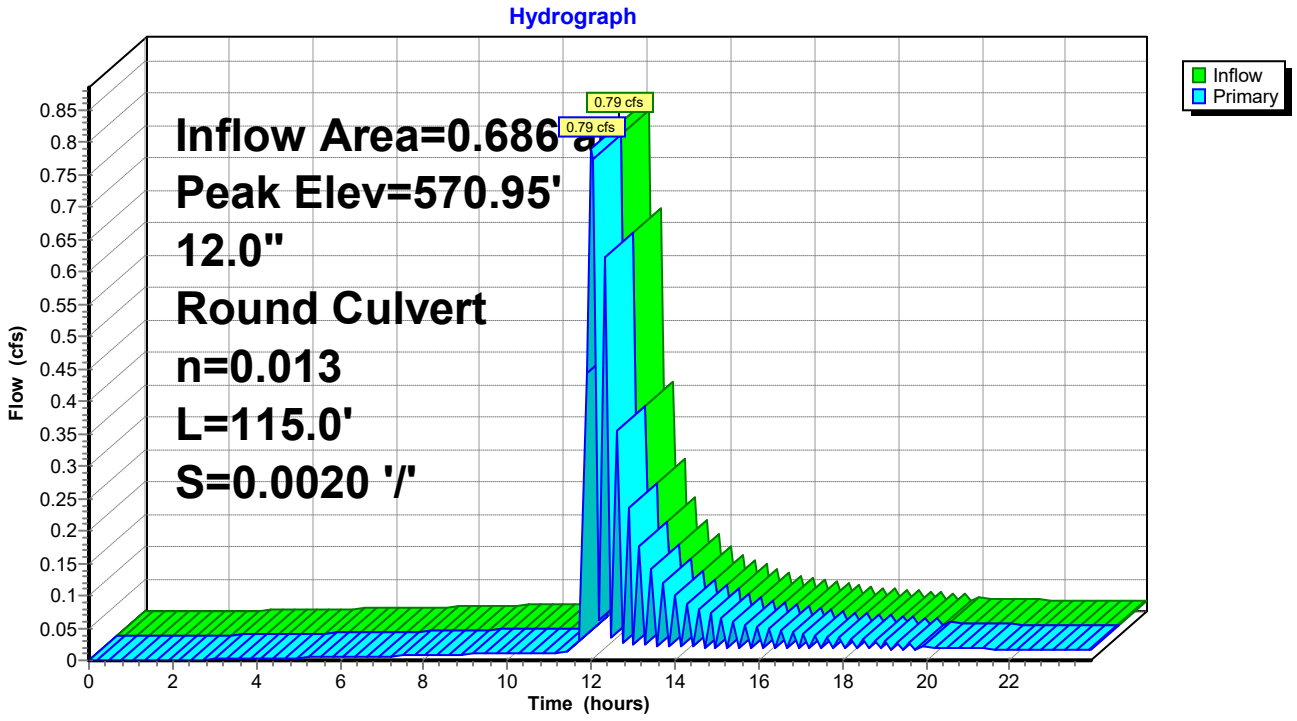
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 1.12" for 2-yr event
Inflow = 0.79 cfs @ 12.01 hrs, Volume= 0.064 af
Outflow = 0.79 cfs @ 12.01 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.01 hrs, Volume= 0.064 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.95' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	**12.0" Round Culvert** L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 12.01 hrs HW=570.91' TW=570.40' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.71 cfs @ 2.10 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.44" for 2-yr event
Inflow = 1.17 cfs @ 11.89 hrs, Volume= 0.068 af
Outflow = 1.08 cfs @ 11.90 hrs, Volume= 0.063 af, Atten= 8%, Lag= 0.6 min
Primary = 0.01 cfs @ 11.90 hrs, Volume= 0.016 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 1.07 cfs @ 11.90 hrs, Volume= 0.047 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.32' @ 11.90 hrs Surf.Area= 946 sf Storage= 321 cf

Plug-Flow detention time= 61.2 min calculated for 0.063 af (92% of inflow)
Center-of-Mass det. time= 19.3 min (808.5 - 789.2)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

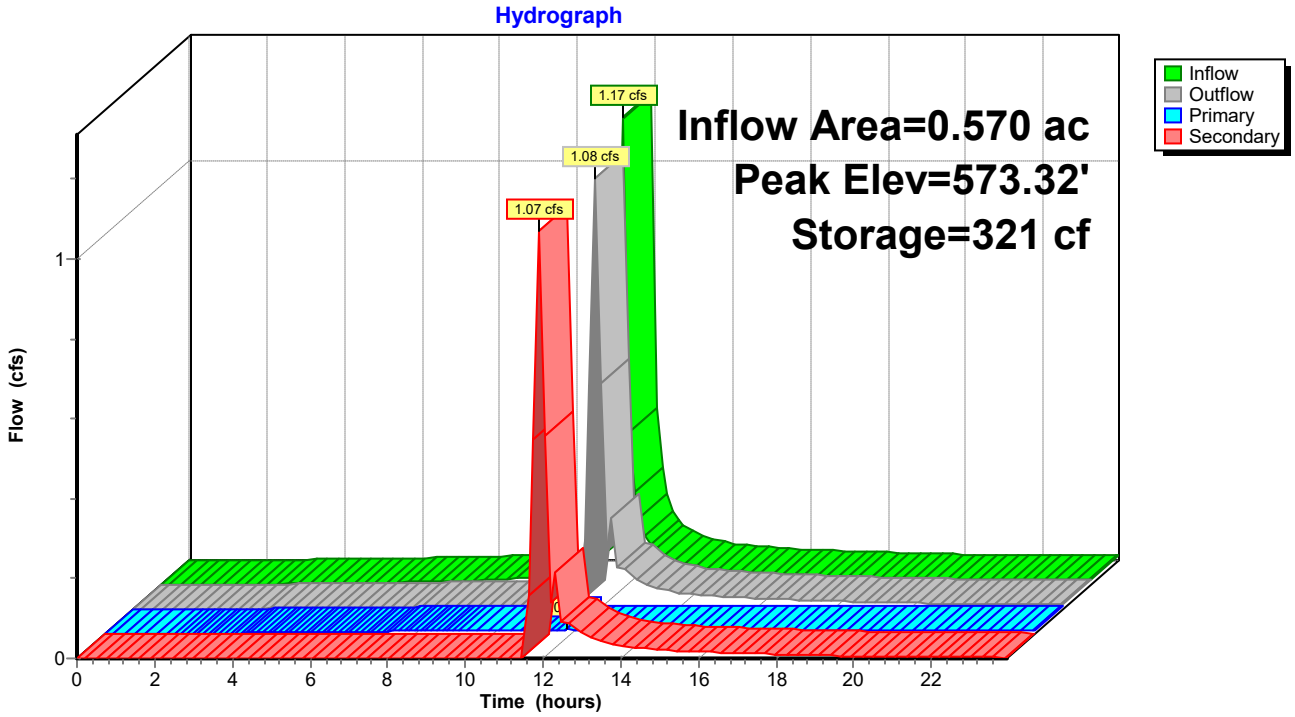
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	**4.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	**0.500 in/hr Exfiltration through soil media over Surface area**

Primary OutFlow Max=0.01 cfs @ 11.90 hrs HW=573.32' TW=570.73' (Dynamic Tailwater)
└**3=Exfiltration through soil media** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=1.07 cfs @ 11.90 hrs HW=573.32' TW=570.73' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Orifice Controls 0.96 cfs @ 1.27 fps)
└**2=Orifice/Grate** (Weir Controls 0.11 cfs @ 1.03 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.33" for 2-yr event
Inflow = 1.08 cfs @ 11.90 hrs, Volume= 0.063 af
Outflow = 0.68 cfs @ 12.01 hrs, Volume= 0.057 af, Atten= 37%, Lag= 6.9 min
Primary = 0.68 cfs @ 12.01 hrs, Volume= 0.057 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.93' @ 12.13 hrs Surf.Area= 1,377 sf Storage= 700 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 32.0 min (840.5 - 808.5)

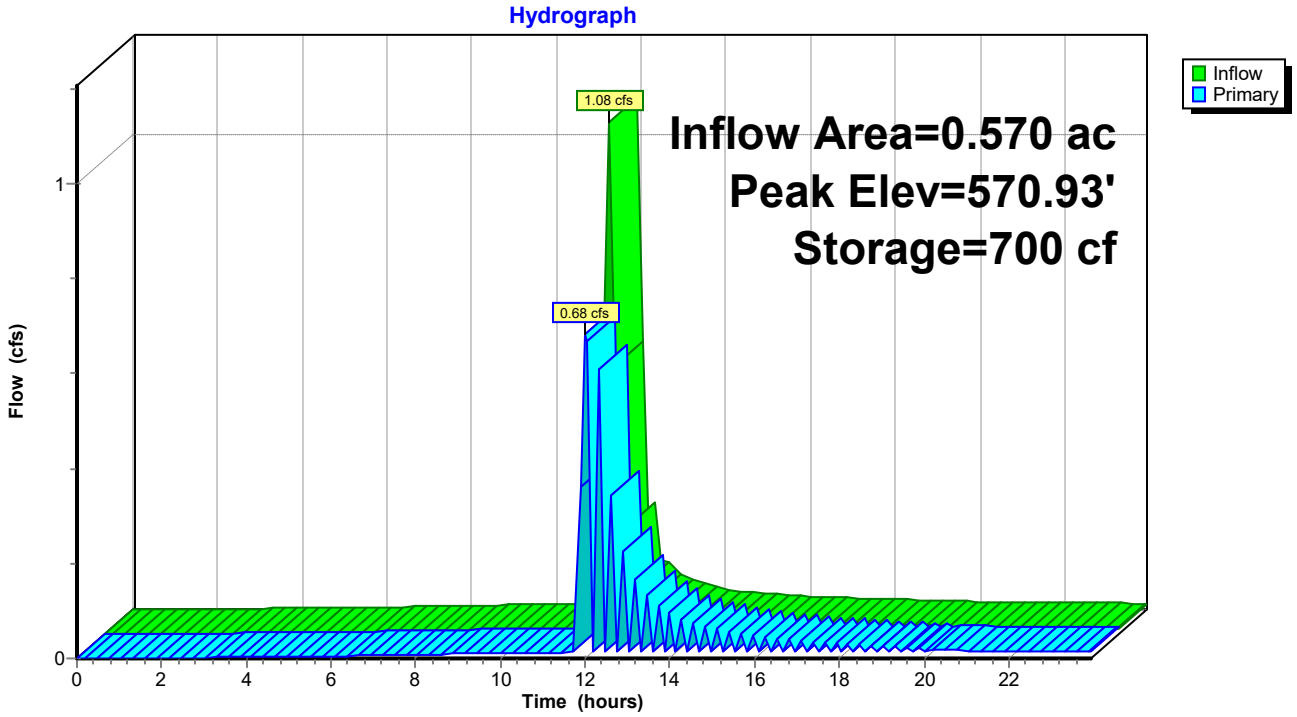
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	**8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5** 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	**8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5** 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	**4.0" Round 4" Perforated HDPE** Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	**12.0" Round 12" Culvert** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.02 cfs @ 12.01 hrs HW=570.88' TW=570.91' (Dynamic Tailwater)
└─**1=12" Culvert** (Controls 0.00 cfs)
└─**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

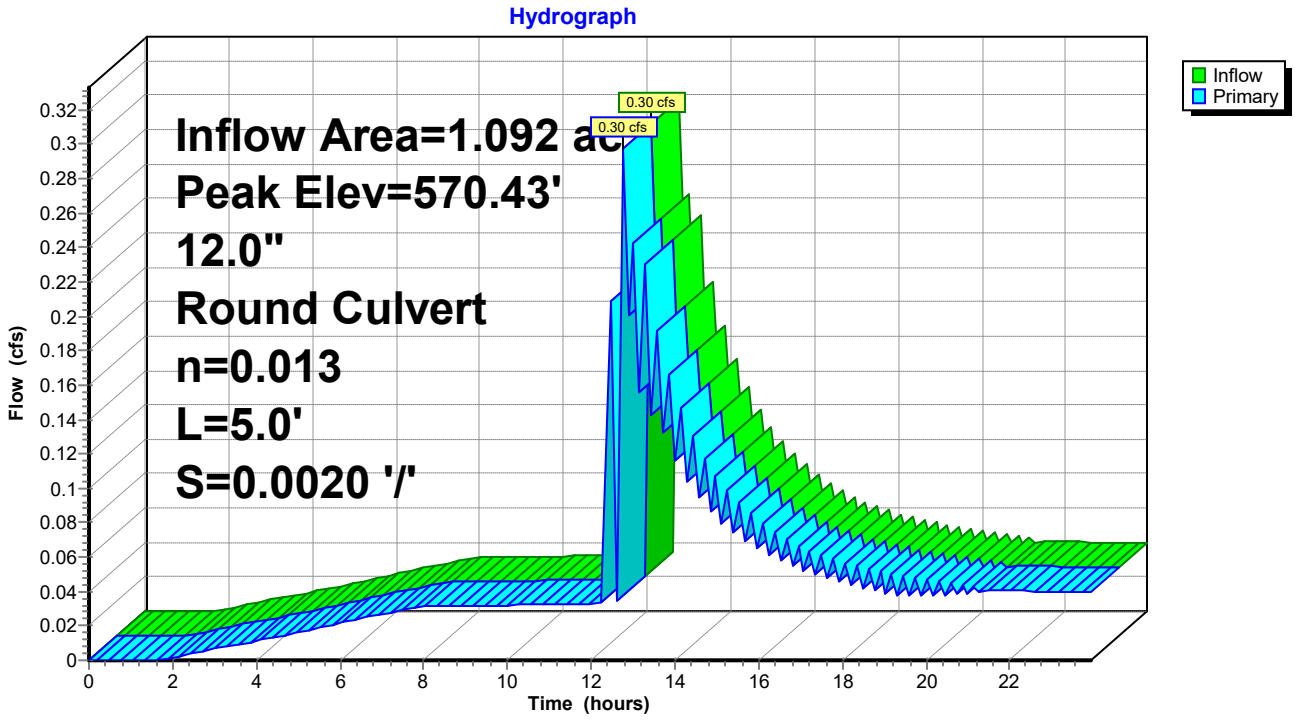
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.00" for 2-yr event
Inflow = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af
Outflow = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.77 hrs, Volume= 0.091 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.43' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	**12.0" Round 12 " Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 12.77 hrs HW=570.35' TW=570.27' (Dynamic Tailwater)
1=12 " Culvert (Outlet Controls 0.28 cfs @ 1.76 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 1.67" for 2-yr event
Inflow = 1.14 cfs @ 11.89 hrs, Volume= 0.060 af
Outflow = 1.14 cfs @ 11.89 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Primary = 1.14 cfs @ 11.89 hrs, Volume= 0.060 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.75' @ 11.89 hrs
Flood Elev= 576.20'

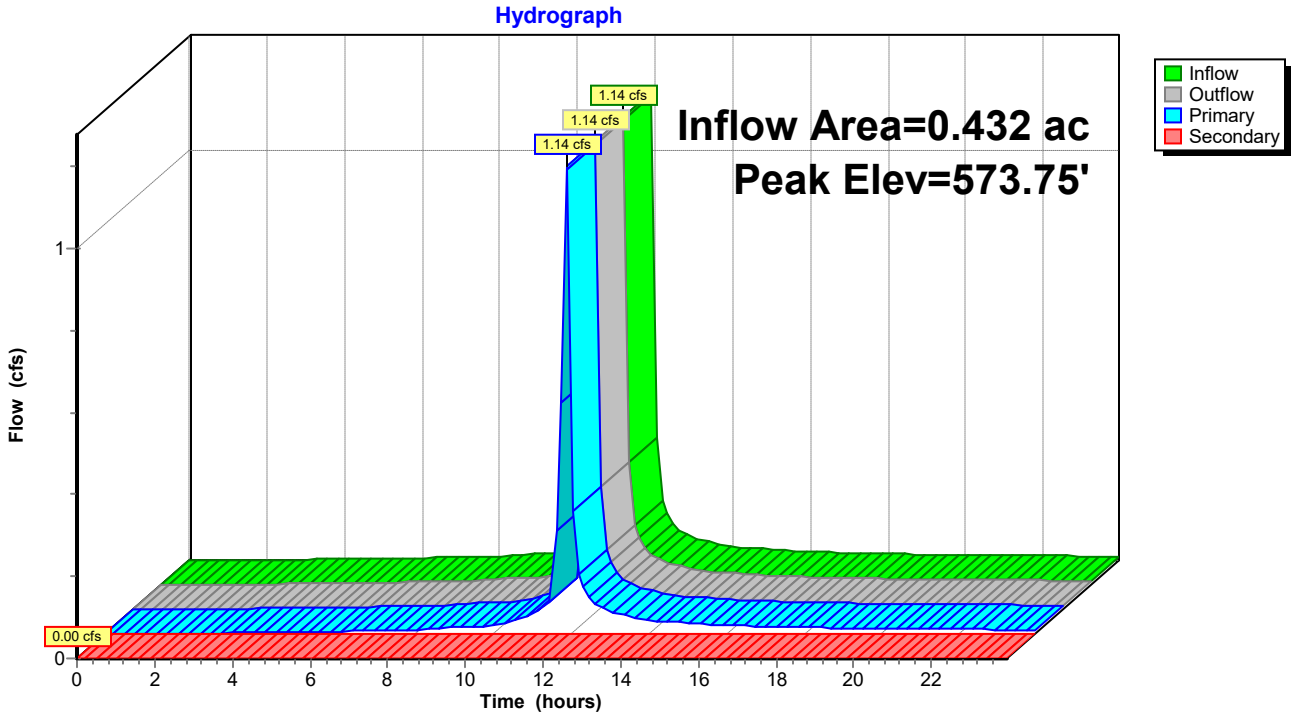
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	**6.0" Horiz. Orifice/Grate X 5.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.07 cfs @ 11.89 hrs HW=573.74' TW=573.32' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.30 cfs @ 3.11 fps)
- **2=Orifice/Grate** (Orifice Controls 0.48 cfs @ 2.54 fps)
- **3=Orifice/Grate** (Orifice Controls 0.30 cfs @ 1.57 fps)
- **4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- **5=Orifice/Grate** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

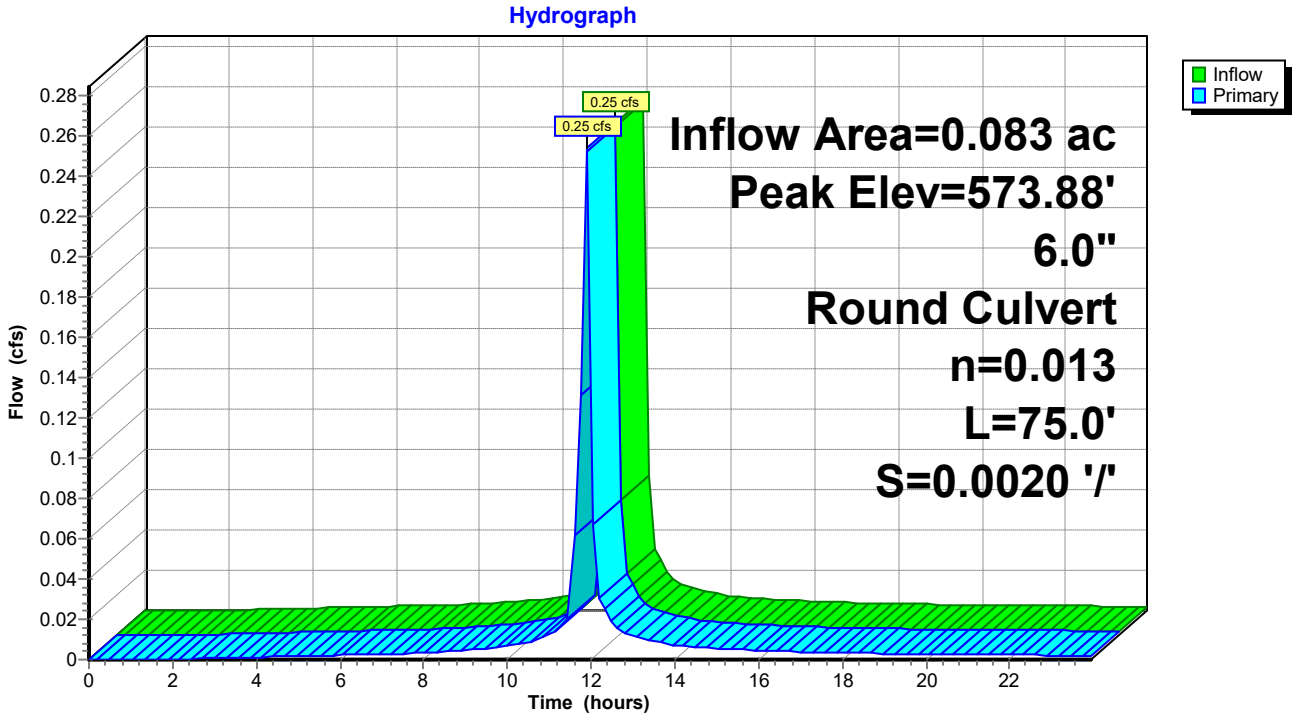
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af
Outflow = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.88' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.17 cfs @ 11.89 hrs HW=573.86' TW=573.73' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.17 cfs @ 1.15 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

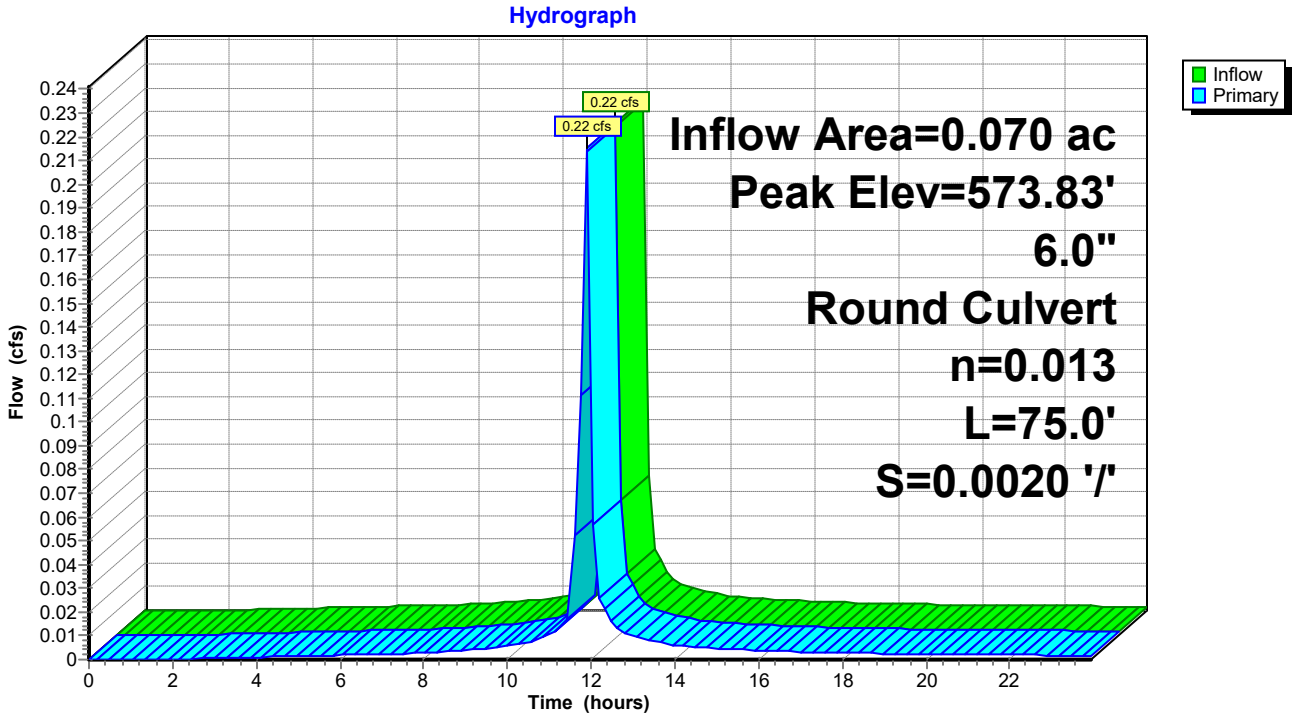
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 0.22 cfs @ 11.89 hrs, Volume= 0.012 af
Outflow = 0.22 cfs @ 11.89 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 11.89 hrs, Volume= 0.012 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.83' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.12 cfs @ 11.89 hrs HW=573.82' TW=573.73' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.12 cfs @ 0.90 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

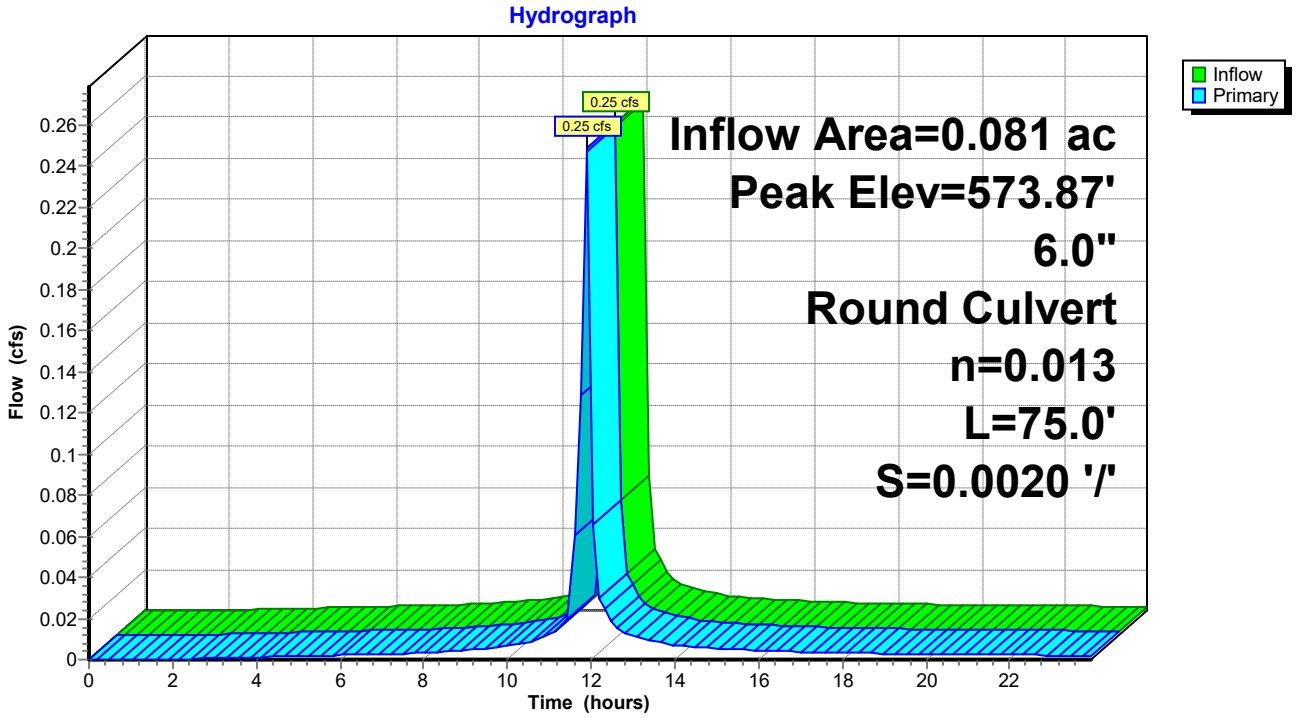
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 2.03" for 2-yr event
Inflow = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af
Outflow = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 11.89 hrs, Volume= 0.014 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.87' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.16 cfs @ 11.89 hrs HW=573.85' TW=573.73' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.16 cfs @ 1.11 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

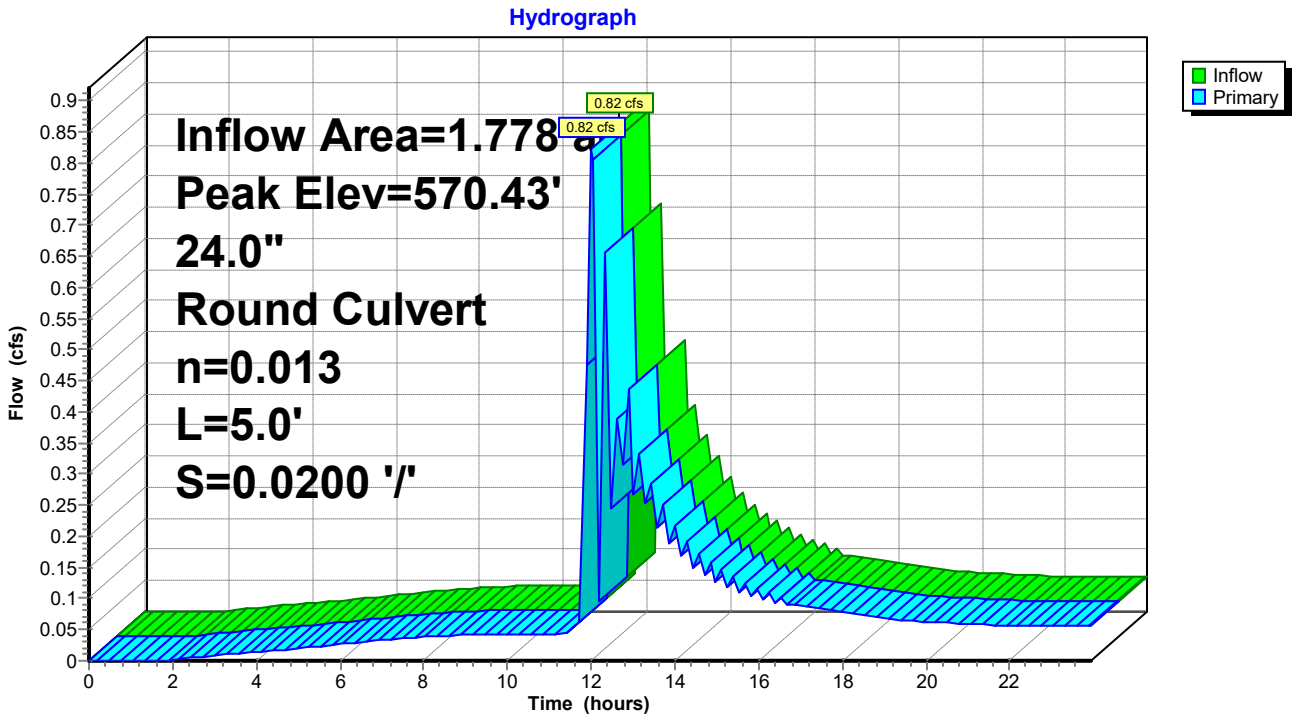
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 1.04" for 2-yr event
Inflow = 0.82 cfs @ 12.01 hrs, Volume= 0.155 af
Outflow = 0.82 cfs @ 12.01 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.01 hrs, Volume= 0.155 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.43' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	**24.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=0.74 cfs @ 12.01 hrs HW=570.40' (Free Discharge)
1=Culvert (Barrel Controls 0.74 cfs @ 2.47 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 0.73" for 2-yr event
Inflow = 0.11 cfs @ 11.95 hrs, Volume= 0.007 af
Outflow = 0.11 cfs @ 12.01 hrs, Volume= 0.007 af, Atten= 4%, Lag= 3.4 min
Primary = 0.11 cfs @ 12.01 hrs, Volume= 0.007 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.80' @ 12.01 hrs Surf.Area= 329 sf Storage= 13 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.2 min (858.7 - 857.6)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

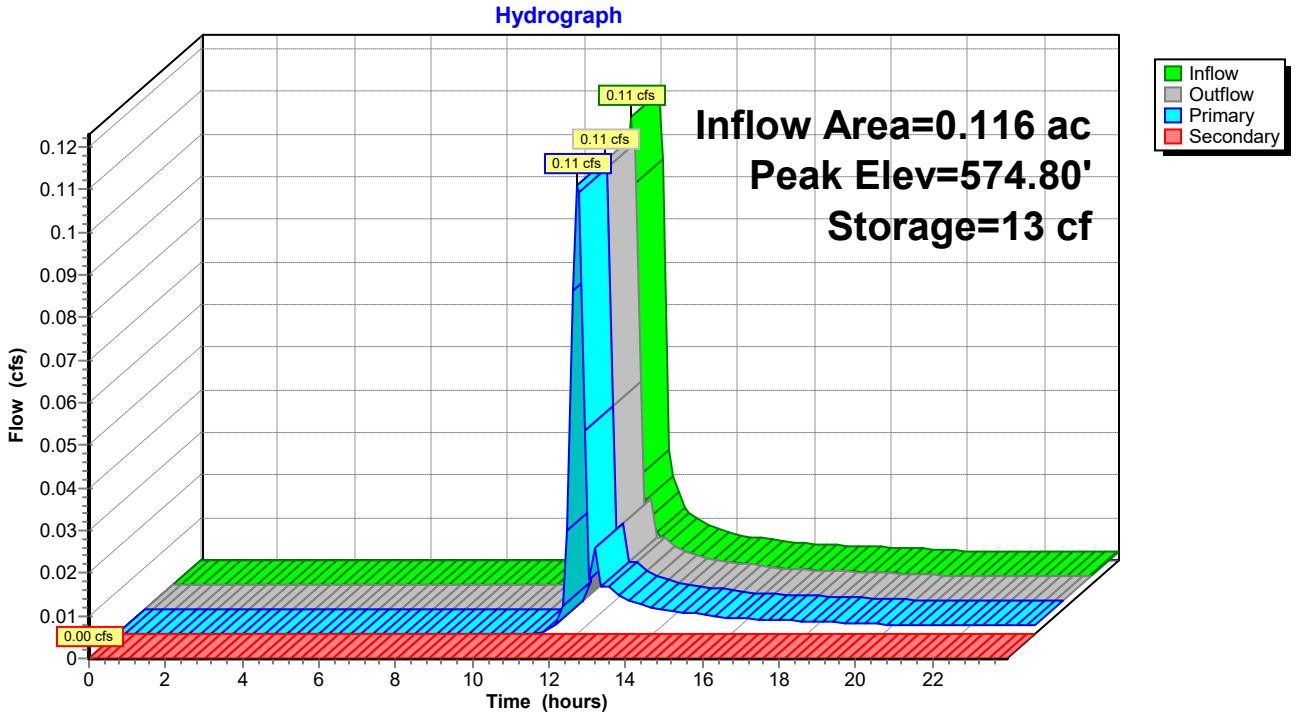
Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	**6.0" Horiz. 6" Yard Drain** C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	**1.7" x 3.2" Horiz. CB Grate X 7.00 columns** X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

Primary OutFlow Max=0.10 cfs @ 12.01 hrs HW=574.79' TW=570.91' (Dynamic Tailwater)
↑—**1=6" Yard Drain** (Weir Controls 0.10 cfs @ 0.88 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
↑—**2=CB Grate** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>3.08"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.10 cfs 0.071 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>3.08"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=2.18 cfs 0.142 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.28 cfs 0.017 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>1.71"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.16 cfs 0.008 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.45 cfs 0.026 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>2.19"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=0.73 cfs 0.036 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.24 cfs 0.014 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>3.09"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.38 cfs 0.021 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>3.09"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.32 cfs 0.018 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>3.09"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.37 cfs 0.021 af

Reach 4R: East Swale Avg. Flow Depth=0.14' Max Vel=0.72 fps Inflow=0.28 cfs 0.017 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.23 cfs 0.017 af

Pond 5P: Front Vegetated Swale Peak Elev=574.15' Storage=235 cf Inflow=3.43 cfs 0.221 af
Primary=3.12 cfs 0.208 af Secondary=0.01 cfs 0.011 af Outflow=3.13 cfs 0.219 af

Pond 6P: CB1 Peak Elev=574.25' Inflow=1.10 cfs 0.071 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=1.10 cfs 0.071 af

Pond 7P: CB2 Peak Elev=574.69' Inflow=2.18 cfs 0.142 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=2.18 cfs 0.142 af

Pond 14P: Bio-Retention Area Storage Peak Elev=574.11' Storage=2,471 cf Inflow=3.58 cfs 0.245 af
Primary=0.04 cfs 0.066 af Secondary=3.13 cfs 0.141 af Outflow=3.17 cfs 0.207 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=571.18' Storage=3,200 cf Inflow=3.17 cfs 0.207 af
Outflow=0.71 cfs 0.176 af

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=571.17' Inflow=1.33 cfs 0.115 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=1.33 cfs 0.115 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.40' Storage=399 cf Inflow=1.90 cfs 0.113 af
Primary=0.01 cfs 0.017 af Secondary=1.60 cfs 0.090 af Outflow=1.61 cfs 0.108 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=571.23' Storage=1,013 cf Inflow=1.61 cfs 0.108 af
Outflow=1.11 cfs 0.101 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=570.73' Inflow=0.71 cfs 0.176 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=0.71 cfs 0.176 af

Pond 41P: Level Spreader Peak Elev=573.98' Inflow=1.80 cfs 0.096 af
Primary=1.80 cfs 0.096 af Secondary=0.00 cfs 0.000 af Outflow=1.80 cfs 0.096 af

Pond 42P: CB3 Peak Elev=574.18' Inflow=0.38 cfs 0.021 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.38 cfs 0.021 af

Pond 44P: CB4 Peak Elev=574.04' Inflow=0.32 cfs 0.018 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.32 cfs 0.018 af

Pond 45P: CB5 Peak Elev=574.16' Inflow=0.37 cfs 0.021 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.37 cfs 0.021 af

Pond 46P: STM MH Peak Elev=570.66' Inflow=1.77 cfs 0.291 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=1.77 cfs 0.291 af

Pond 47P: West Area to CB + YD Peak Elev=574.84' Storage=33 cf Inflow=0.24 cfs 0.014 af
Primary=0.22 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.014 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.375 af Average Runoff Depth = 2.53"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

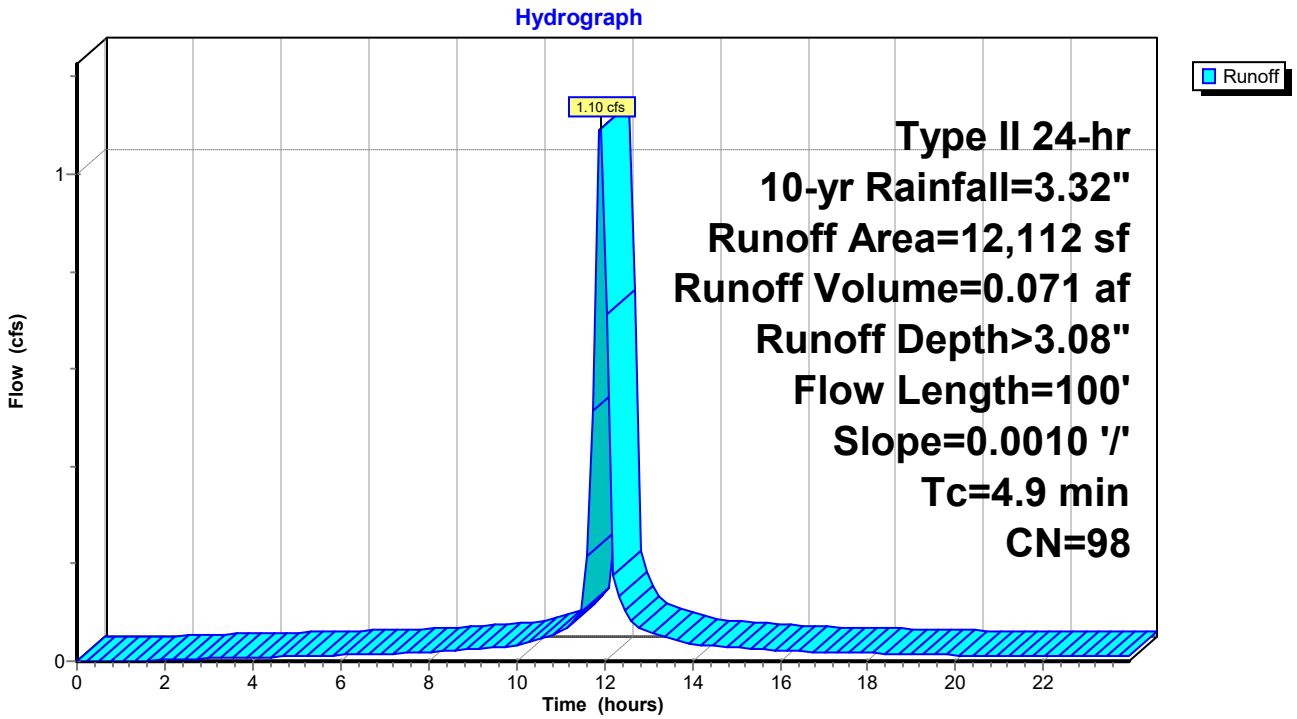
Runoff = 1.10 cfs @ 11.91 hrs, Volume= 0.071 af, Depth> 3.08"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

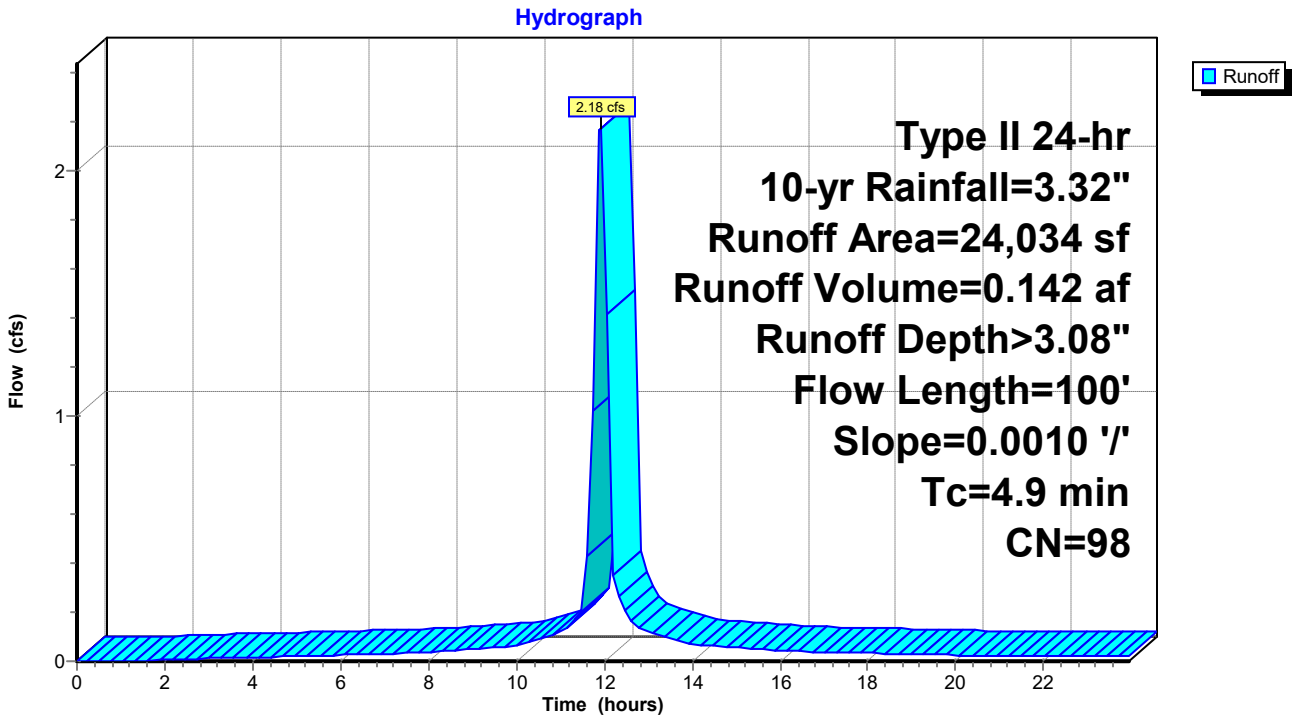
Runoff = 2.18 cfs @ 11.91 hrs, Volume= 0.142 af, Depth> 3.08"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

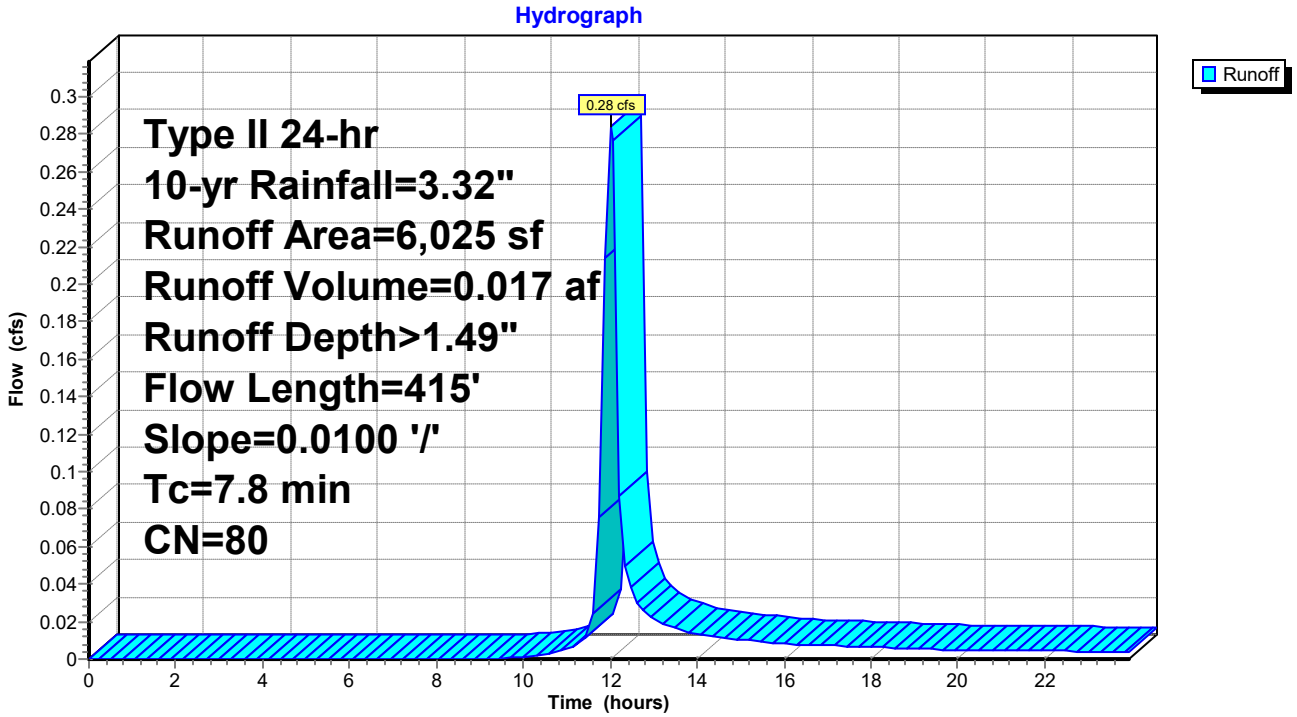
Runoff = 0.28 cfs @ 12.00 hrs, Volume= 0.017 af, Depth> 1.49"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

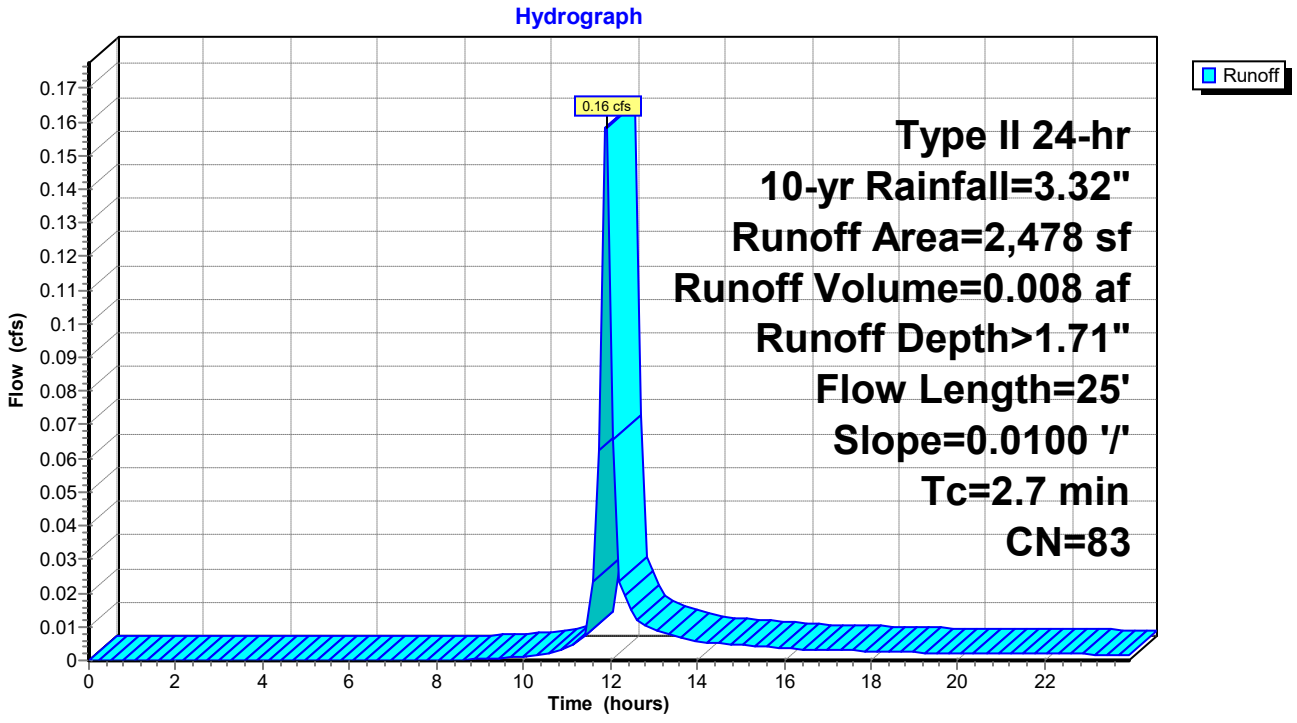
Runoff = 0.16 cfs @ 11.90 hrs, Volume= 0.008 af, Depth> 1.71"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

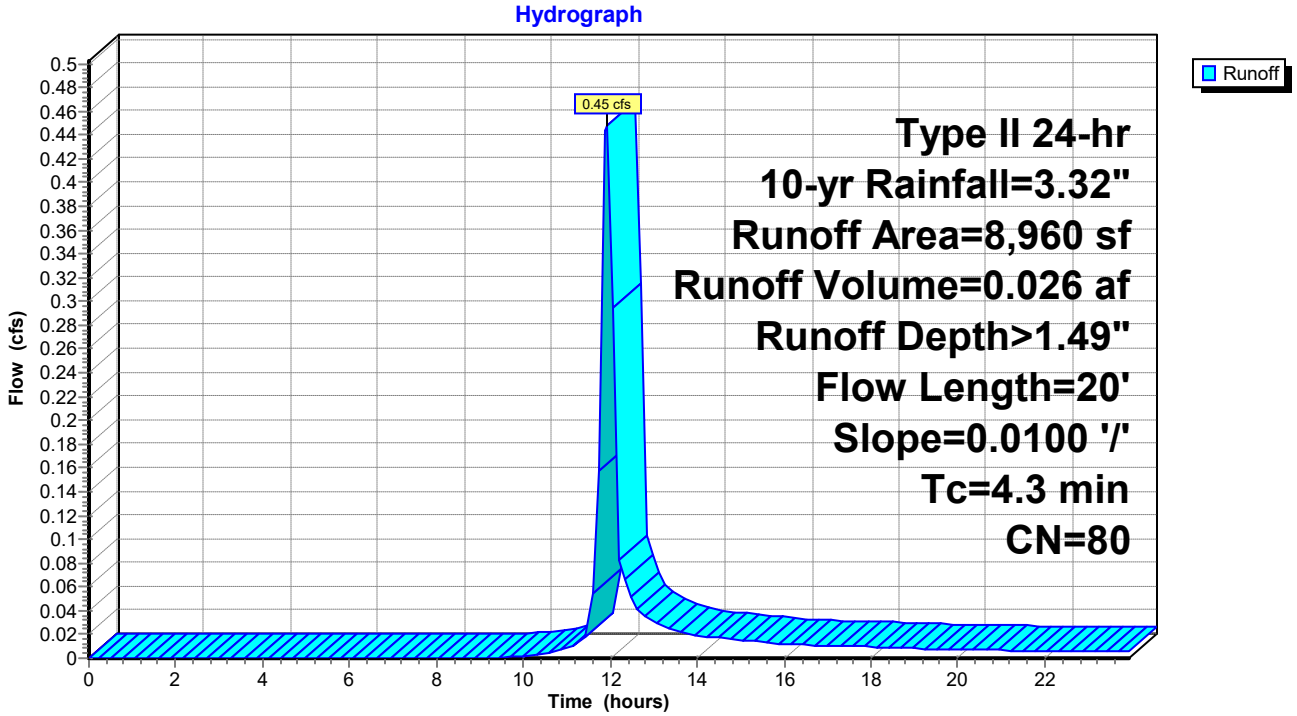
Runoff = 0.45 cfs @ 11.92 hrs, Volume= 0.026 af, Depth> 1.49"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

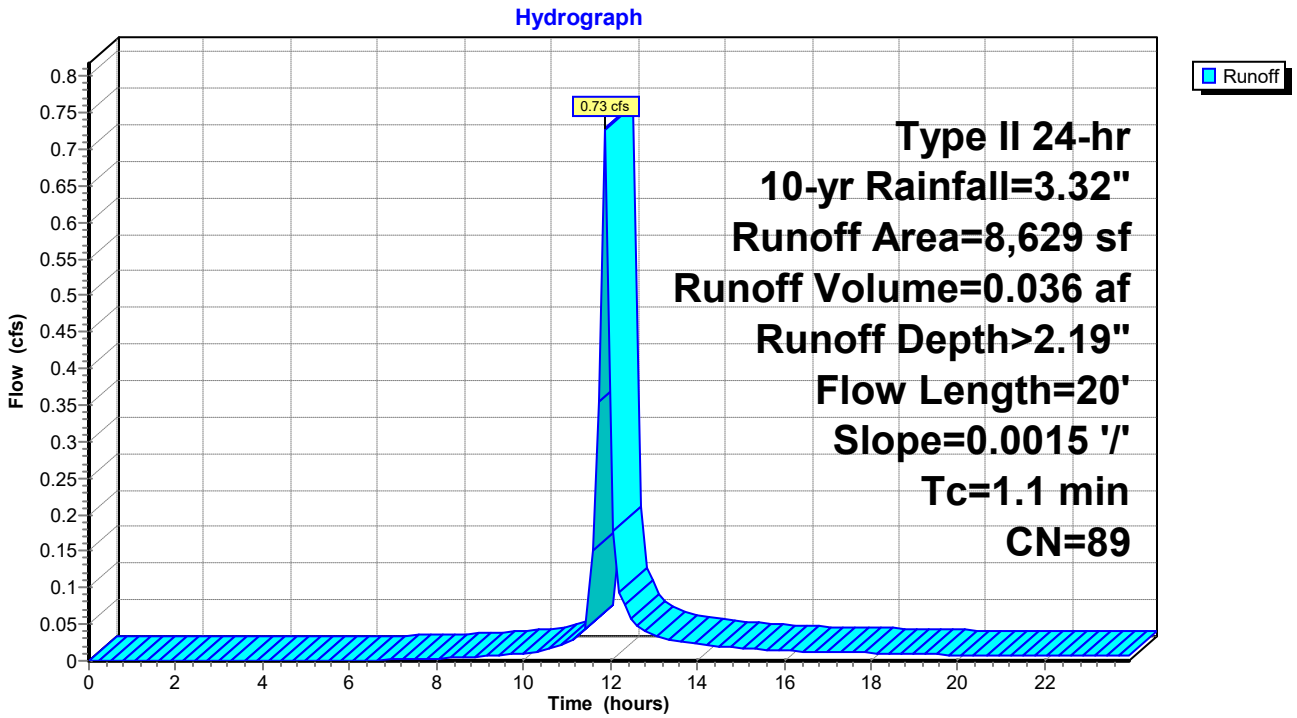
Runoff = 0.73 cfs @ 11.89 hrs, Volume= 0.036 af, Depth> 2.19"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

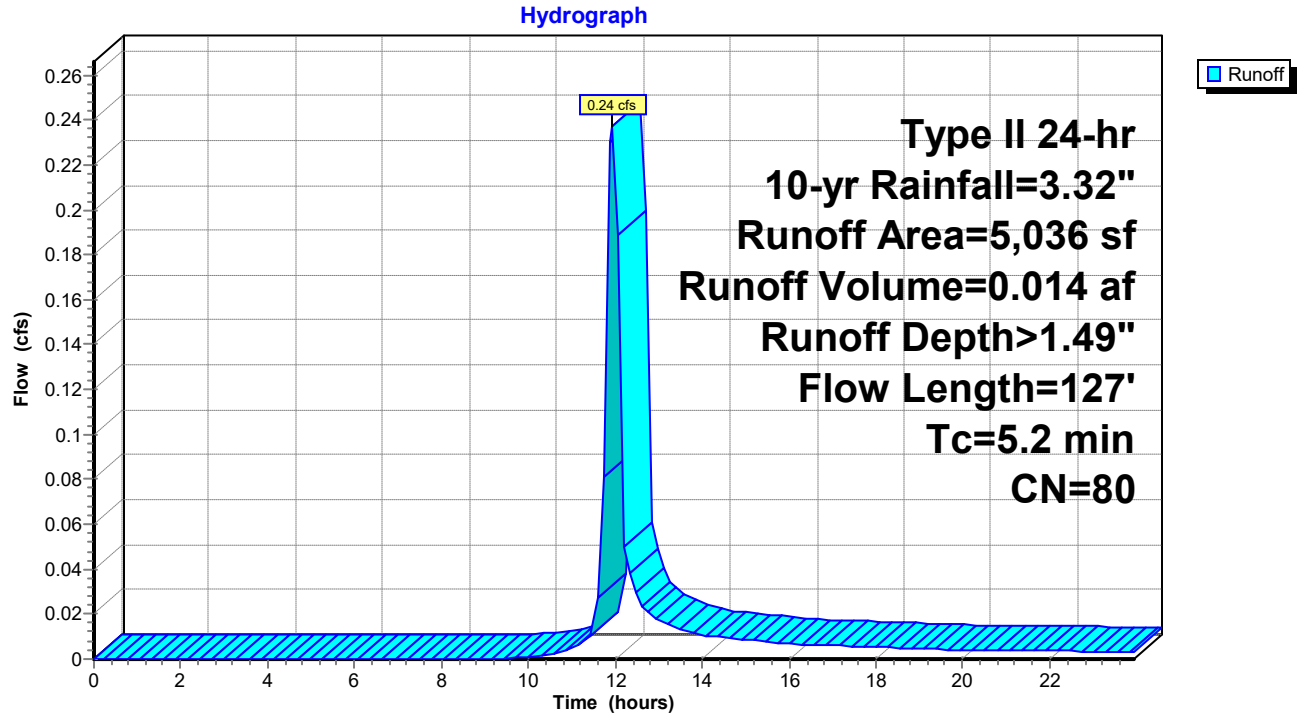
Runoff = 0.24 cfs @ 11.94 hrs, Volume= 0.014 af, Depth> 1.49"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

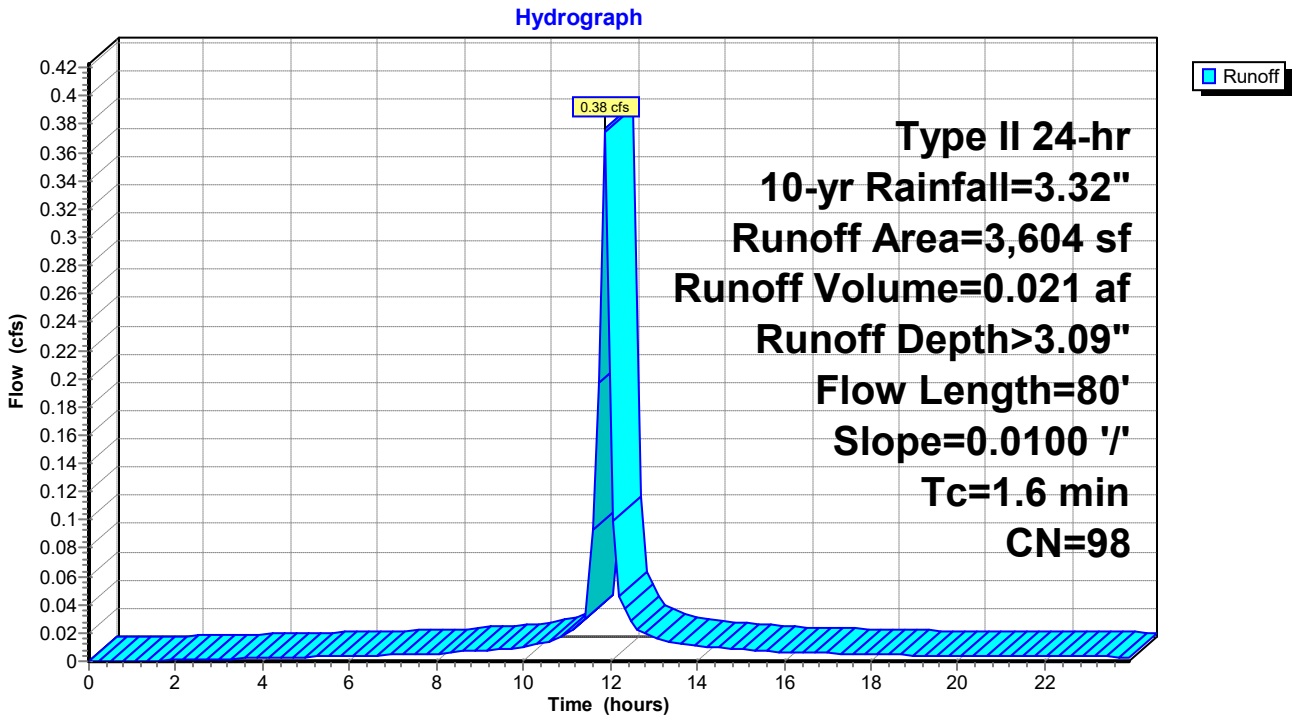
Runoff = 0.38 cfs @ 11.89 hrs, Volume= 0.021 af, Depth> 3.09"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

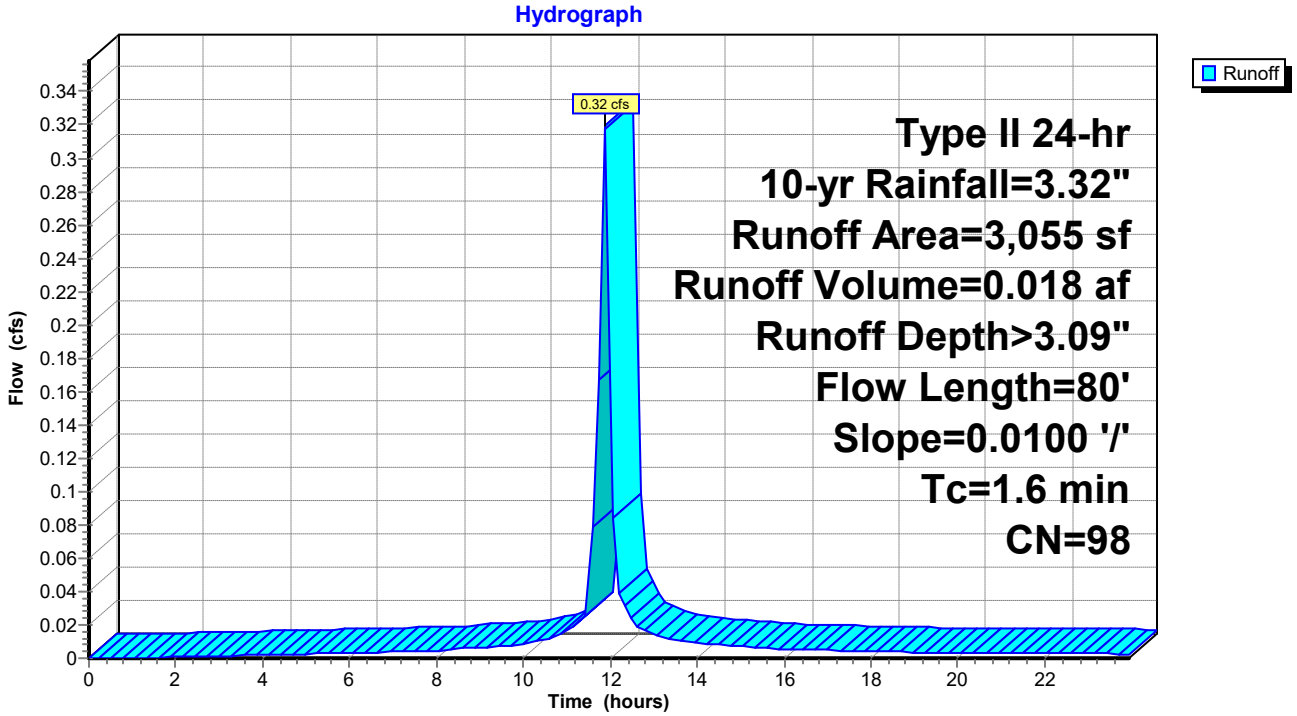
Runoff = 0.32 cfs @ 11.89 hrs, Volume= 0.018 af, Depth> 3.09"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

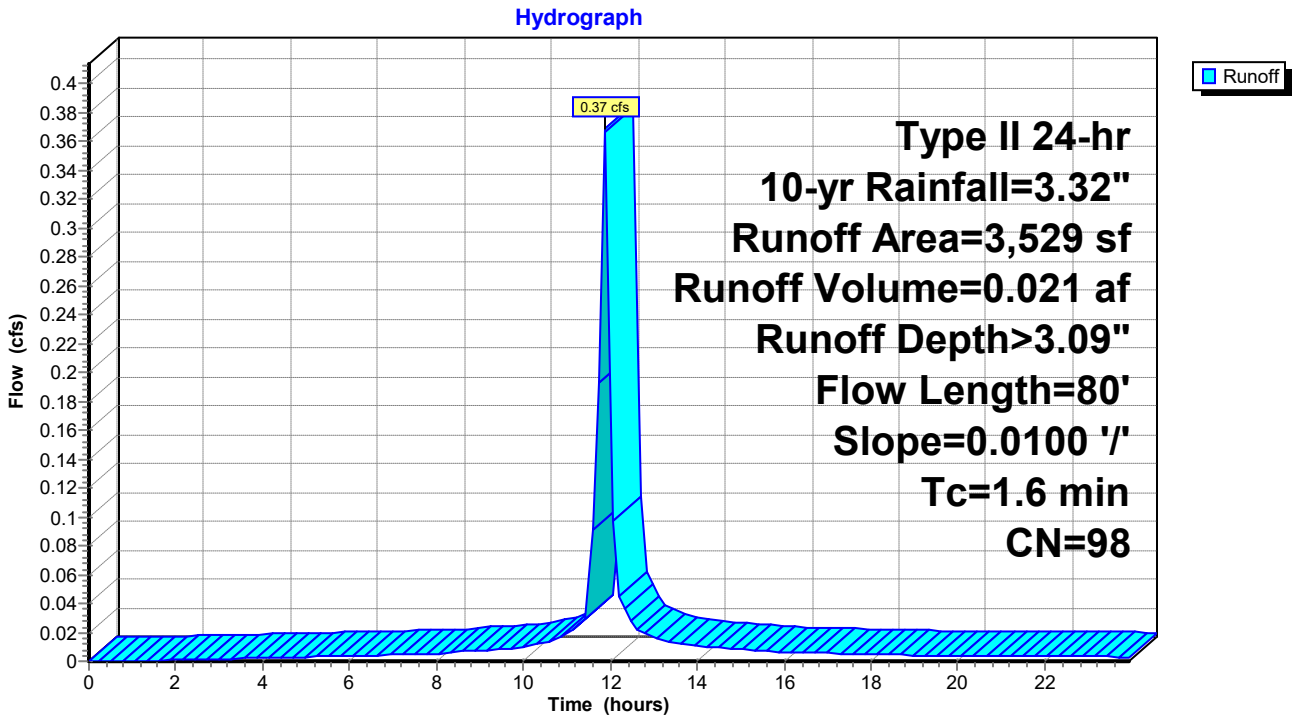
Runoff = 0.37 cfs @ 11.89 hrs, Volume= 0.021 af, Depth> 3.09"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 10-yr Rainfall=3.32"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 1.49" for 10-yr event
Inflow = 0.28 cfs @ 12.00 hrs, Volume= 0.017 af
Outflow = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af, Atten= 21%, Lag= 4.4 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

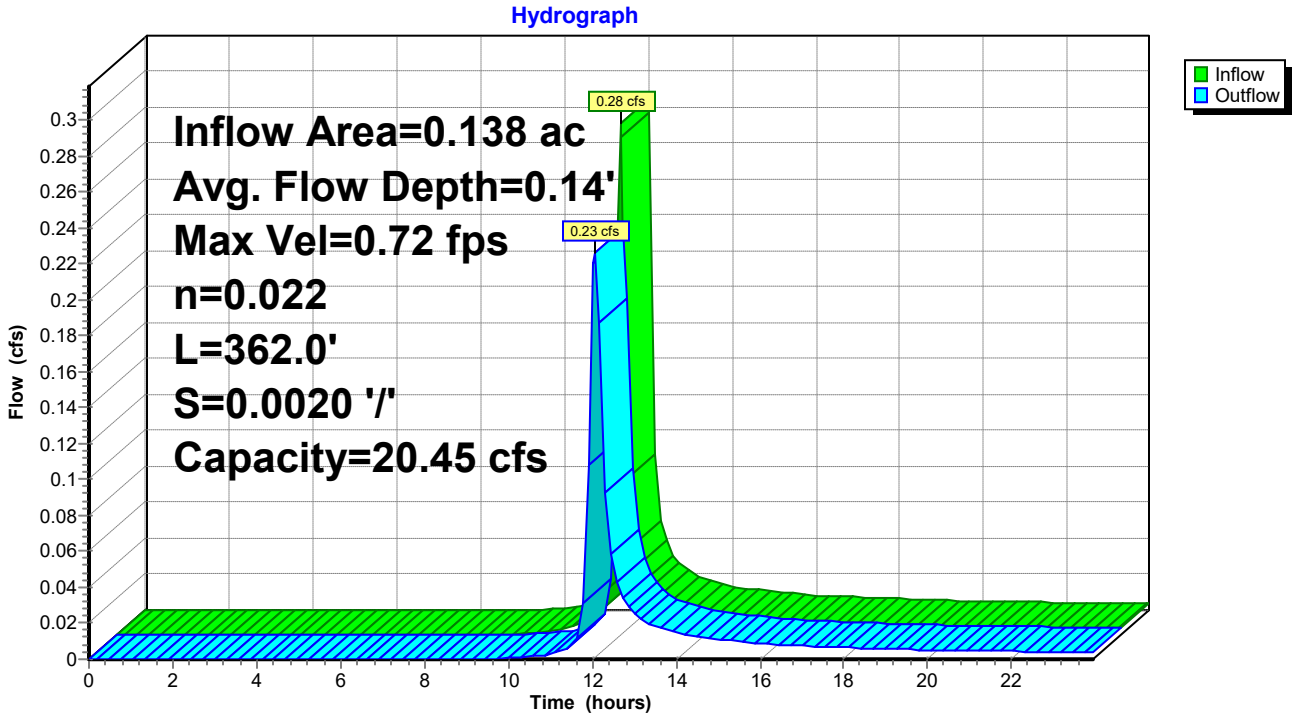
Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.72 fps, Min. Travel Time= 8.4 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 26.2 min

Peak Storage= 113 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.14' , Surface Width= 2.55'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



Reach 4R: East Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 3.00" for 10-yr event
Inflow = 3.43 cfs @ 11.91 hrs, Volume= 0.221 af
Outflow = 3.13 cfs @ 11.93 hrs, Volume= 0.219 af, Atten= 9%, Lag= 0.9 min
Primary = 3.12 cfs @ 11.93 hrs, Volume= 0.208 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.01 cfs @ 12.05 hrs, Volume= 0.011 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.15' @ 12.05 hrs Surf.Area= 576 sf Storage= 235 cf

Plug-Flow detention time= 8.4 min calculated for 0.219 af (99% of inflow)
Center-of-Mass det. time= 1.2 min (754.1 - 752.9)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

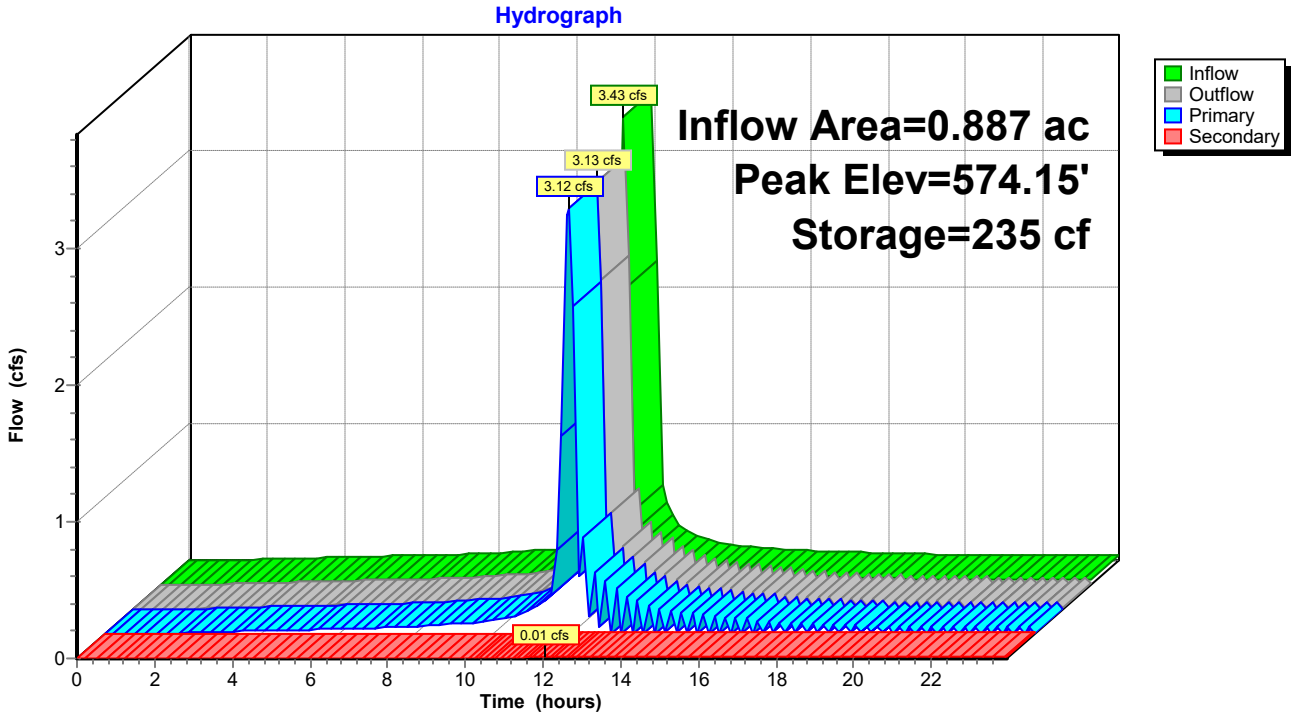
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	**1.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=1.51 cfs @ 11.93 hrs HW=574.11' TW=574.09' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 1.51 cfs @ 0.71 fps)

Secondary OutFlow Max=0.01 cfs @ 12.05 hrs HW=574.15' TW=574.10' (Dynamic Tailwater)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

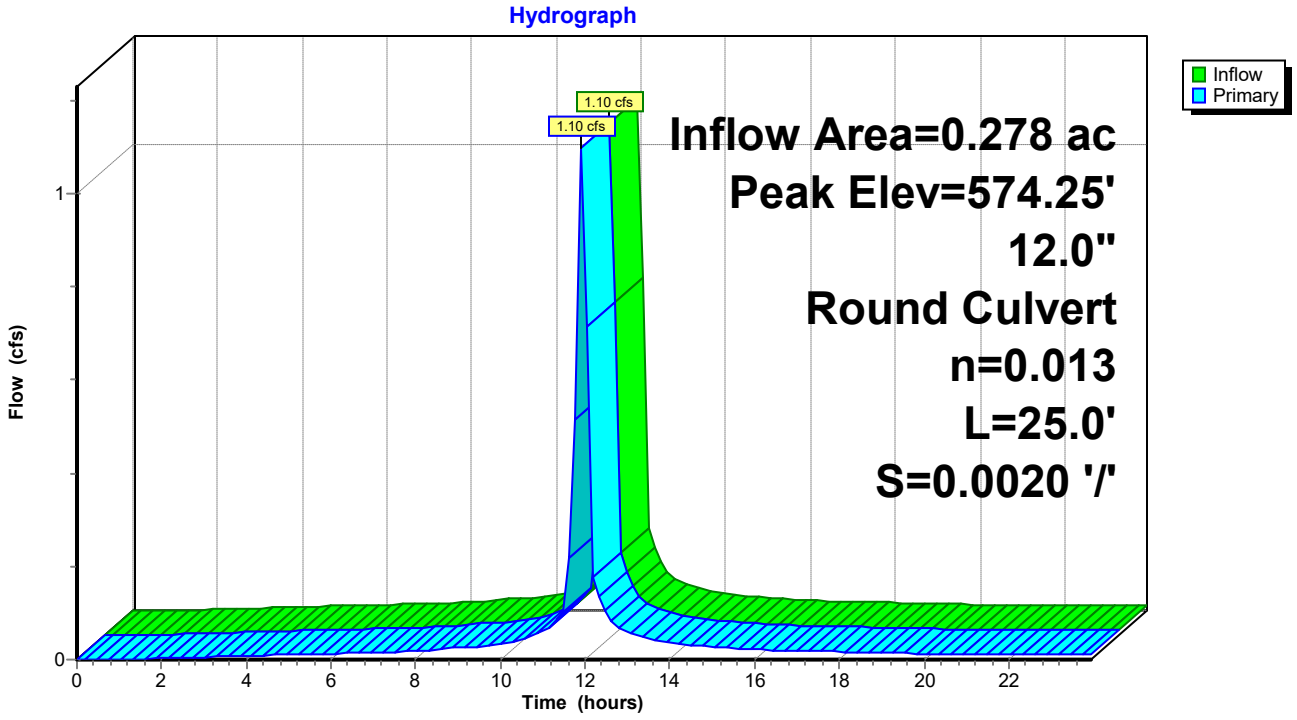
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 3.08" for 10-yr event
Inflow = 1.10 cfs @ 11.91 hrs, Volume= 0.071 af
Outflow = 1.10 cfs @ 11.91 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min
Primary = 1.10 cfs @ 11.91 hrs, Volume= 0.071 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.25' @ 11.96 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	**12.0" Round 12" CULVERT** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.77 cfs @ 11.91 hrs HW=574.22' TW=574.11' (Dynamic Tailwater)
1=12" CULVERT (Outlet Controls 0.77 cfs @ 1.81 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

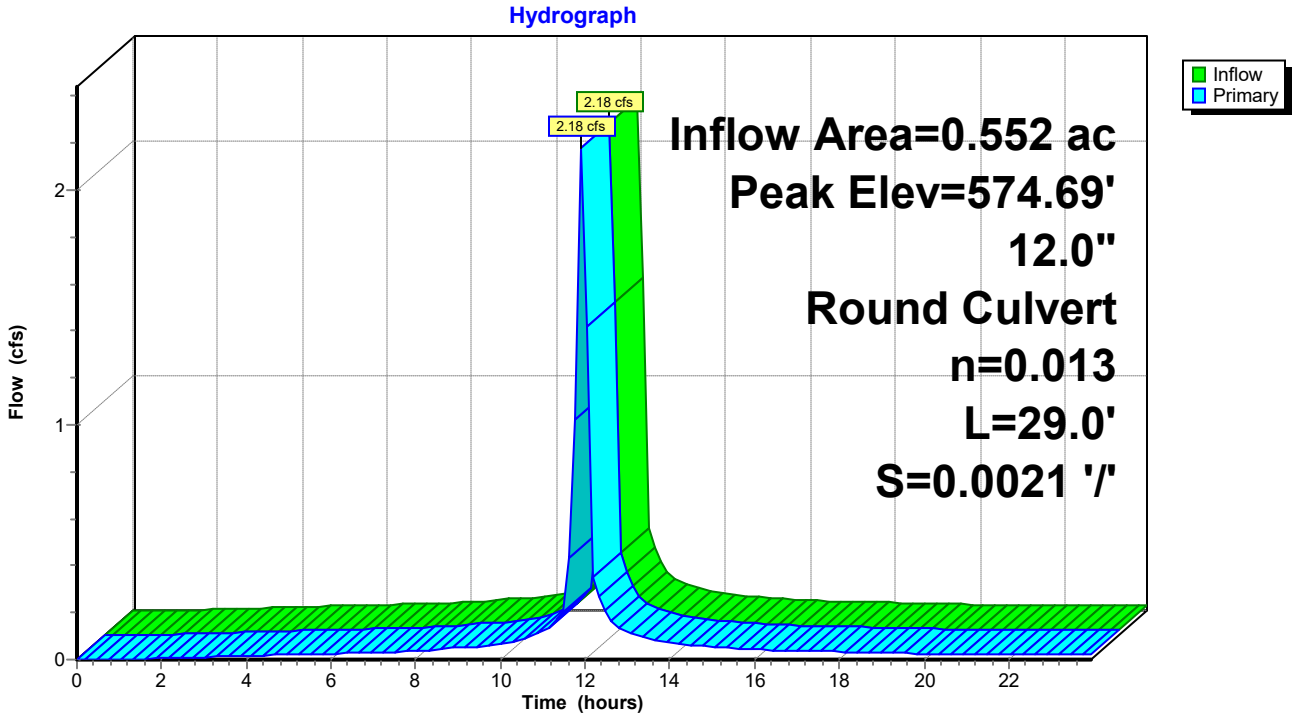
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 3.08" for 10-yr event
Inflow = 2.18 cfs @ 11.91 hrs, Volume= 0.142 af
Outflow = 2.18 cfs @ 11.91 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min
Primary = 2.18 cfs @ 11.91 hrs, Volume= 0.142 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.69' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	**12.0" Round 12" CULVERT** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.09 cfs @ 11.91 hrs HW=574.66' TW=574.11' (Dynamic Tailwater)
↑—**1=12" CULVERT** (Barrel Controls 2.09 cfs @ 3.10 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 2.69" for 10-yr event
Inflow = 3.58 cfs @ 11.93 hrs, Volume= 0.245 af
Outflow = 3.17 cfs @ 11.99 hrs, Volume= 0.207 af, Atten= 11%, Lag= 3.8 min
Primary = 0.04 cfs @ 12.01 hrs, Volume= 0.066 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 3.13 cfs @ 11.99 hrs, Volume= 0.141 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.11' @ 12.01 hrs Surf.Area= 3,612 sf Storage= 2,471 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 28.3 min (790.9 - 762.6)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

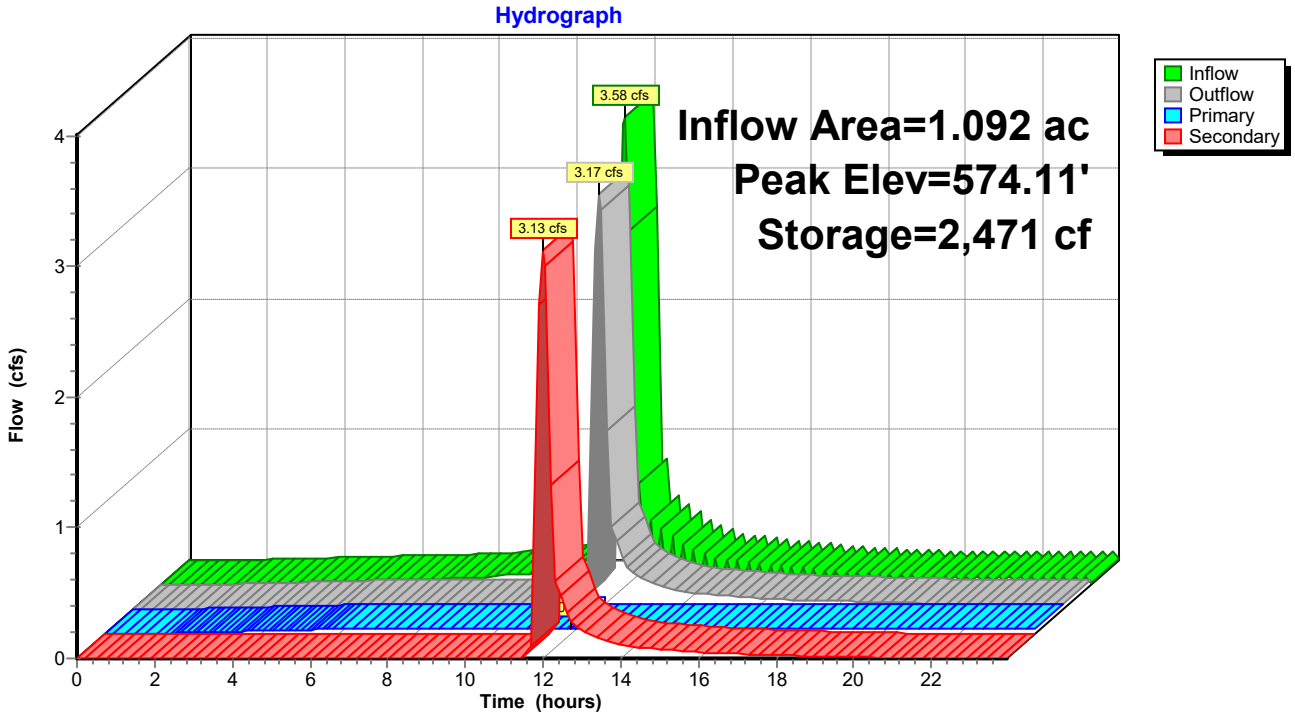
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	**6.0" Horiz. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	**0.500 in/hr Exfiltration of Soil Media over Surface area**

Primary OutFlow Max=0.04 cfs @ 12.01 hrs HW=574.10' TW=570.47' (Dynamic Tailwater)
└**3=Exfiltration of Soil Media** (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=2.91 cfs @ 11.99 hrs HW=574.10' TW=570.38' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Orifice Controls 1.14 cfs @ 1.51 fps)
└**2=Orifice/Grate** (Orifice Controls 1.77 cfs @ 2.25 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 2.27" for 10-yr event
Inflow = 3.17 cfs @ 11.99 hrs, Volume= 0.207 af
Outflow = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af, Atten= 78%, Lag= 27.2 min
Primary = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.18' @ 12.35 hrs Surf.Area= 3,113 sf Storage= 3,200 cf

Plug-Flow detention time= 114.6 min calculated for 0.175 af (85% of inflow)
Center-of-Mass det. time= 44.7 min (835.7 - 790.9)

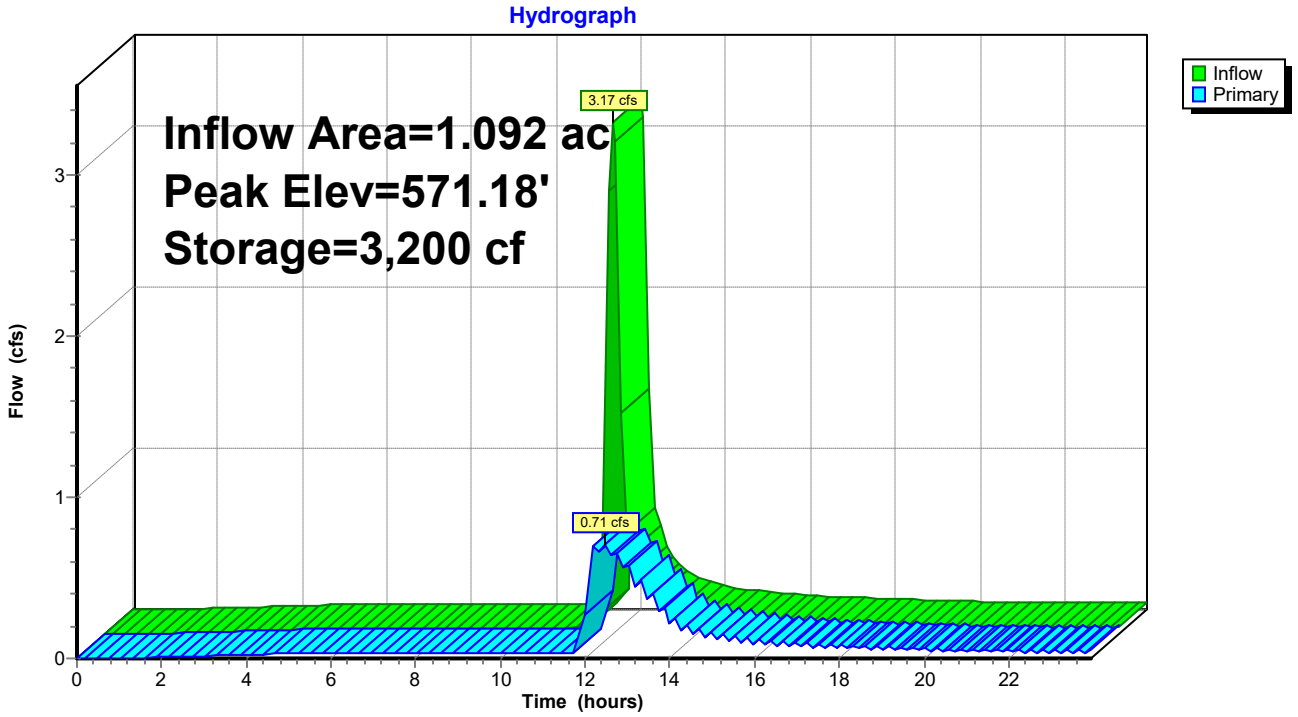
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	**6.0" Round 6" Perforated HDPE** Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	**16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5** 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	**6.0" Round Culvert after elbow assembly** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.69 cfs @ 12.44 hrs HW=571.15' TW=570.67' (Dynamic Tailwater)
└─**1=Culvert after elbow assembly** (Inlet Controls 0.65 cfs @ 3.33 fps)
└─**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

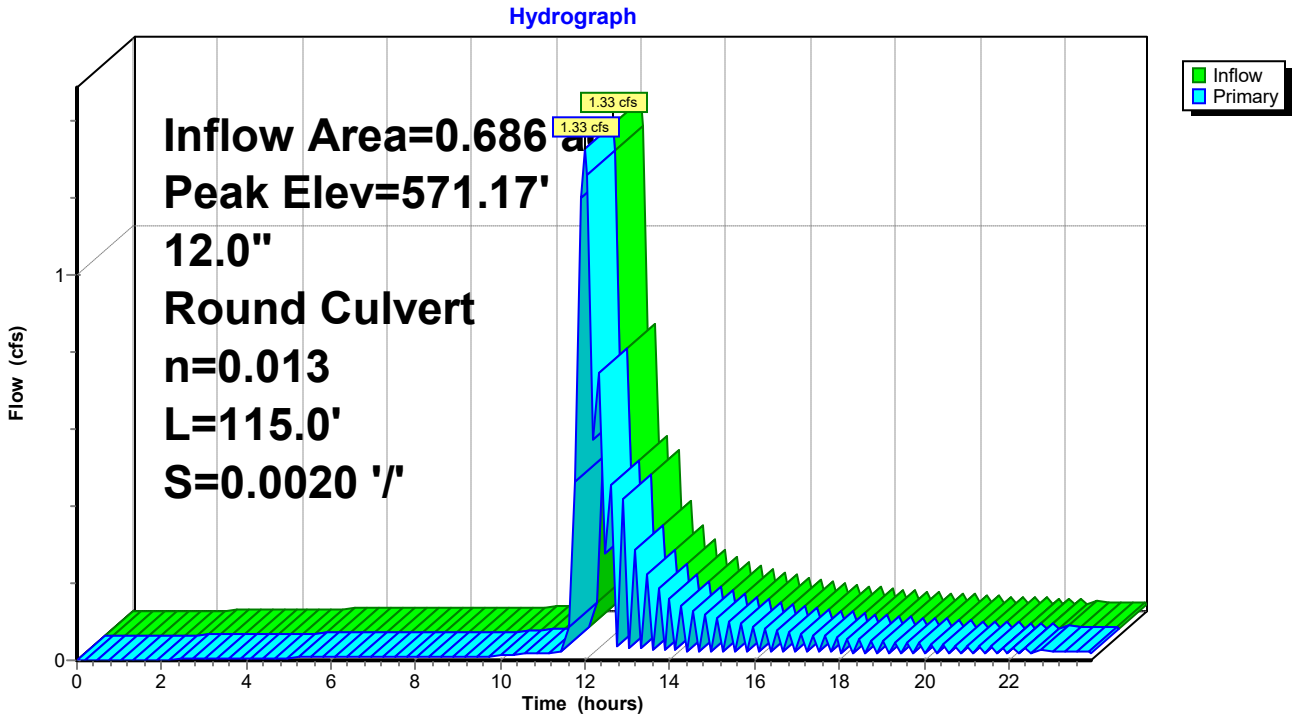
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 2.01" for 10-yr event
Inflow = 1.33 cfs @ 11.98 hrs, Volume= 0.115 af
Outflow = 1.33 cfs @ 11.98 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min
Primary = 1.33 cfs @ 11.98 hrs, Volume= 0.115 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.17' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	**12.0" Round Culvert** L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.24 cfs @ 11.98 hrs HW=571.13' TW=570.61' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.24 cfs @ 2.46 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 2.38" for 10-yr event
Inflow = 1.90 cfs @ 11.89 hrs, Volume= 0.113 af
Outflow = 1.61 cfs @ 11.92 hrs, Volume= 0.108 af, Atten= 15%, Lag= 1.8 min
Primary = 0.01 cfs @ 11.91 hrs, Volume= 0.017 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 1.60 cfs @ 11.92 hrs, Volume= 0.090 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.40' @ 11.91 hrs Surf.Area= 970 sf Storage= 399 cf

Plug-Flow detention time= 44.6 min calculated for 0.107 af (94% of inflow)
Center-of-Mass det. time= 16.1 min (796.3 - 780.2)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

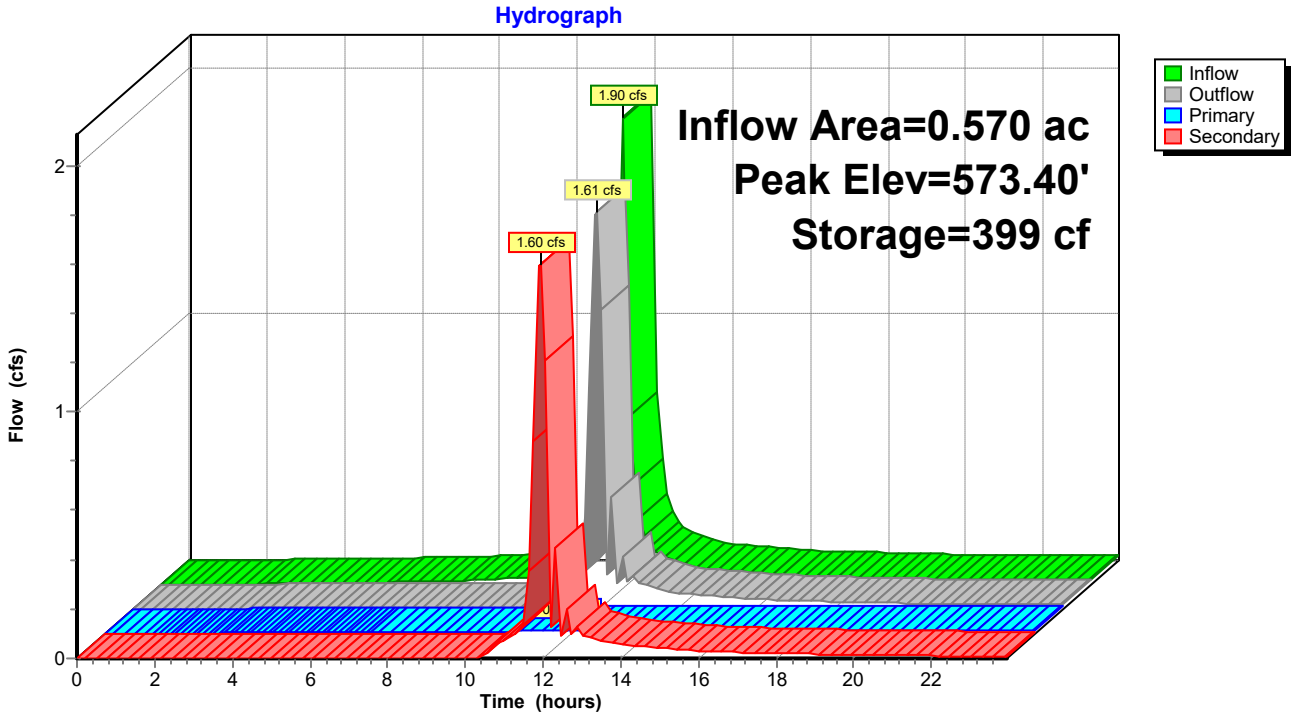
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	**4.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	**0.500 in/hr Exfiltration through soil media over Surface area**

Primary OutFlow Max=0.01 cfs @ 11.91 hrs HW=573.39' TW=571.03' (Dynamic Tailwater)
└**3=Exfiltration through soil media** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=1.54 cfs @ 11.92 hrs HW=573.39' TW=571.04' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Orifice Controls 1.36 cfs @ 1.81 fps)
└**2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.99 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 2.27" for 10-yr event
Inflow = 1.61 cfs @ 11.92 hrs, Volume= 0.108 af
Outflow = 1.11 cfs @ 11.97 hrs, Volume= 0.101 af, Atten= 31%, Lag= 3.2 min
Primary = 1.11 cfs @ 11.97 hrs, Volume= 0.101 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.23' @ 12.08 hrs Surf.Area= 2,674 sf Storage= 1,013 cf

Plug-Flow detention time= 58.7 min calculated for 0.101 af (94% of inflow)
Center-of-Mass det. time= 22.6 min (818.8 - 796.3)

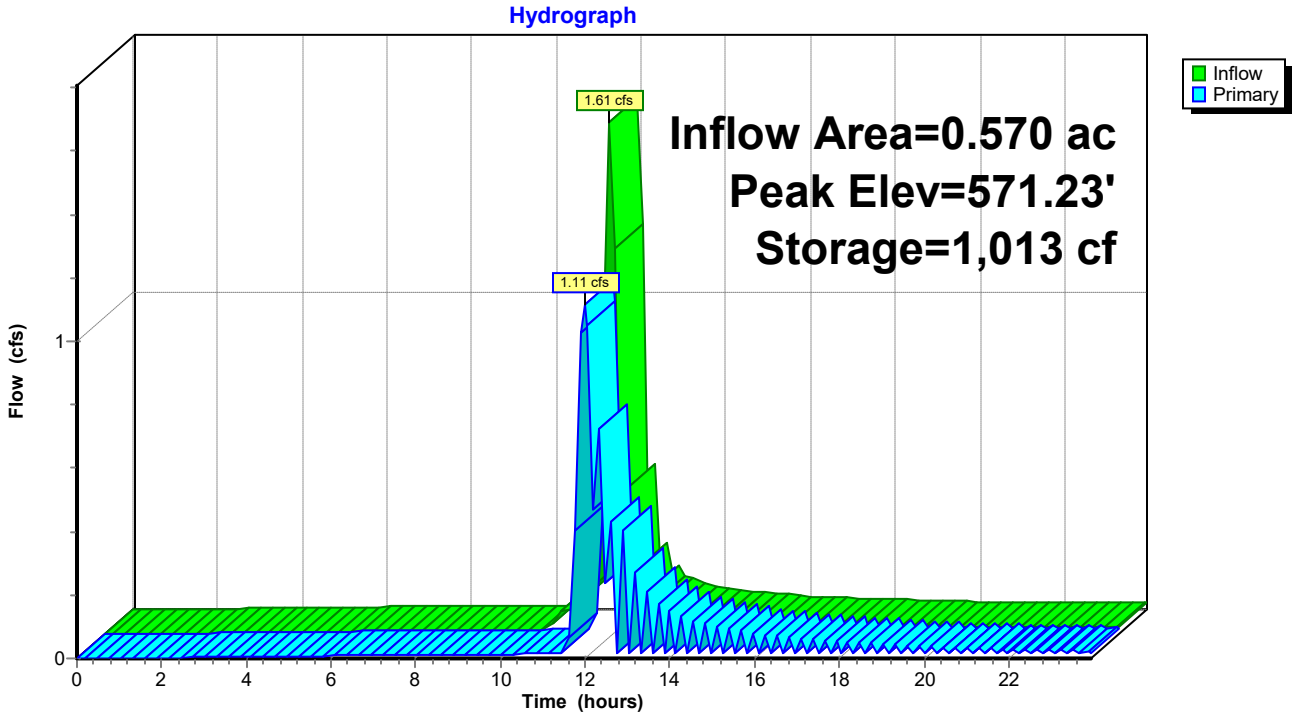
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	**8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5** 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	**8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5** 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	**4.0" Round 4" Perforated HDPE** Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	**12.0" Round 12" Culvert** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.03 cfs @ 11.97 hrs HW=571.12' TW=571.13' (Dynamic Tailwater)
1=12" Culvert (Controls 0.00 cfs)
2=Exfiltration (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

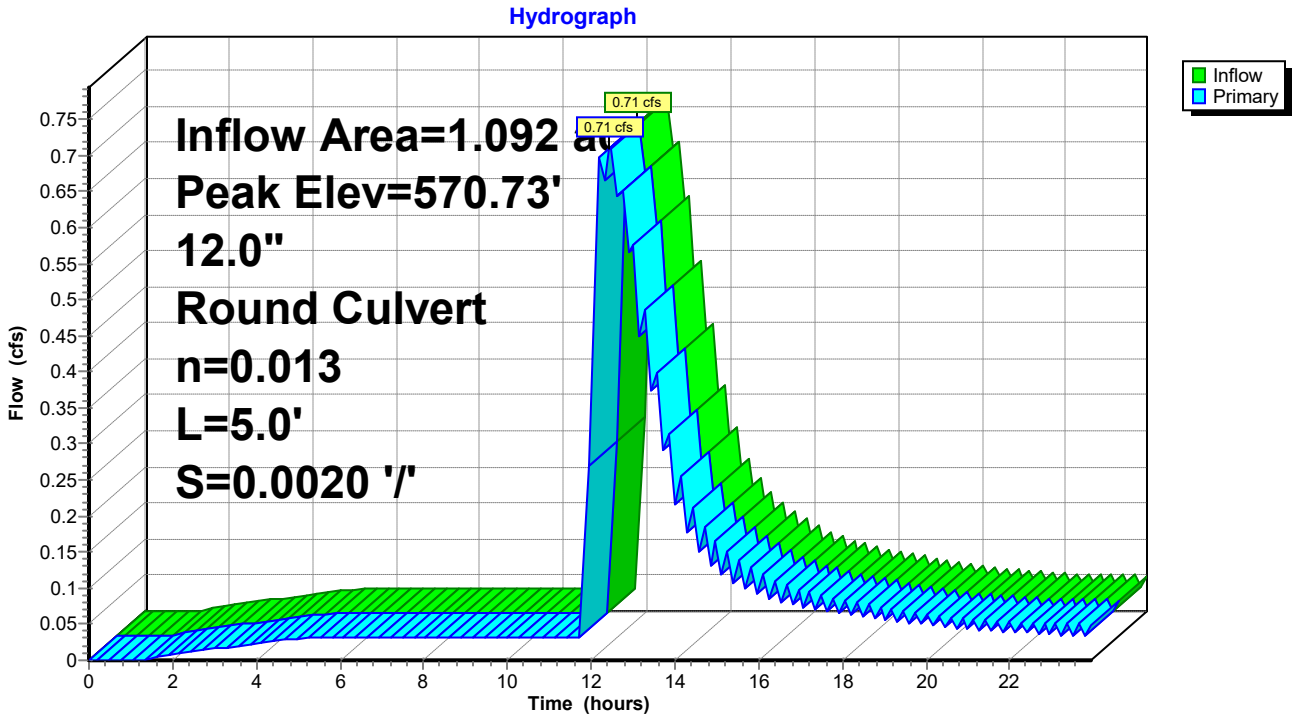
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.93" for 10-yr event
Inflow = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af
Outflow = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.44 hrs, Volume= 0.176 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.73' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	**12.0" Round 12 " Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 12.44 hrs HW=570.67' TW=570.49' (Dynamic Tailwater)
1=12 " Culvert (Barrel Controls 1.00 cfs @ 2.60 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 2.68" for 10-yr event
Inflow = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af
Outflow = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.98' @ 11.89 hrs
Flood Elev= 576.20'

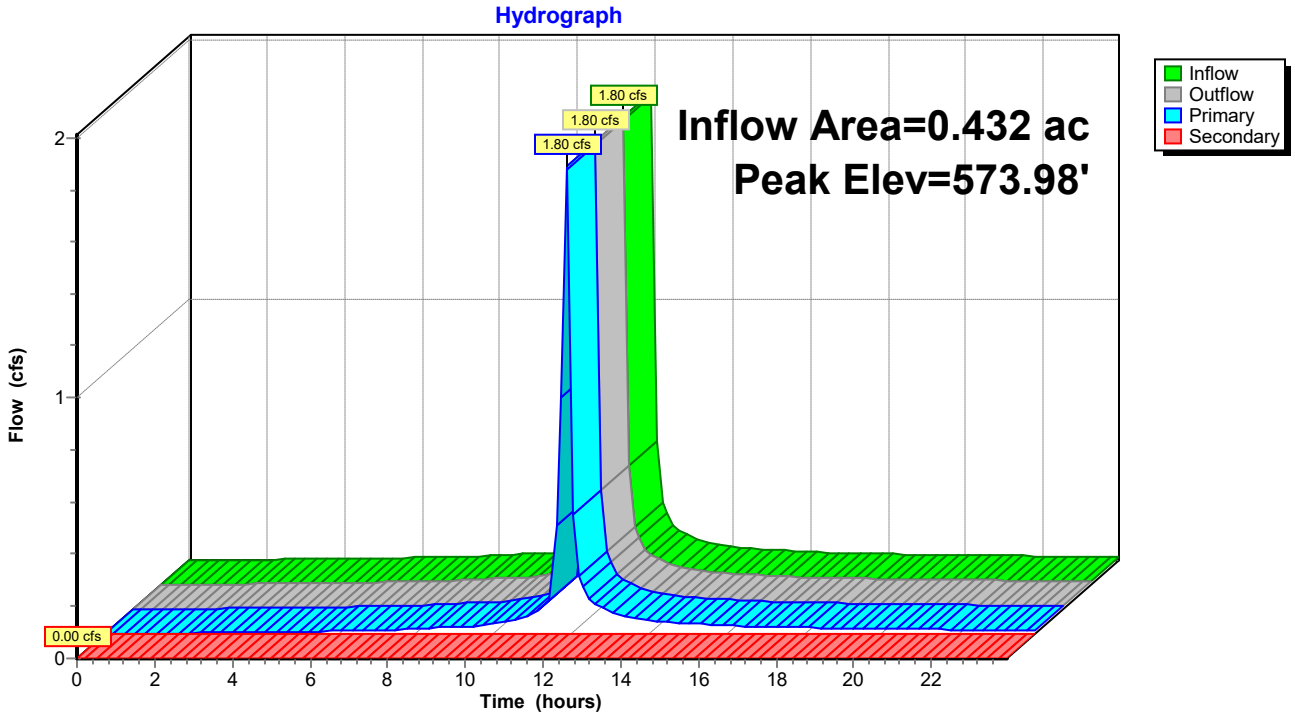
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	**6.0" Horiz. Orifice/Grate X 5.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.69 cfs @ 11.89 hrs HW=573.95' TW=573.39' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.34 cfs @ 3.58 fps)
- **2=Orifice/Grate** (Orifice Controls 0.64 cfs @ 3.36 fps)
- **3=Orifice/Grate** (Orifice Controls 0.51 cfs @ 2.71 fps)
- **4=Orifice/Grate** (Orifice Controls 0.20 cfs @ 2.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- **5=Orifice/Grate** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

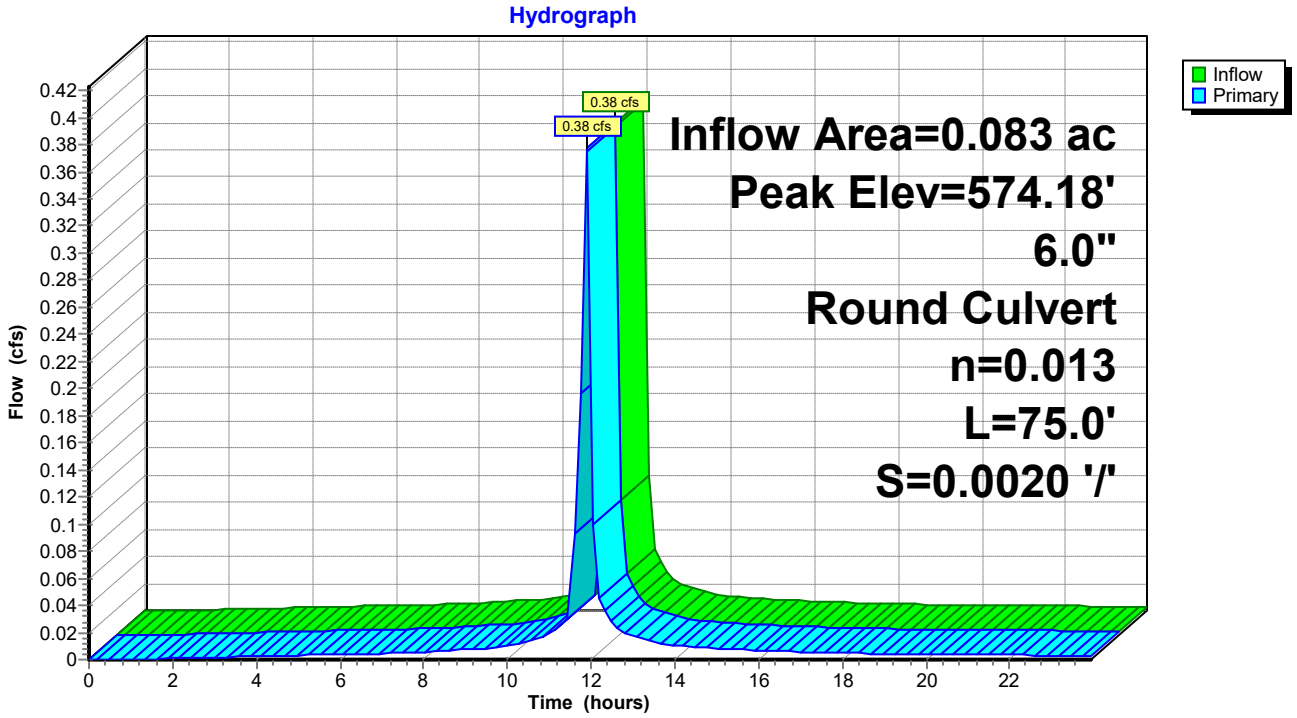
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 3.09" for 10-yr event
Inflow = 0.38 cfs @ 11.89 hrs, Volume= 0.021 af
Outflow = 0.38 cfs @ 11.89 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 11.89 hrs, Volume= 0.021 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.18' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.25 cfs @ 11.89 hrs HW=574.13' TW=573.94' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.25 cfs @ 1.28 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

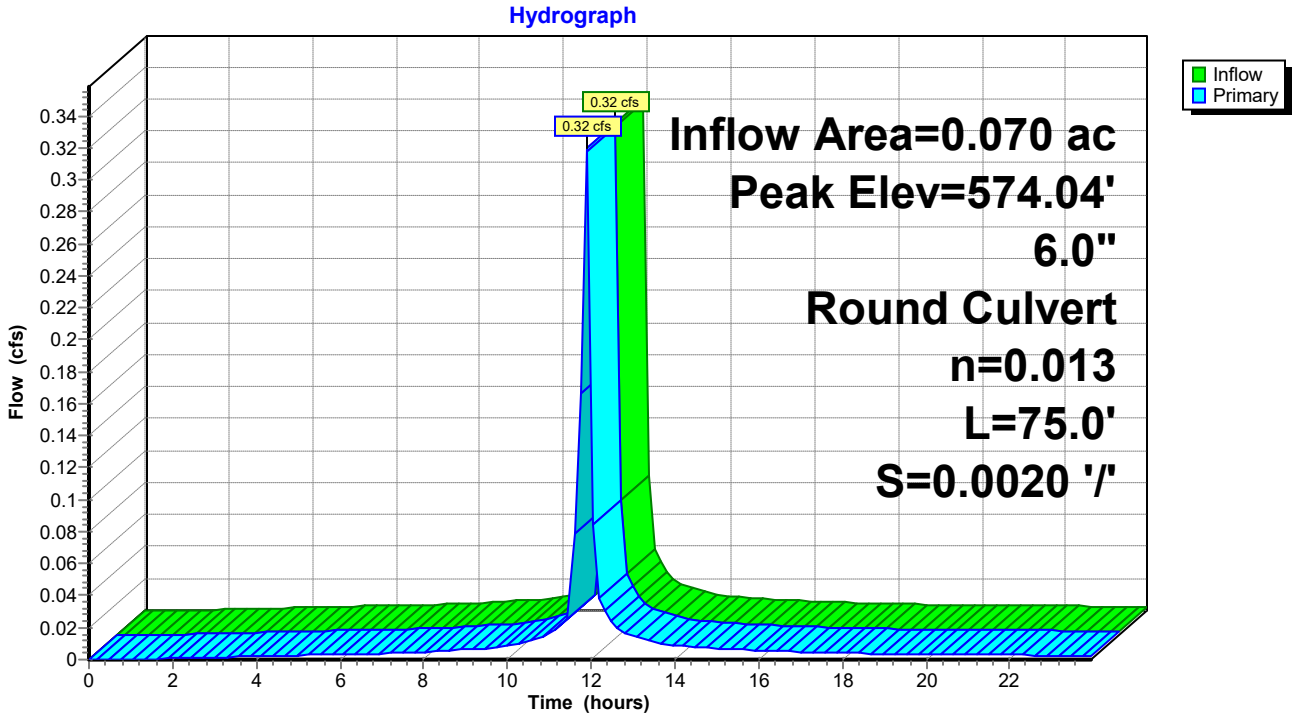
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 3.09" for 10-yr event
Inflow = 0.32 cfs @ 11.89 hrs, Volume= 0.018 af
Outflow = 0.32 cfs @ 11.89 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 11.89 hrs, Volume= 0.018 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.04' @ 11.98 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.06 cfs @ 11.89 hrs HW=573.95' TW=573.94' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.06 cfs @ 0.33 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

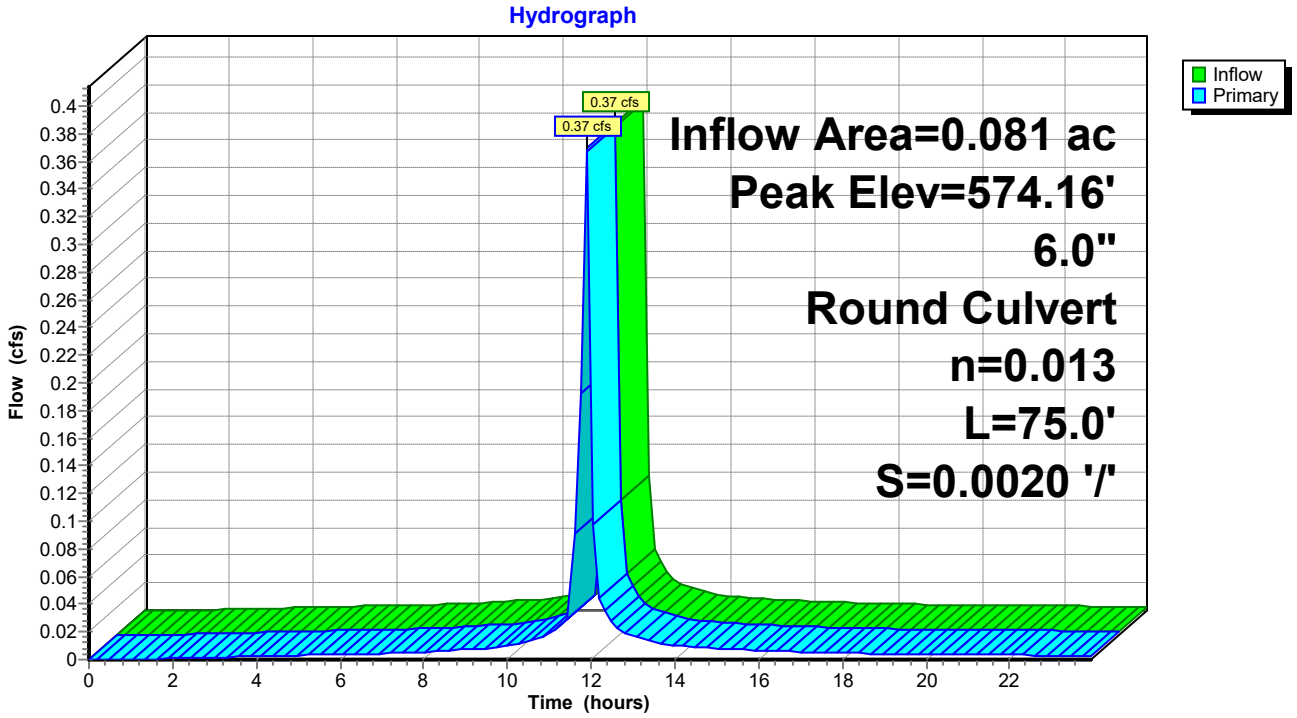
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 3.09" for 10-yr event
Inflow = 0.37 cfs @ 11.89 hrs, Volume= 0.021 af
Outflow = 0.37 cfs @ 11.89 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 11.89 hrs, Volume= 0.021 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.16' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.24 cfs @ 11.89 hrs HW=574.12' TW=573.94' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.24 cfs @ 1.22 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

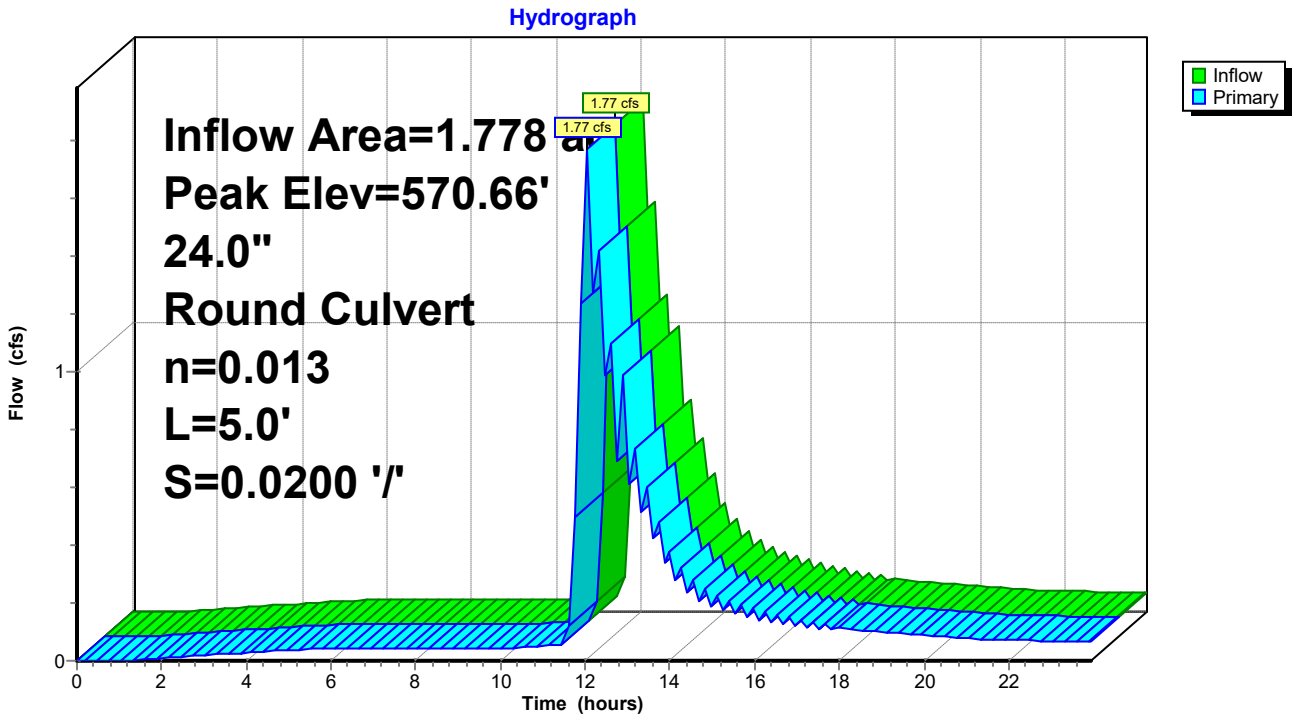
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 1.96" for 10-yr event
Inflow = 1.77 cfs @ 12.04 hrs, Volume= 0.291 af
Outflow = 1.77 cfs @ 12.04 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.04 hrs, Volume= 0.291 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.66' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	**24.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=1.76 cfs @ 12.04 hrs HW=570.66' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.76 cfs @ 2.90 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 1.49" for 10-yr event
Inflow = 0.24 cfs @ 11.94 hrs, Volume= 0.014 af
Outflow = 0.22 cfs @ 12.01 hrs, Volume= 0.014 af, Atten= 8%, Lag= 4.0 min
Primary = 0.22 cfs @ 12.01 hrs, Volume= 0.014 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.84' @ 12.00 hrs Surf.Area= 530 sf Storage= 33 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.5 min (837.5 - 836.1)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

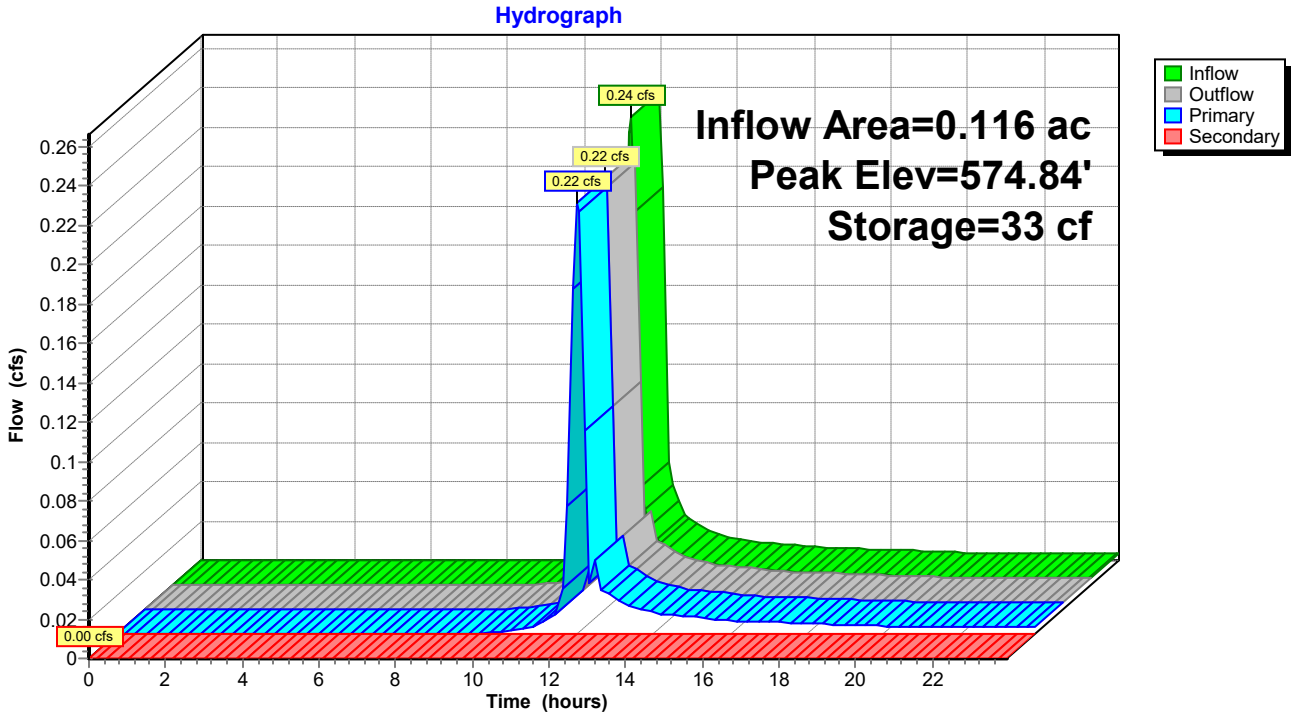
Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	**6.0" Horiz. 6" Yard Drain** C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	**1.7" x 3.2" Horiz. CB Grate X 7.00 columns** X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

Primary OutFlow Max=0.20 cfs @ 12.01 hrs HW=574.84' TW=571.14' (Dynamic Tailwater)
↑—**1=6" Yard Drain** (Weir Controls 0.20 cfs @ 1.12 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
↑—**2=CB Grate** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.32 cfs 0.086 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=2.61 cfs 0.172 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>2.01"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.38 cfs 0.023 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>2.26"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.21 cfs 0.011 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>2.01"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.61 cfs 0.035 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>2.79"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=0.92 cfs 0.046 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>2.01"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.32 cfs 0.019 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.45 cfs 0.026 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.38 cfs 0.022 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>3.73"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.44 cfs 0.025 af

Reach 4R: East Swale Avg. Flow Depth=0.17' Max Vel=0.81 fps Inflow=0.38 cfs 0.023 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.32 cfs 0.023 af

Pond 5P: Front Vegetated Swale Peak Elev=574.23' Storage=284 cf Inflow=4.13 cfs 0.269 af
Primary=3.82 cfs 0.255 af Secondary=0.01 cfs 0.012 af Outflow=3.84 cfs 0.266 af

Pond 6P: CB1 Peak Elev=574.32' Inflow=1.32 cfs 0.086 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=1.32 cfs 0.086 af

Pond 7P: CB2 Peak Elev=574.94' Inflow=2.61 cfs 0.172 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=2.61 cfs 0.172 af

Pond 14P: Bio-Retention Area Storage Peak Elev=574.19' Storage=2,765 cf Inflow=4.44 cfs 0.301 af
Primary=0.04 cfs 0.068 af Secondary=3.77 cfs 0.194 af Outflow=3.81 cfs 0.263 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=571.79' Storage=4,376 cf Inflow=3.81 cfs 0.263 af
Outflow=0.97 cfs 0.231 af

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=571.36' Inflow=1.81 cfs 0.148 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=1.81 cfs 0.148 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.46' Storage=461 cf Inflow=2.35 cfs 0.142 af
Primary=0.01 cfs 0.018 af Secondary=1.90 cfs 0.118 af Outflow=1.91 cfs 0.136 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=571.40' Storage=1,142 cf Inflow=1.91 cfs 0.136 af
Outflow=1.52 cfs 0.129 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=570.90' Inflow=0.97 cfs 0.231 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=0.97 cfs 0.231 af

Pond 41P: Level Spreader Peak Elev=574.19' Inflow=2.20 cfs 0.119 af
Primary=2.20 cfs 0.119 af Secondary=0.00 cfs 0.000 af Outflow=2.20 cfs 0.119 af

Pond 42P: CB3 Peak Elev=574.38' Inflow=0.45 cfs 0.026 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.45 cfs 0.026 af

Pond 44P: CB4 Peak Elev=574.27' Inflow=0.38 cfs 0.022 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.38 cfs 0.022 af

Pond 45P: CB5 Peak Elev=574.36' Inflow=0.44 cfs 0.025 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.44 cfs 0.025 af

Pond 46P: STM MH Peak Elev=570.82' Inflow=2.58 cfs 0.379 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=2.58 cfs 0.379 af

Pond 47P: West Area to CB + YD Peak Elev=574.87' Storage=48 cf Inflow=0.32 cfs 0.019 af
Primary=0.29 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.29 cfs 0.019 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.465 af Average Runoff Depth = 3.14"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

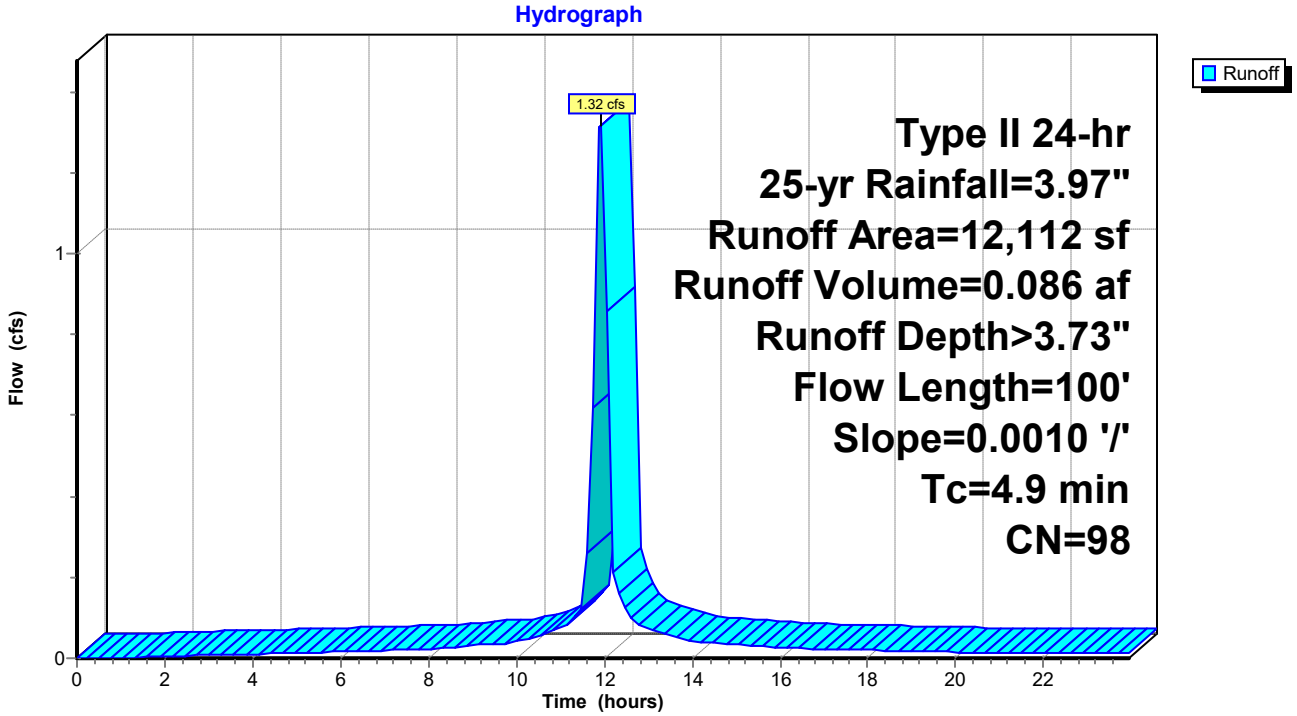
Runoff = 1.32 cfs @ 11.91 hrs, Volume= 0.086 af, Depth> 3.73"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

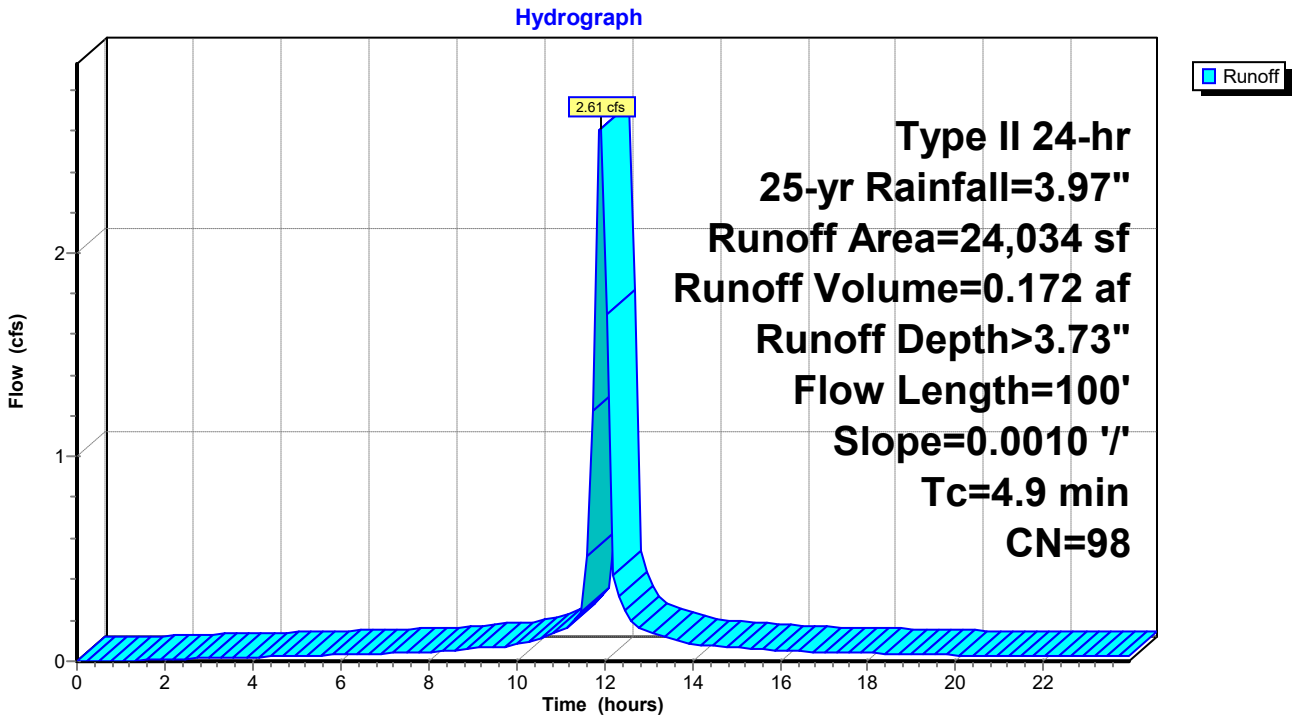
Runoff = 2.61 cfs @ 11.91 hrs, Volume= 0.172 af, Depth> 3.73"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

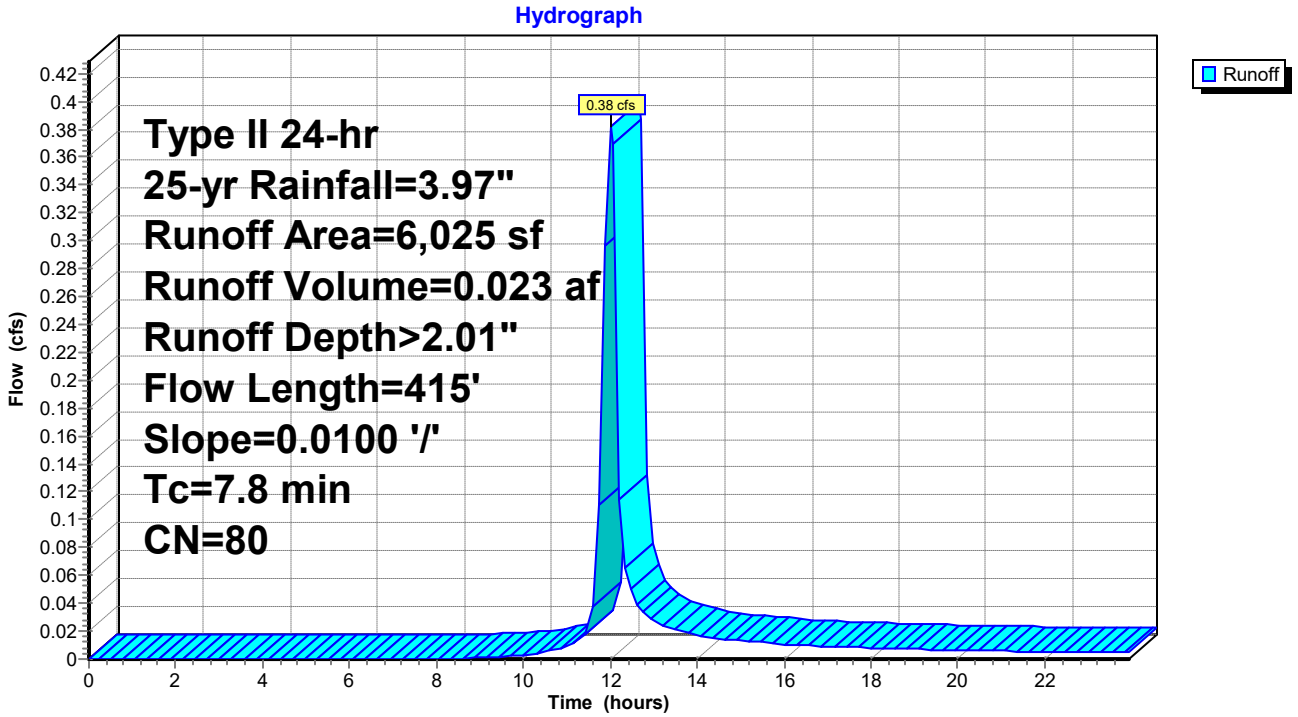
Runoff = 0.38 cfs @ 12.00 hrs, Volume= 0.023 af, Depth> 2.01"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

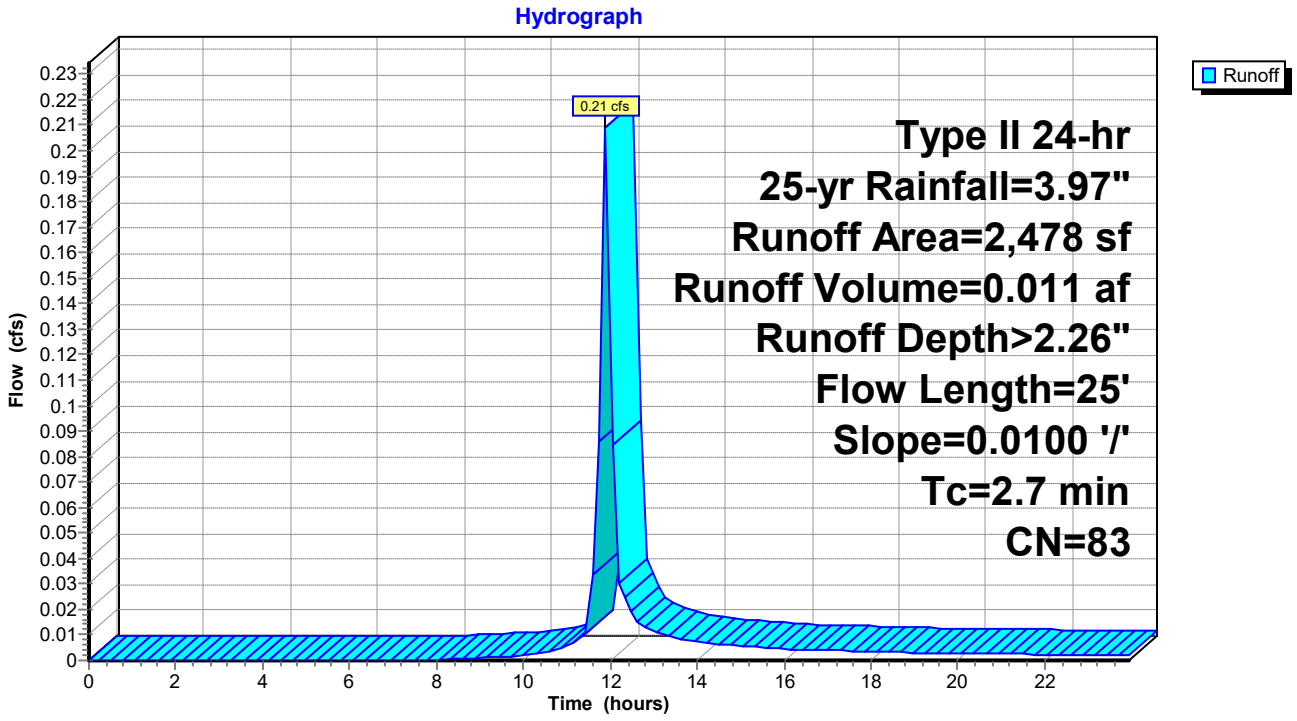
Runoff = 0.21 cfs @ 11.90 hrs, Volume= 0.011 af, Depth> 2.26"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

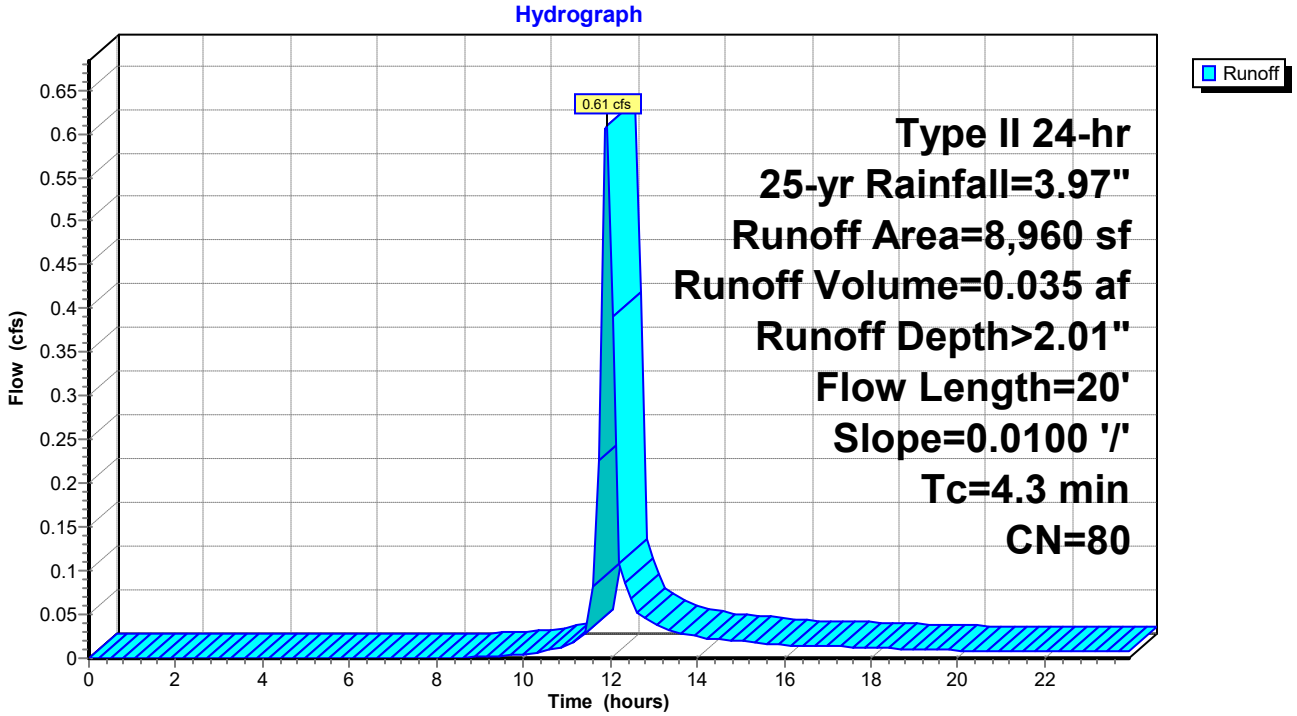
Runoff = 0.61 cfs @ 11.92 hrs, Volume= 0.035 af, Depth> 2.01"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

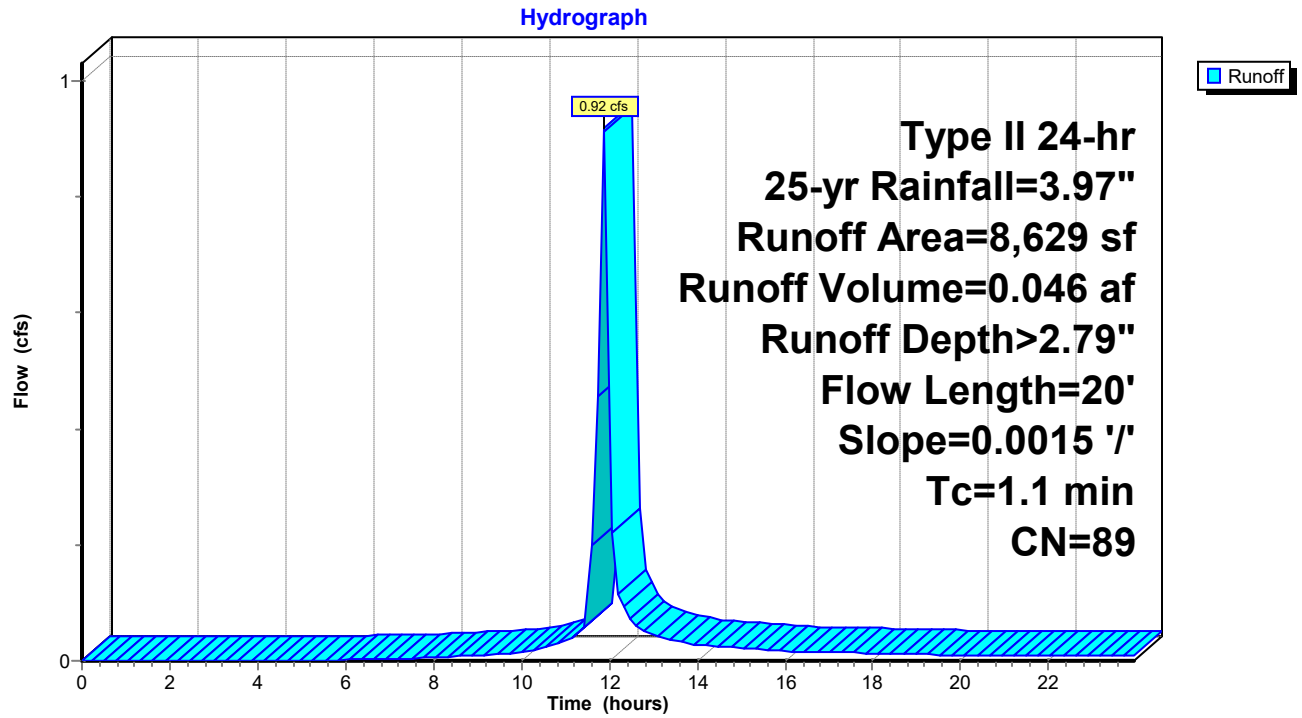
Runoff = 0.92 cfs @ 11.89 hrs, Volume= 0.046 af, Depth> 2.79"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

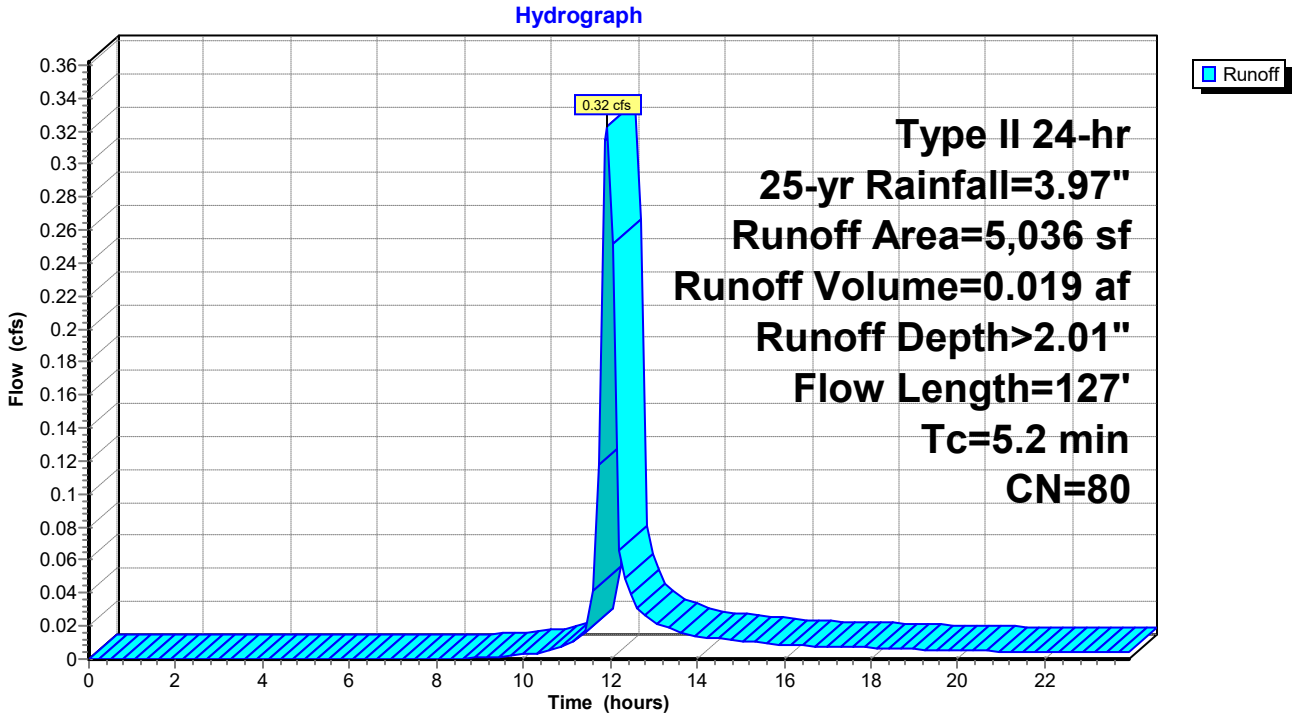
Runoff = 0.32 cfs @ 11.94 hrs, Volume= 0.019 af, Depth> 2.01"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

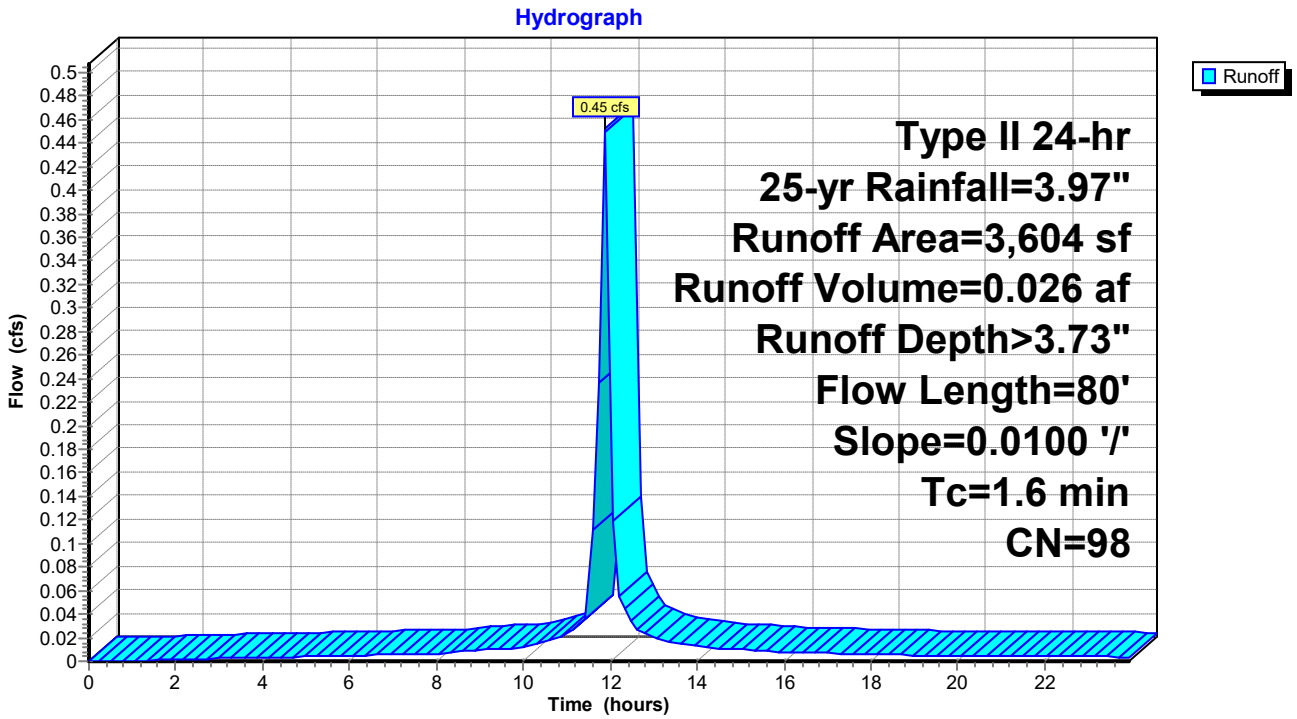
Runoff = 0.45 cfs @ 11.88 hrs, Volume= 0.026 af, Depth> 3.73"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

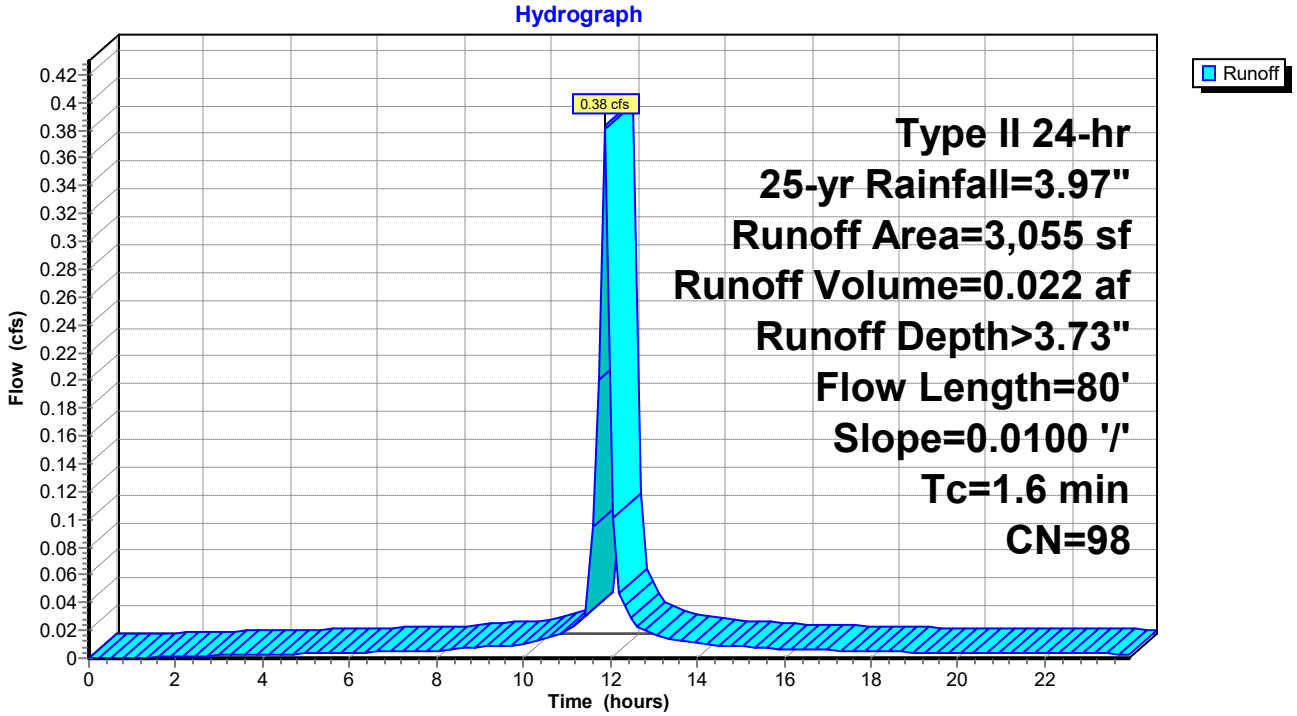
Runoff = 0.38 cfs @ 11.88 hrs, Volume= 0.022 af, Depth> 3.73"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

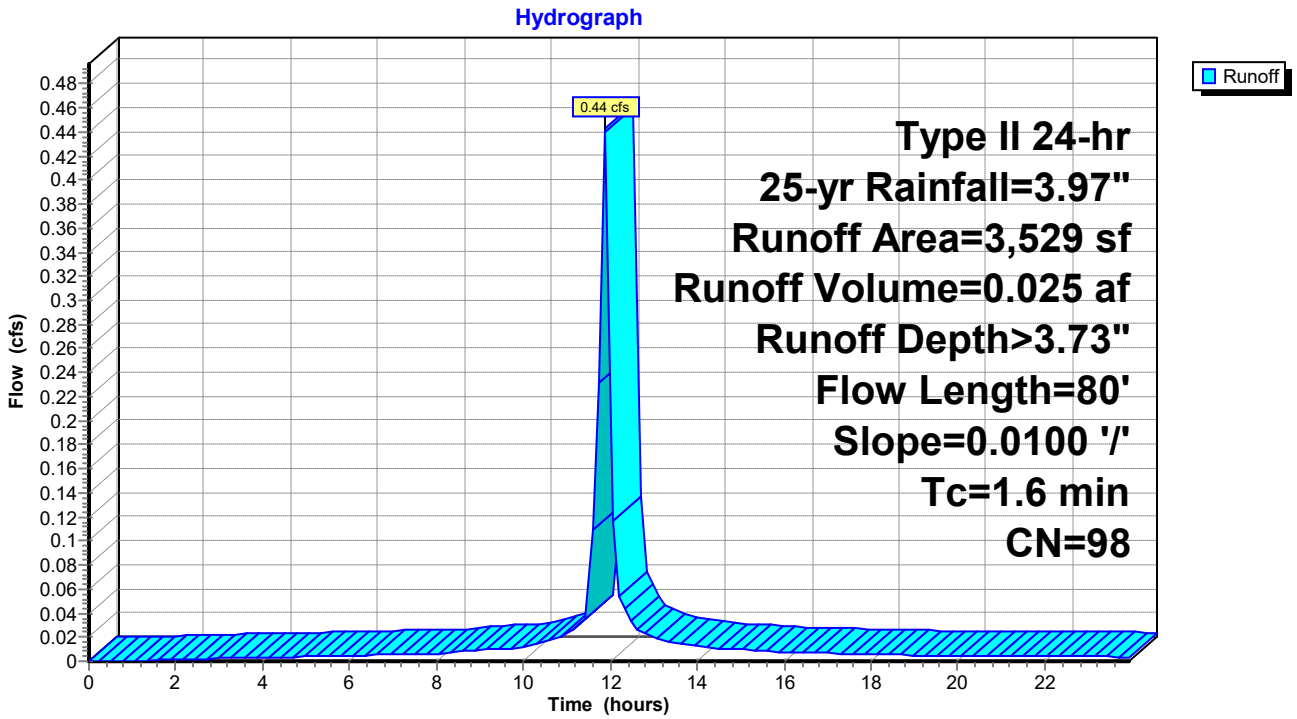
Runoff = 0.44 cfs @ 11.88 hrs, Volume= 0.025 af, Depth> 3.73"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 25-yr Rainfall=3.97"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 2.01" for 25-yr event
Inflow = 0.38 cfs @ 12.00 hrs, Volume= 0.023 af
Outflow = 0.32 cfs @ 12.07 hrs, Volume= 0.023 af, Atten= 17%, Lag= 4.0 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

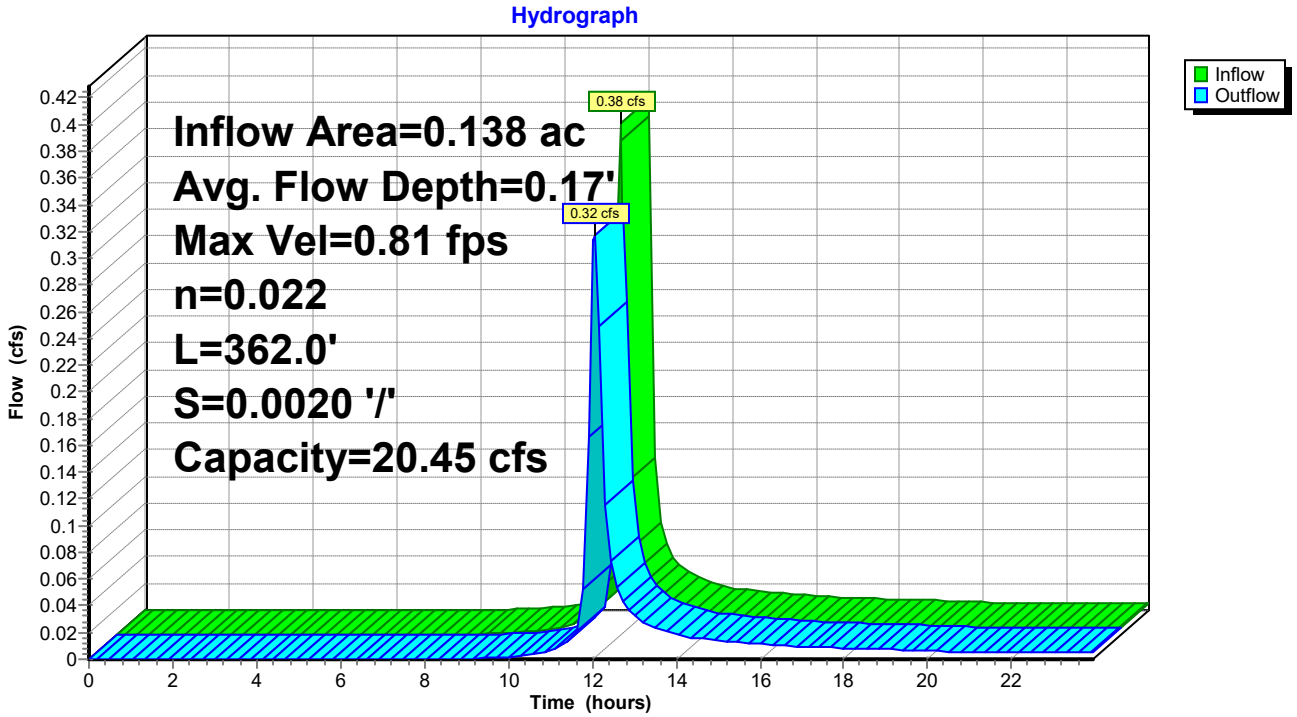
Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.81 fps, Min. Travel Time= 7.4 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 24.6 min

Peak Storage= 141 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.17' , Surface Width= 2.67'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



Reach 4R: East Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 3.64" for 25-yr event
Inflow = 4.13 cfs @ 11.91 hrs, Volume= 0.269 af
Outflow = 3.84 cfs @ 11.93 hrs, Volume= 0.266 af, Atten= 7%, Lag= 0.9 min
Primary = 3.82 cfs @ 11.93 hrs, Volume= 0.255 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.01 cfs @ 12.01 hrs, Volume= 0.012 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.23' @ 12.01 hrs Surf.Area= 617 sf Storage= 284 cf

Plug-Flow detention time= 7.5 min calculated for 0.266 af (99% of inflow)
Center-of-Mass det. time= 1.2 min (750.5 - 749.3)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

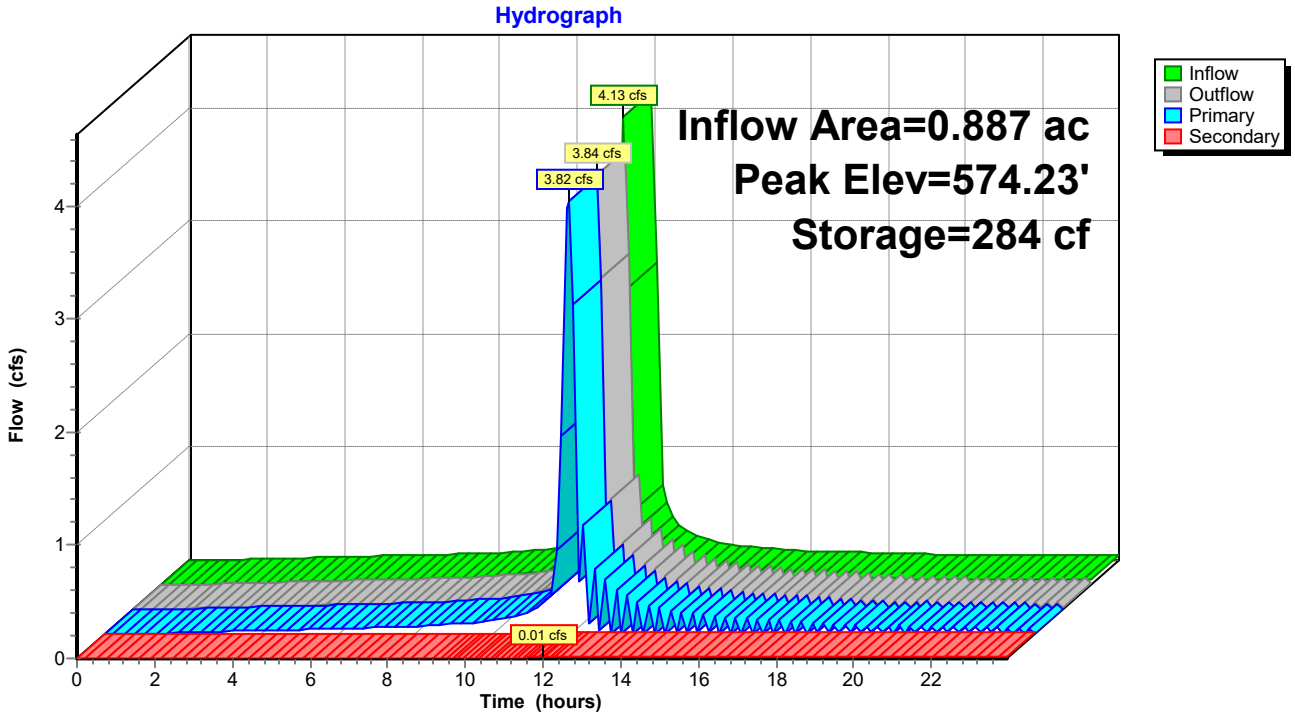
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	**1.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=2.50 cfs @ 11.93 hrs HW=574.22' TW=574.15' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 2.50 cfs @ 1.02 fps)

Secondary OutFlow Max=0.01 cfs @ 12.01 hrs HW=574.23' TW=574.18' (Dynamic Tailwater)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

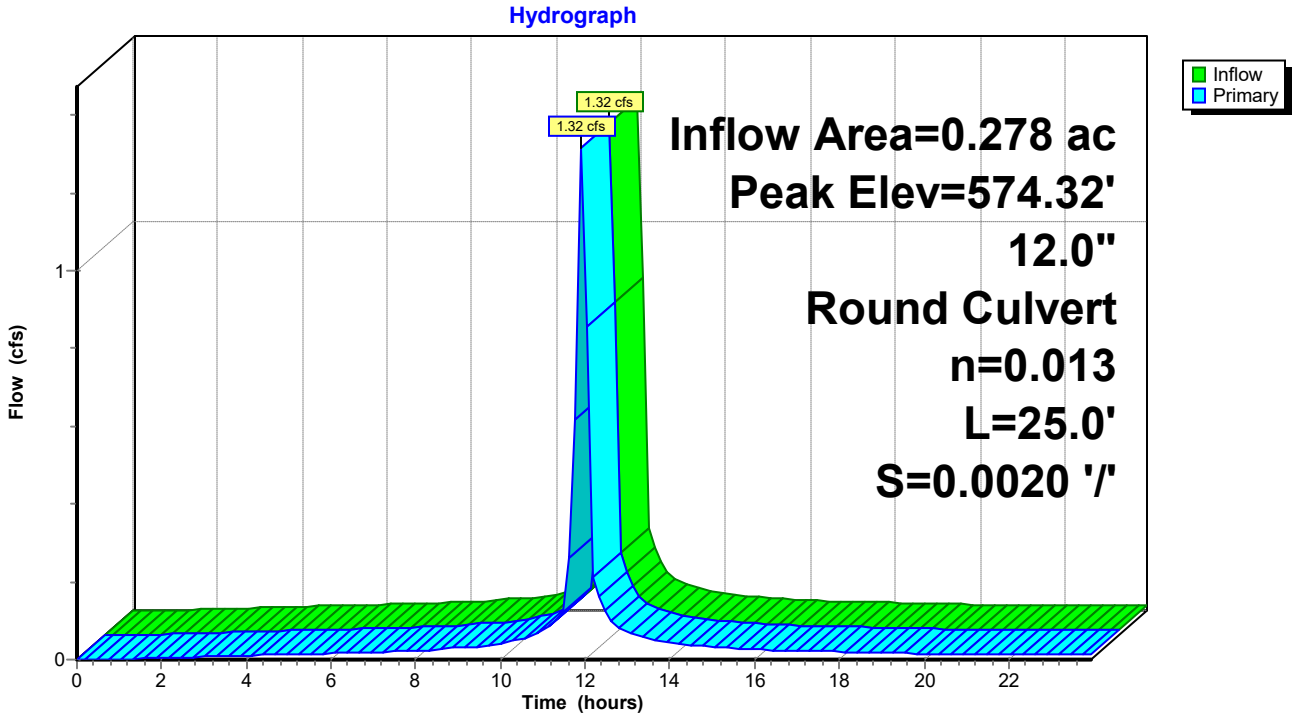
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 1.32 cfs @ 11.91 hrs, Volume= 0.086 af
Outflow = 1.32 cfs @ 11.91 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min
Primary = 1.32 cfs @ 11.91 hrs, Volume= 0.086 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.32' @ 11.99 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	**12.0" Round 12" CULVERT** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 11.91 hrs HW=574.30' TW=574.21' (Dynamic Tailwater)
↑—**1=12" CULVERT** (Outlet Controls 0.78 cfs @ 1.61 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

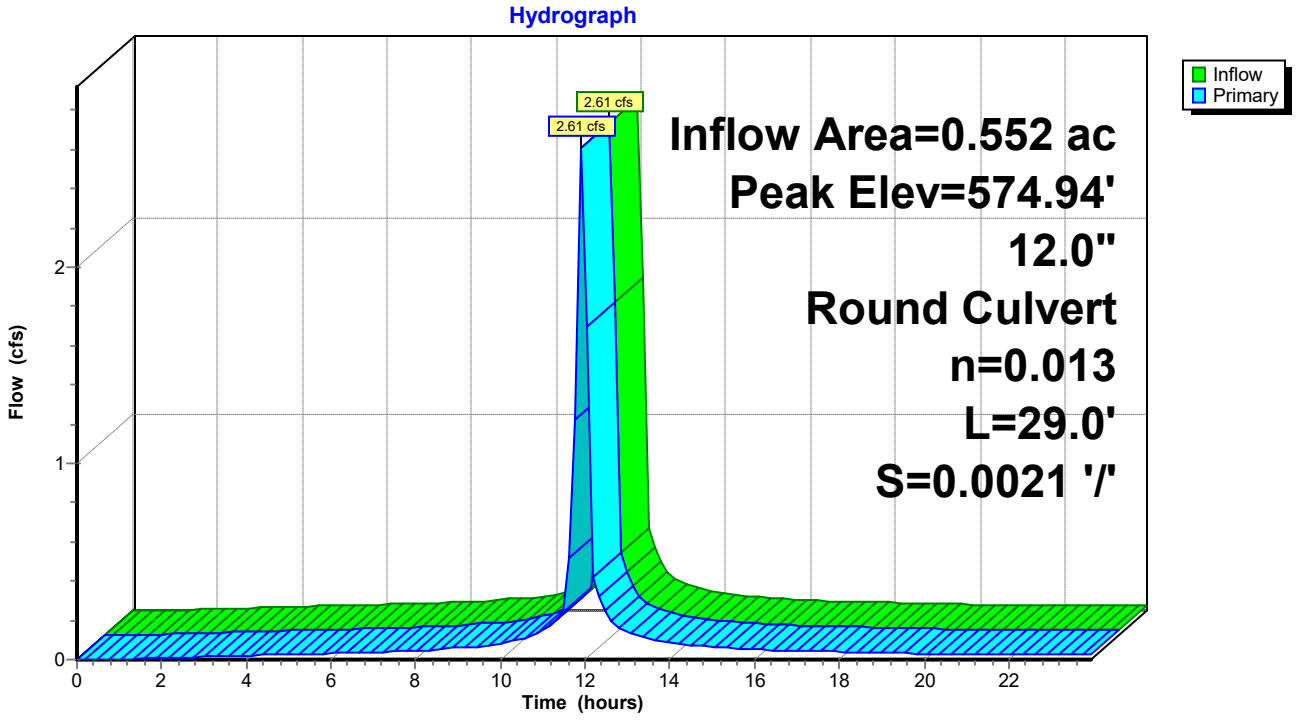
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 2.61 cfs @ 11.91 hrs, Volume= 0.172 af
Outflow = 2.61 cfs @ 11.91 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min
Primary = 2.61 cfs @ 11.91 hrs, Volume= 0.172 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.94' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	**12.0" Round 12" CULVERT** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.57 cfs @ 11.91 hrs HW=574.90' TW=574.21' (Dynamic Tailwater)
1=12" CULVERT (Barrel Controls 2.57 cfs @ 3.28 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 3.30" for 25-yr event
Inflow = 4.44 cfs @ 11.93 hrs, Volume= 0.301 af
Outflow = 3.81 cfs @ 12.00 hrs, Volume= 0.263 af, Atten= 14%, Lag= 4.1 min
Primary = 0.04 cfs @ 12.00 hrs, Volume= 0.068 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 3.77 cfs @ 12.00 hrs, Volume= 0.194 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.19' @ 12.00 hrs Surf.Area= 3,693 sf Storage= 2,765 cf

Plug-Flow detention time= 87.9 min calculated for 0.261 af (87% of inflow)
Center-of-Mass det. time= 28.0 min (787.3 - 759.3)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

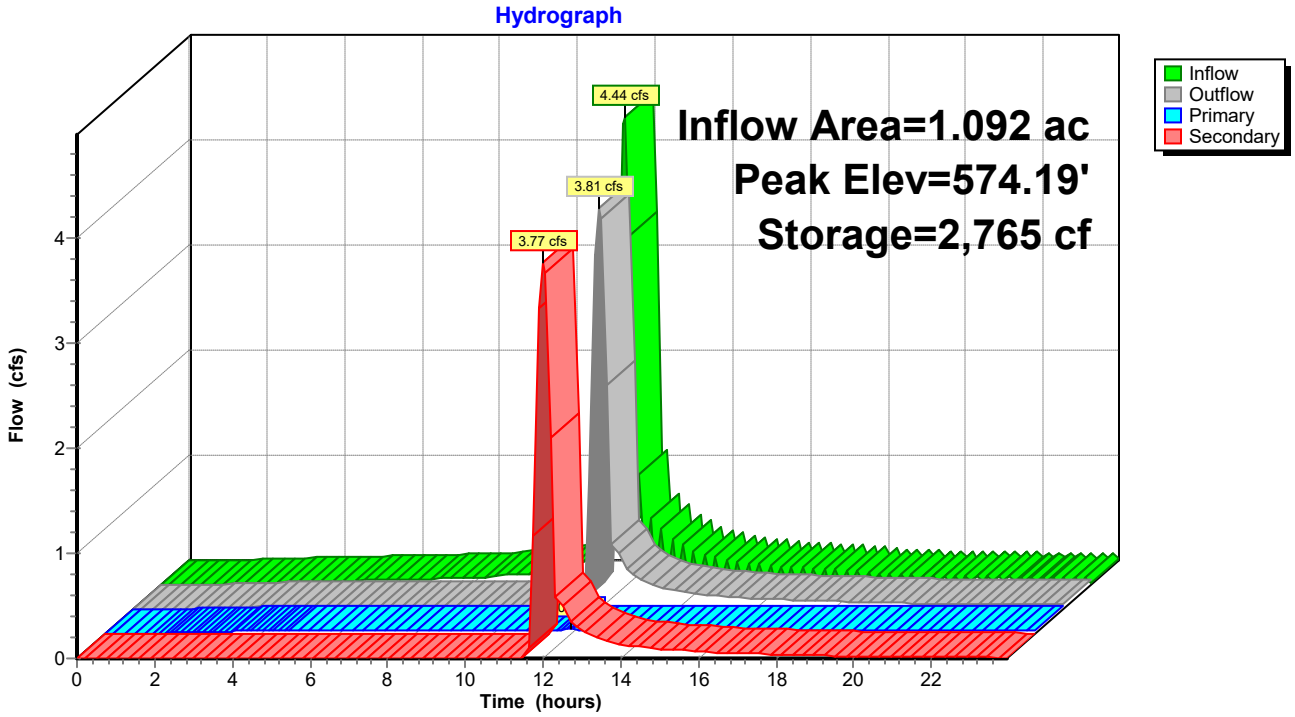
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	**6.0" Horiz. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	**0.500 in/hr Exfiltration of Soil Media over Surface area**

Primary OutFlow Max=0.04 cfs @ 12.00 hrs HW=574.18' TW=570.92' (Dynamic Tailwater)
└─**3=Exfiltration of Soil Media** (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=3.56 cfs @ 12.00 hrs HW=574.17' TW=570.87' (Dynamic Tailwater)
├─**1=Emergency Overflow (Catch Basin)** (Orifice Controls 1.51 cfs @ 2.00 fps)
└─**2=Orifice/Grate** (Orifice Controls 2.05 cfs @ 2.61 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 2.88" for 25-yr event
Inflow = 3.81 cfs @ 12.00 hrs, Volume= 0.263 af
Outflow = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af, Atten= 74%, Lag= 26.2 min
Primary = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.79' @ 12.33 hrs Surf.Area= 3,232 sf Storage= 4,376 cf

Plug-Flow detention time= 103.8 min calculated for 0.230 af (87% of inflow)
Center-of-Mass det. time= 45.3 min (832.5 - 787.3)

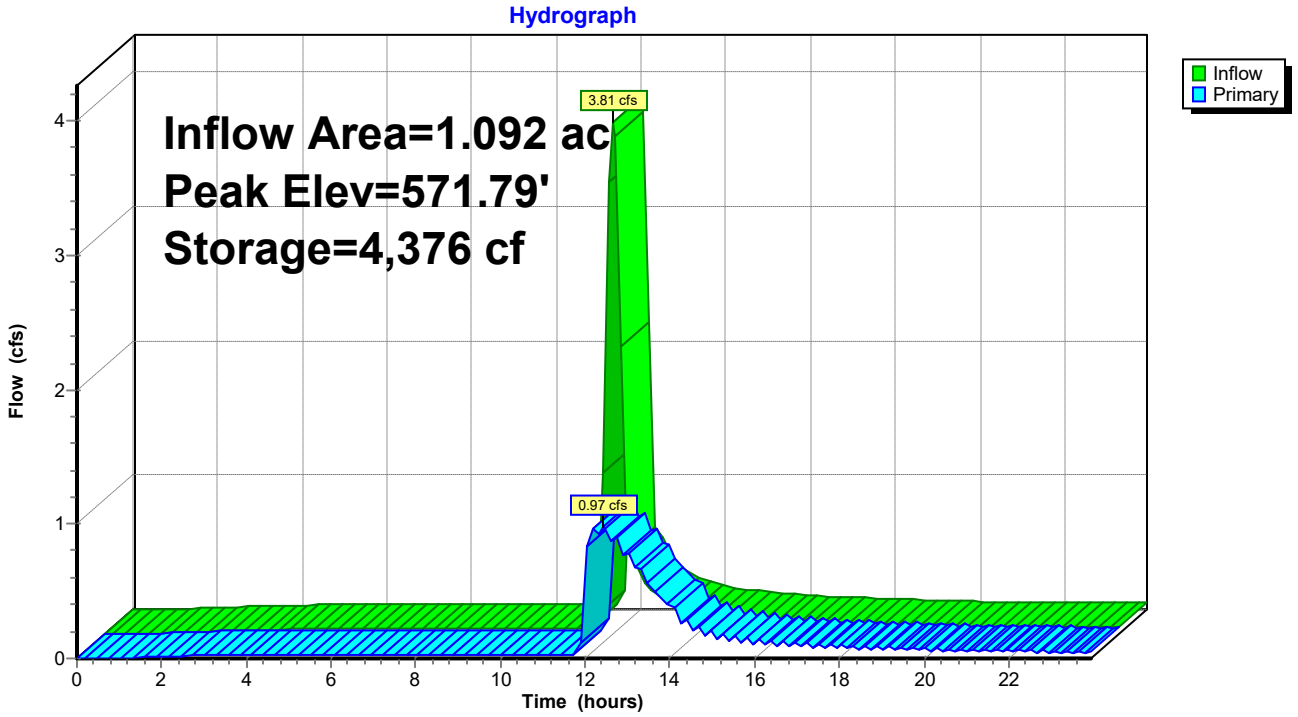
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	**6.0" Round 6" Perforated HDPE** Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	**16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5** 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	**6.0" Round Culvert after elbow assembly** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.95 cfs @ 12.43 hrs HW=571.72' TW=570.79' (Dynamic Tailwater)
└─**1=Culvert after elbow assembly** (Inlet Controls 0.91 cfs @ 4.64 fps)
└─**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

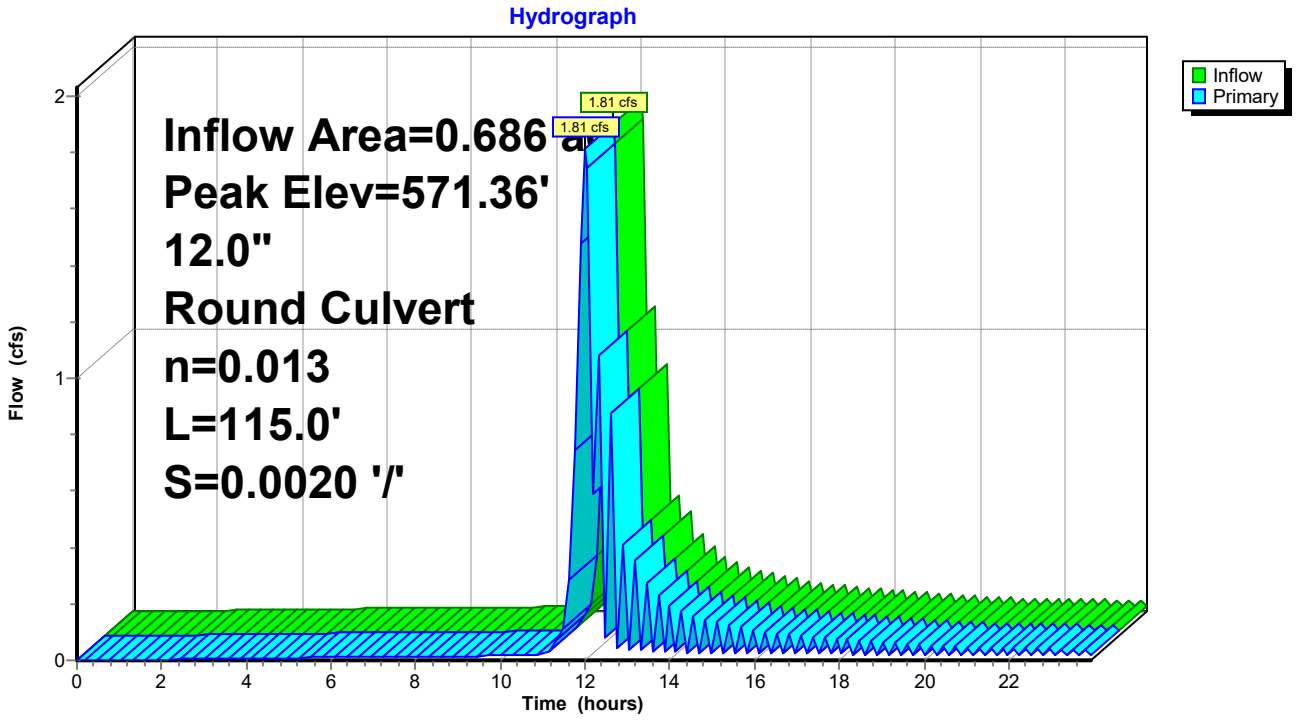
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 2.59" for 25-yr event
Inflow = 1.81 cfs @ 12.00 hrs, Volume= 0.148 af
Outflow = 1.81 cfs @ 12.00 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min
Primary = 1.81 cfs @ 12.00 hrs, Volume= 0.148 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.36' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	**12.0" Round Culvert** L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.66 cfs @ 12.00 hrs HW=571.31' TW=570.76' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.66 cfs @ 2.67 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 2.99" for 25-yr event
Inflow = 2.35 cfs @ 11.89 hrs, Volume= 0.142 af
Outflow = 1.91 cfs @ 11.93 hrs, Volume= 0.136 af, Atten= 19%, Lag= 2.3 min
Primary = 0.01 cfs @ 11.93 hrs, Volume= 0.018 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 1.90 cfs @ 11.93 hrs, Volume= 0.118 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.46' @ 11.93 hrs Surf.Area= 989 sf Storage= 461 cf

Plug-Flow detention time= 38.9 min calculated for 0.135 af (95% of inflow)
Center-of-Mass det. time= 15.1 min (791.1 - 776.0)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

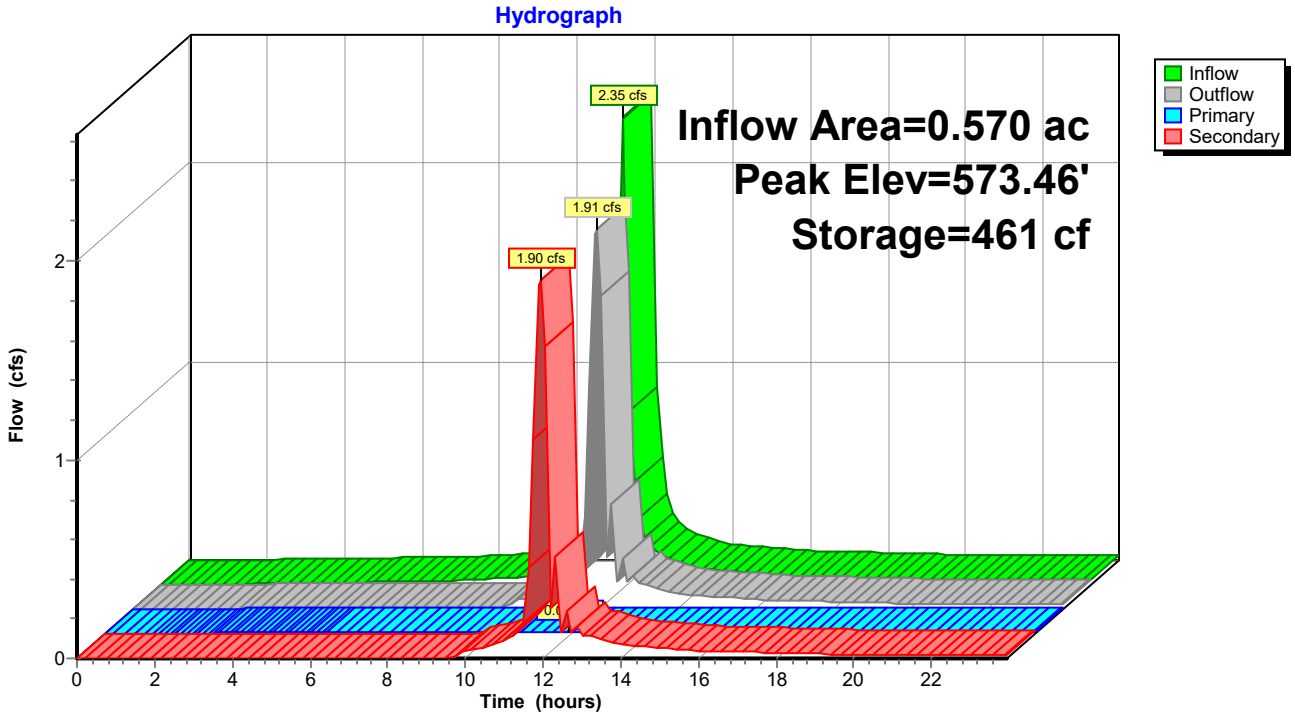
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	**4.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	**0.500 in/hr Exfiltration through soil media over Surface area**

Primary OutFlow Max=0.01 cfs @ 11.93 hrs HW=573.45' TW=571.17' (Dynamic Tailwater)
└**3=Exfiltration through soil media** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=1.82 cfs @ 11.93 hrs HW=573.45' TW=571.17' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Orifice Controls 1.61 cfs @ 2.14 fps)
└**2=Orifice/Grate** (Orifice Controls 0.20 cfs @ 2.29 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 2.86" for 25-yr event
Inflow = 1.91 cfs @ 11.93 hrs, Volume= 0.136 af
Outflow = 1.52 cfs @ 11.99 hrs, Volume= 0.129 af, Atten= 21%, Lag= 3.9 min
Primary = 1.52 cfs @ 11.99 hrs, Volume= 0.129 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.40' @ 12.10 hrs Surf.Area= 2,701 sf Storage= 1,142 cf

Plug-Flow detention time= 51.8 min calculated for 0.129 af (95% of inflow)
Center-of-Mass det. time= 21.1 min (812.2 - 791.1)

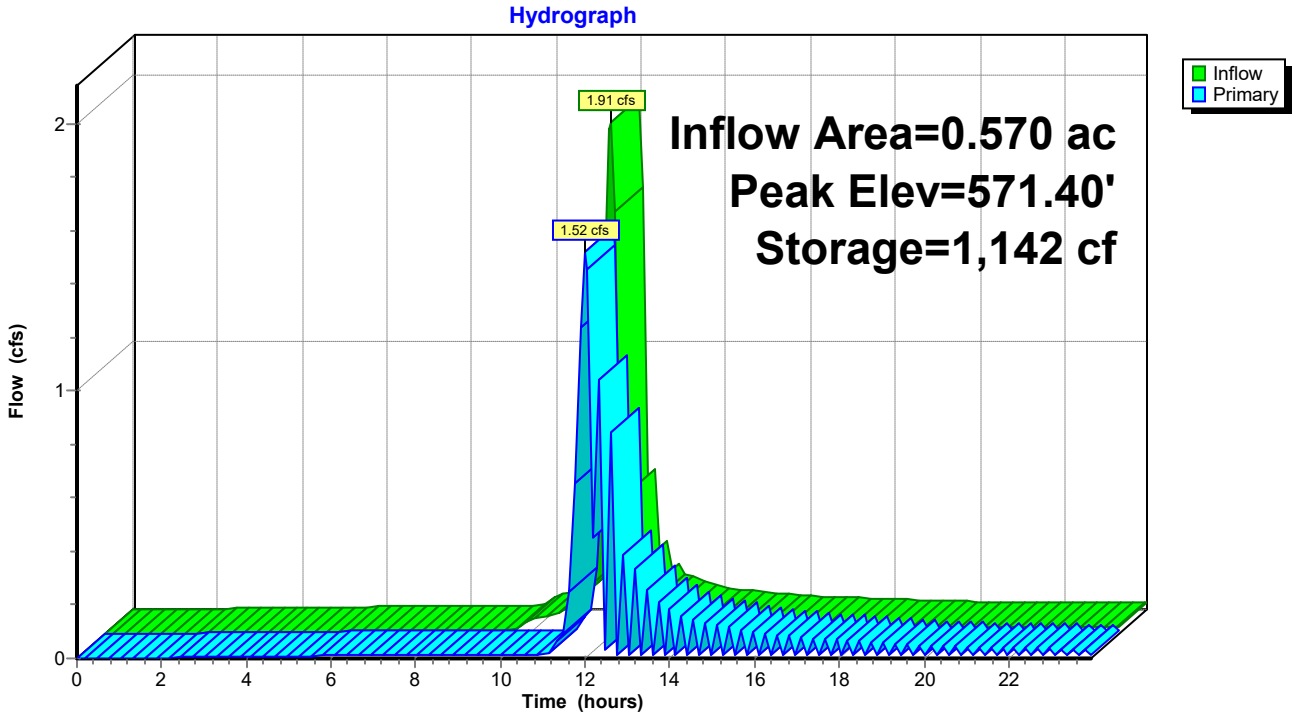
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	**8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5** 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	**8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5** 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	**4.0" Round 4" Perforated HDPE** Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	**12.0" Round 12" Culvert** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.03 cfs @ 11.99 hrs HW=571.29' TW=571.31' (Dynamic Tailwater)
1=12" Culvert (Controls 0.00 cfs)
2=Exfiltration (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

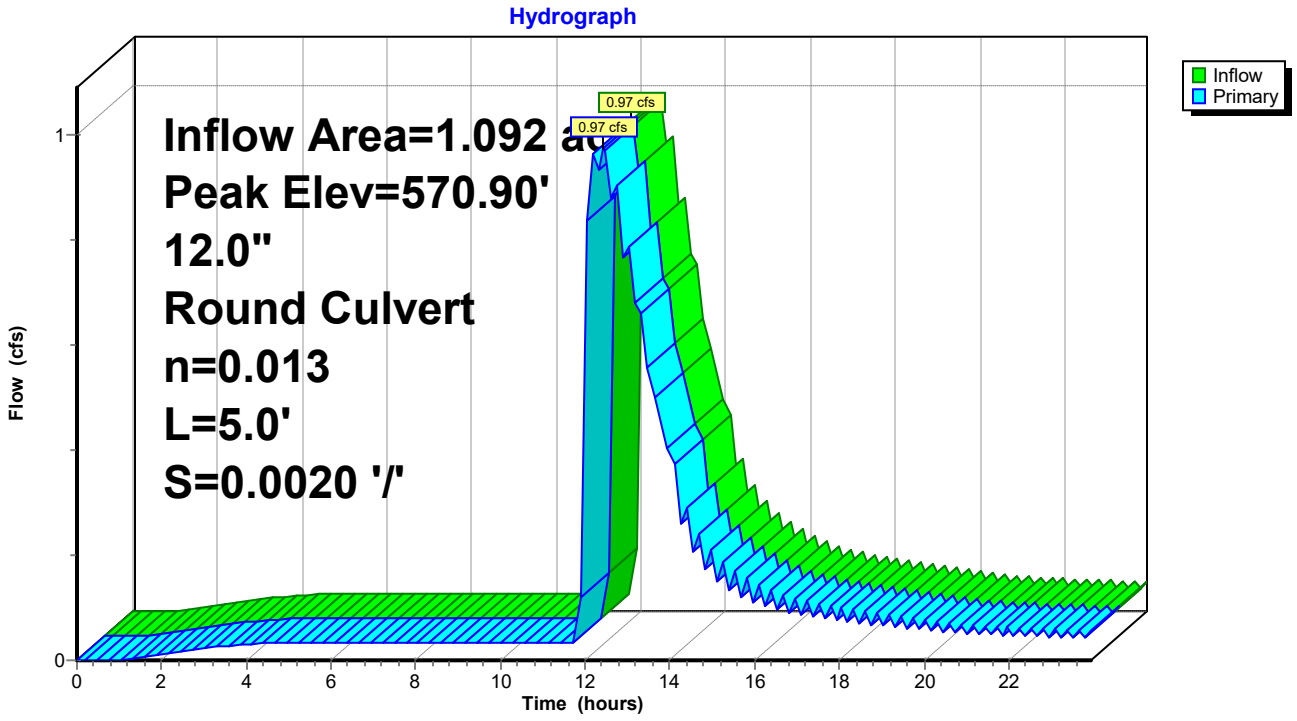
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 2.54" for 25-yr event
Inflow = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af
Outflow = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.43 hrs, Volume= 0.231 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.90' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	**12.0" Round 12 " Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.37 cfs @ 12.43 hrs HW=570.79' TW=570.54' (Dynamic Tailwater)
1=12 " Culvert (Barrel Controls 1.37 cfs @ 2.85 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 3.30" for 25-yr event
Inflow = 2.20 cfs @ 11.89 hrs, Volume= 0.119 af
Outflow = 2.20 cfs @ 11.89 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 2.20 cfs @ 11.89 hrs, Volume= 0.119 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.19' @ 11.89 hrs
Flood Elev= 576.20'

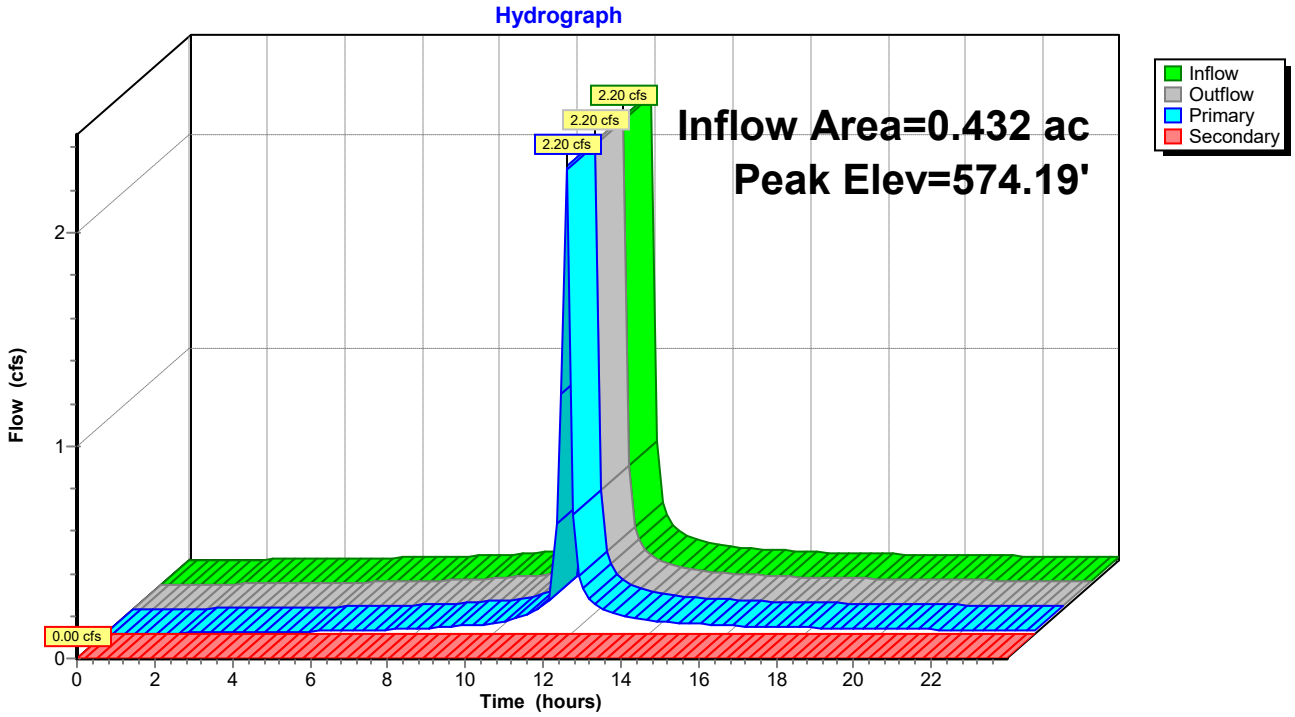
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	**6.0" Horiz. Orifice/Grate X 5.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.07 cfs @ 11.89 hrs HW=574.14' TW=573.45' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.38 cfs @ 4.01 fps)
- **2=Orifice/Grate** (Orifice Controls 0.75 cfs @ 3.96 fps)
- **3=Orifice/Grate** (Orifice Controls 0.65 cfs @ 3.44 fps)
- **4=Orifice/Grate** (Orifice Controls 0.29 cfs @ 3.00 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- **5=Orifice/Grate** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

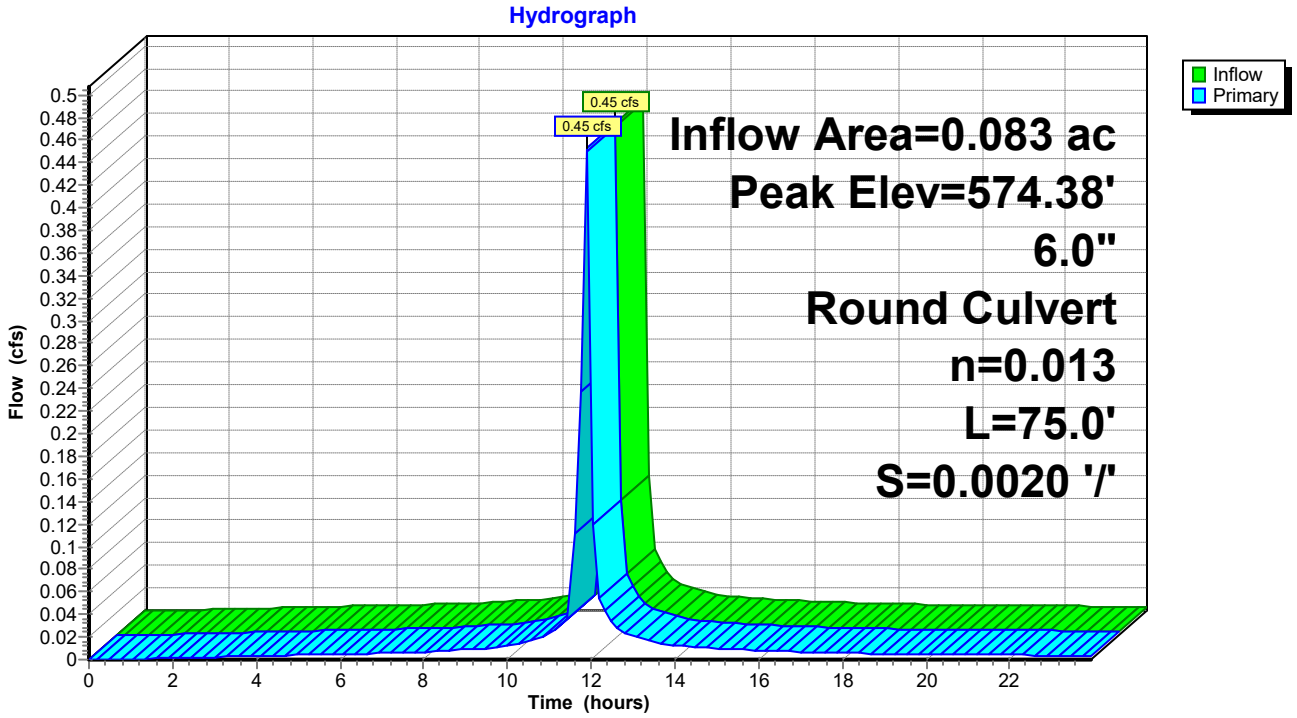
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 0.45 cfs @ 11.88 hrs, Volume= 0.026 af
Outflow = 0.45 cfs @ 11.88 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 11.88 hrs, Volume= 0.026 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.38' @ 11.94 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.23 cfs @ 11.88 hrs HW=574.30' TW=574.14' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.23 cfs @ 1.19 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

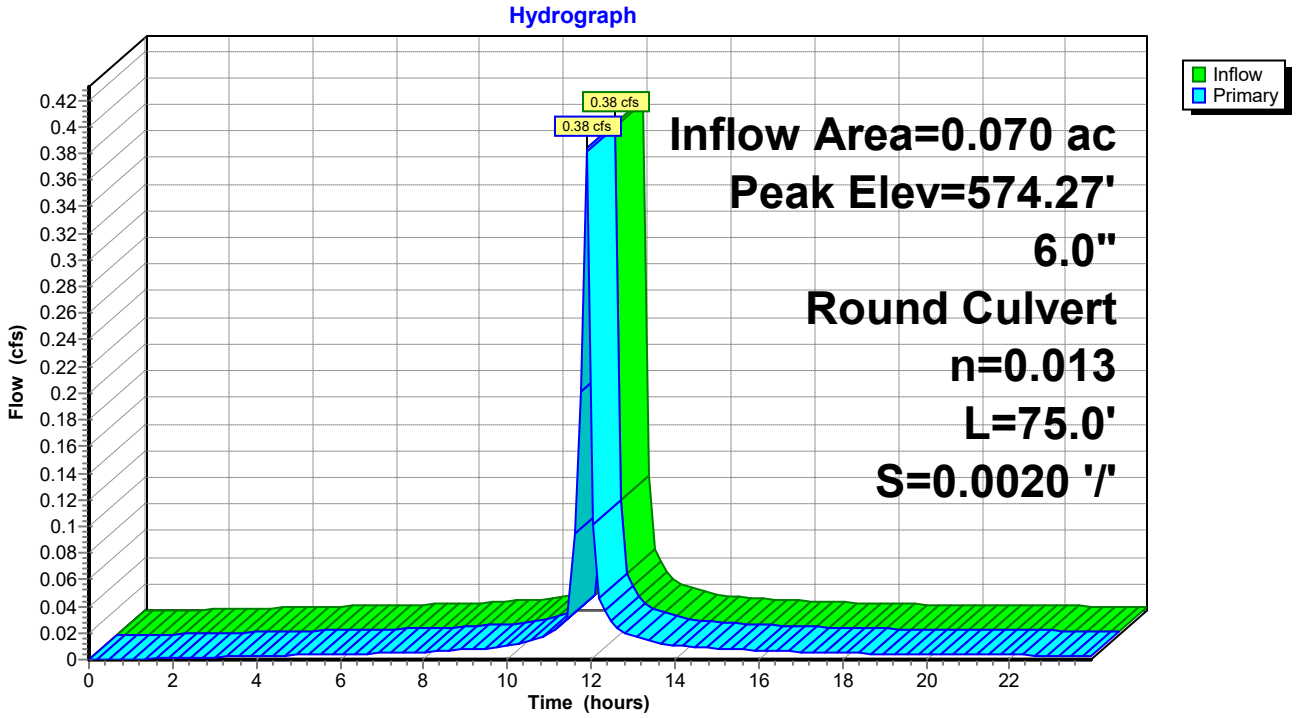
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 0.38 cfs @ 11.88 hrs, Volume= 0.022 af
Outflow = 0.38 cfs @ 11.88 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 11.88 hrs, Volume= 0.022 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.27' @ 11.98 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.05 cfs @ 11.88 hrs HW=574.15' TW=574.14' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.05 cfs @ 0.25 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

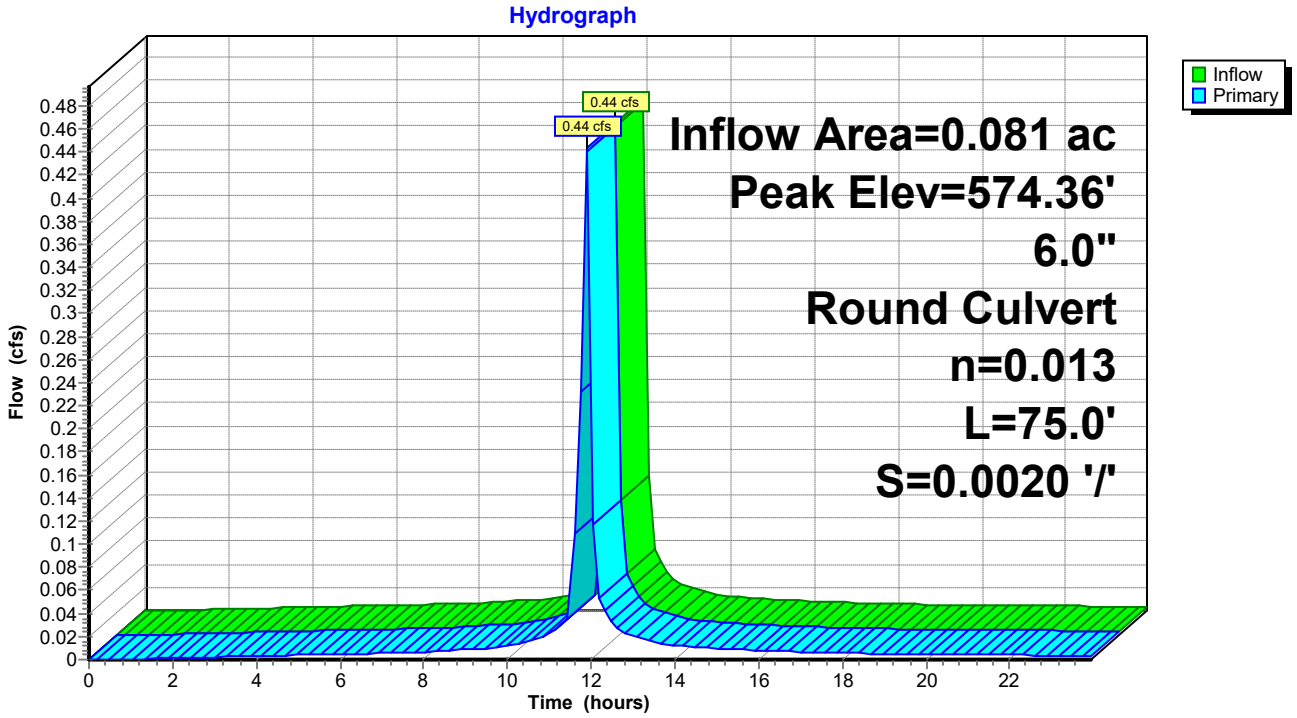
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 3.73" for 25-yr event
Inflow = 0.44 cfs @ 11.88 hrs, Volume= 0.025 af
Outflow = 0.44 cfs @ 11.88 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.44 cfs @ 11.88 hrs, Volume= 0.025 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.36' @ 11.94 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.22 cfs @ 11.88 hrs HW=574.28' TW=574.14' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.22 cfs @ 1.11 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

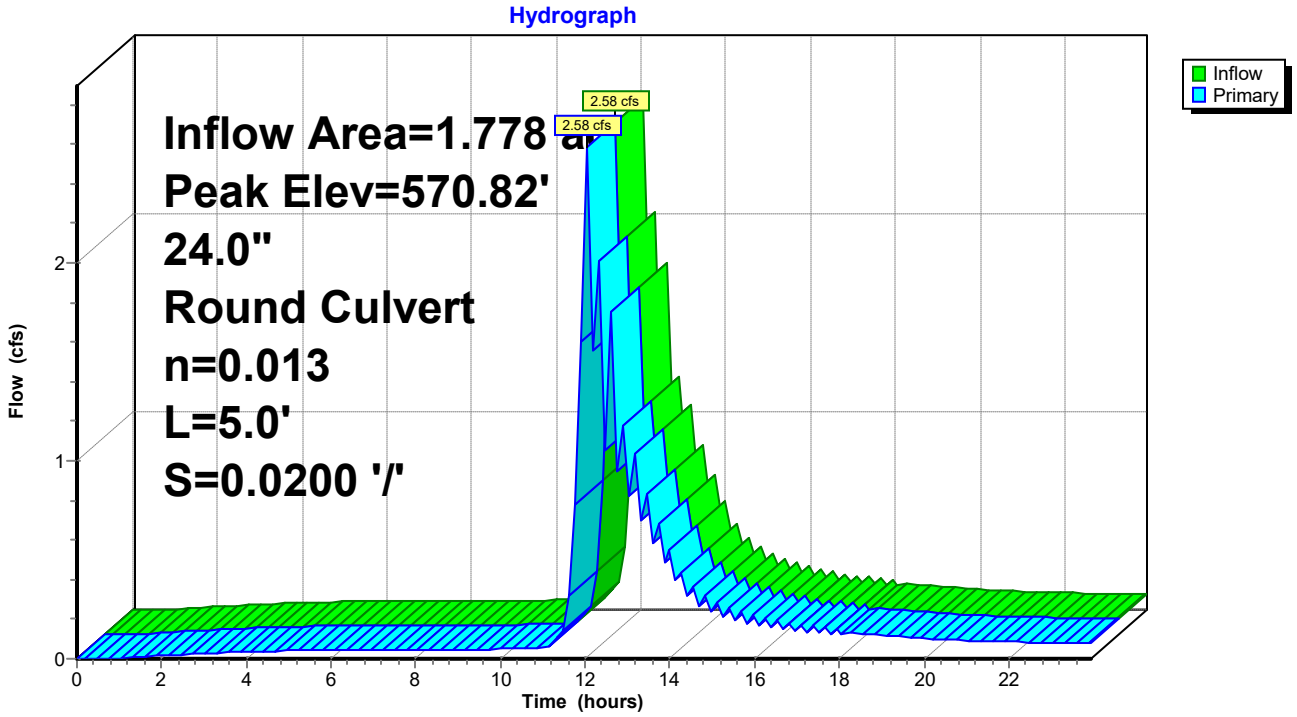
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 2.56" for 25-yr event
Inflow = 2.58 cfs @ 12.04 hrs, Volume= 0.379 af
Outflow = 2.58 cfs @ 12.04 hrs, Volume= 0.379 af, Atten= 0%, Lag= 0.0 min
Primary = 2.58 cfs @ 12.04 hrs, Volume= 0.379 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.82' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	**24.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=2.57 cfs @ 12.04 hrs HW=570.82' (Free Discharge)
└**1=Culvert** (Barrel Controls 2.57 cfs @ 3.13 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 2.01" for 25-yr event
Inflow = 0.32 cfs @ 11.94 hrs, Volume= 0.019 af
Outflow = 0.29 cfs @ 12.01 hrs, Volume= 0.019 af, Atten= 9%, Lag= 4.2 min
Primary = 0.29 cfs @ 12.01 hrs, Volume= 0.019 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.87' @ 12.00 hrs Surf.Area= 642 sf Storage= 48 cf

Plug-Flow detention time= 1.8 min calculated for 0.019 af (99% of inflow)
Center-of-Mass det. time= 1.6 min (829.1 - 827.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

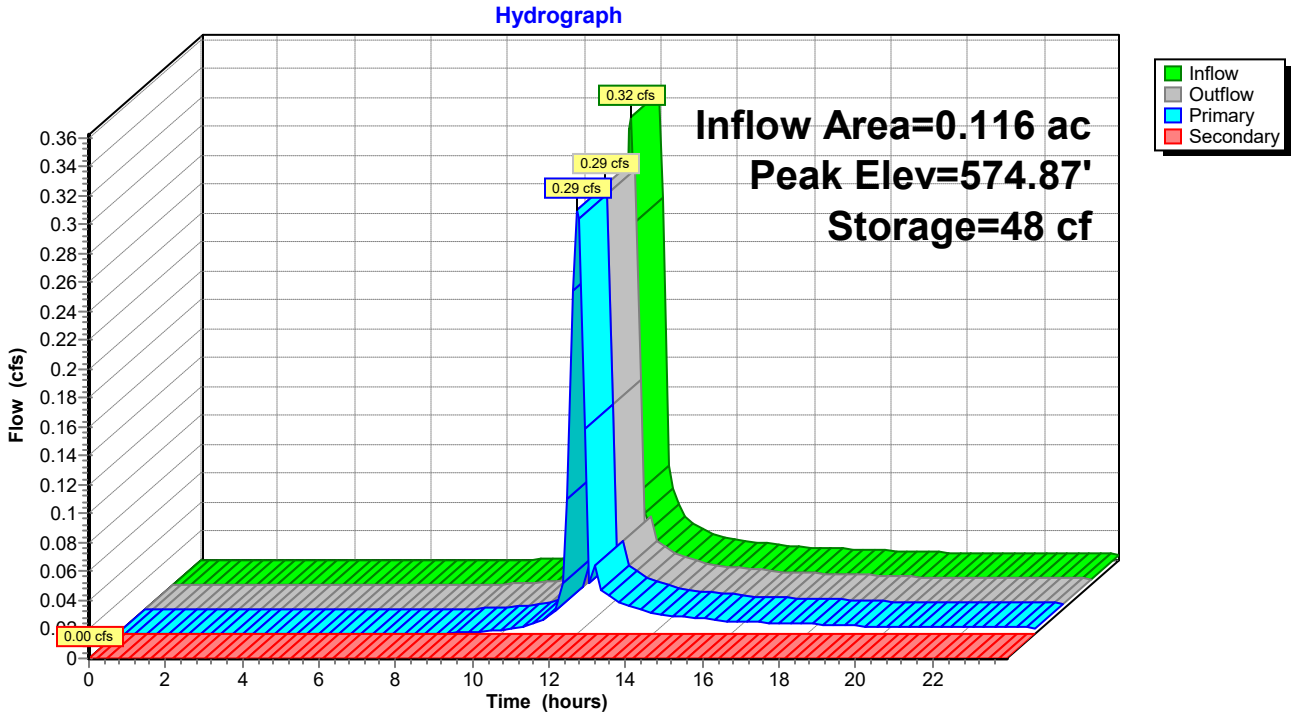
Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	**6.0" Horiz. 6" Yard Drain** C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	**1.7" x 3.2" Horiz. CB Grate X 7.00 columns** X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

Primary OutFlow Max=0.27 cfs @ 12.01 hrs HW=574.86' TW=571.32' (Dynamic Tailwater)
↑—**1=6" Yard Drain** (Weir Controls 0.27 cfs @ 1.23 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
↑—**2=CB Grate** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Time span=0.00-24.00 hrs, dt=0.14 hrs, 172 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to CB1 Runoff Area=12,112 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=1.66 cfs 0.110 af

Subcatchment 2S: Area to CB2 Runoff Area=24,034 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=100' Slope=0.0010 '/' Tc=4.9 min CN=98 Runoff=3.29 cfs 0.218 af

Subcatchment 3S: Area to East Swale Runoff Area=6,025 sf 0.00% Impervious Runoff Depth>2.88"
Flow Length=415' Slope=0.0100 '/' Tc=7.8 min CN=80 Runoff=0.54 cfs 0.033 af

Subcatchment 4S: Overland to Front Runoff Area=2,478 sf 18.16% Impervious Runoff Depth>3.16"
Flow Length=25' Slope=0.0100 '/' Tc=2.7 min CN=83 Runoff=0.29 cfs 0.015 af

Subcatchment 5S: Area to Bio Area Runoff Area=8,960 sf 0.00% Impervious Runoff Depth>2.88"
Flow Length=20' Slope=0.0100 '/' Tc=4.3 min CN=80 Runoff=0.87 cfs 0.049 af

Subcatchment 6S: Area Overland to South Runoff Area=8,629 sf 51.23% Impervious Runoff Depth>3.76"
Flow Length=20' Slope=0.0015 '/' Tc=1.1 min CN=89 Runoff=1.22 cfs 0.062 af

Subcatchment 7S: Overland to Yard Drain Runoff Area=5,036 sf 0.00% Impervious Runoff Depth>2.88"
Flow Length=127' Tc=5.2 min CN=80 Runoff=0.46 cfs 0.028 af

Subcatchment 8S: Area to CB3 Runoff Area=3,604 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.57 cfs 0.033 af

Subcatchment 9S: Area to CB4 Runoff Area=3,055 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.48 cfs 0.028 af

Subcatchment 10S: Area to CB5 Runoff Area=3,529 sf 100.00% Impervious Runoff Depth>4.75"
Flow Length=80' Slope=0.0100 '/' Tc=1.6 min CN=98 Runoff=0.56 cfs 0.032 af

Reach 4R: East Swale Avg. Flow Depth=0.21' Max Vel=0.93 fps Inflow=0.54 cfs 0.033 af
n=0.022 L=362.0' S=0.0020 '/' Capacity=20.45 cfs Outflow=0.47 cfs 0.033 af

Pond 5P: Front Vegetated Swale Peak Elev=574.33' Storage=344 cf Inflow=5.24 cfs 0.343 af
Primary=4.88 cfs 0.328 af Secondary=0.02 cfs 0.013 af Outflow=4.90 cfs 0.341 af

Pond 6P: CB1 Peak Elev=574.44' Inflow=1.66 cfs 0.110 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0020 '/' Outflow=1.66 cfs 0.110 af

Pond 7P: CB2 Peak Elev=575.19' Inflow=3.29 cfs 0.218 af
12.0" Round Culvert n=0.013 L=29.0' S=0.0021 '/' Outflow=3.29 cfs 0.218 af

Pond 14P: Bio-Retention Area Storage Peak Elev=574.31' Storage=3,221 cf Inflow=5.77 cfs 0.390 af
Primary=0.04 cfs 0.071 af Secondary=4.54 cfs 0.281 af Outflow=4.59 cfs 0.352 af

Pond 15P: Bio-Retention Area Pipe and Peak Elev=572.71' Storage=6,195 cf Inflow=4.59 cfs 0.352 af
Outflow=1.27 cfs 0.319 af

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 16P: WEST PIPE TO MH Peak Elev=571.54' Inflow=2.15 cfs 0.202 af
12.0" Round Culvert n=0.013 L=115.0' S=0.0020 '/' Outflow=2.15 cfs 0.202 af

Pond 17P: South Dry Swale Storage above Peak Elev=573.59' Storage=595 cf Inflow=3.08 cfs 0.188 af
Primary=0.01 cfs 0.019 af Secondary=2.41 cfs 0.163 af Outflow=2.42 cfs 0.182 af

Pond 18P: South Dry Swale Pipe and Filter Peak Elev=571.69' Storage=1,372 cf Inflow=2.42 cfs 0.182 af
Outflow=1.76 cfs 0.174 af

Pond 20P: Bio 1 Outlet Structure Peak Elev=571.02' Inflow=1.27 cfs 0.319 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0020 '/' Outflow=1.27 cfs 0.319 af

Pond 41P: Level Spreader Peak Elev=574.32' Inflow=2.83 cfs 0.155 af
Primary=2.42 cfs 0.150 af Secondary=0.42 cfs 0.005 af Outflow=2.83 cfs 0.155 af

Pond 42P: CB3 Peak Elev=574.82' Inflow=0.57 cfs 0.033 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.57 cfs 0.033 af

Pond 44P: CB4 Peak Elev=574.57' Inflow=0.48 cfs 0.028 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.48 cfs 0.028 af

Pond 45P: CB5 Peak Elev=574.79' Inflow=0.56 cfs 0.032 af
6.0" Round Culvert n=0.013 L=75.0' S=0.0020 '/' Outflow=0.56 cfs 0.032 af

Pond 46P: STM MH Peak Elev=570.91' Inflow=3.10 cfs 0.521 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=3.10 cfs 0.521 af

Pond 47P: West Area to CB + YD Peak Elev=574.91' Storage=76 cf Inflow=0.46 cfs 0.028 af
Primary=0.41 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.41 cfs 0.028 af

Total Runoff Area = 1.778 ac Runoff Volume = 0.608 af Average Runoff Depth = 4.11"
33.90% Pervious = 0.603 ac 66.10% Impervious = 1.176 ac

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 1S: Area to CB1

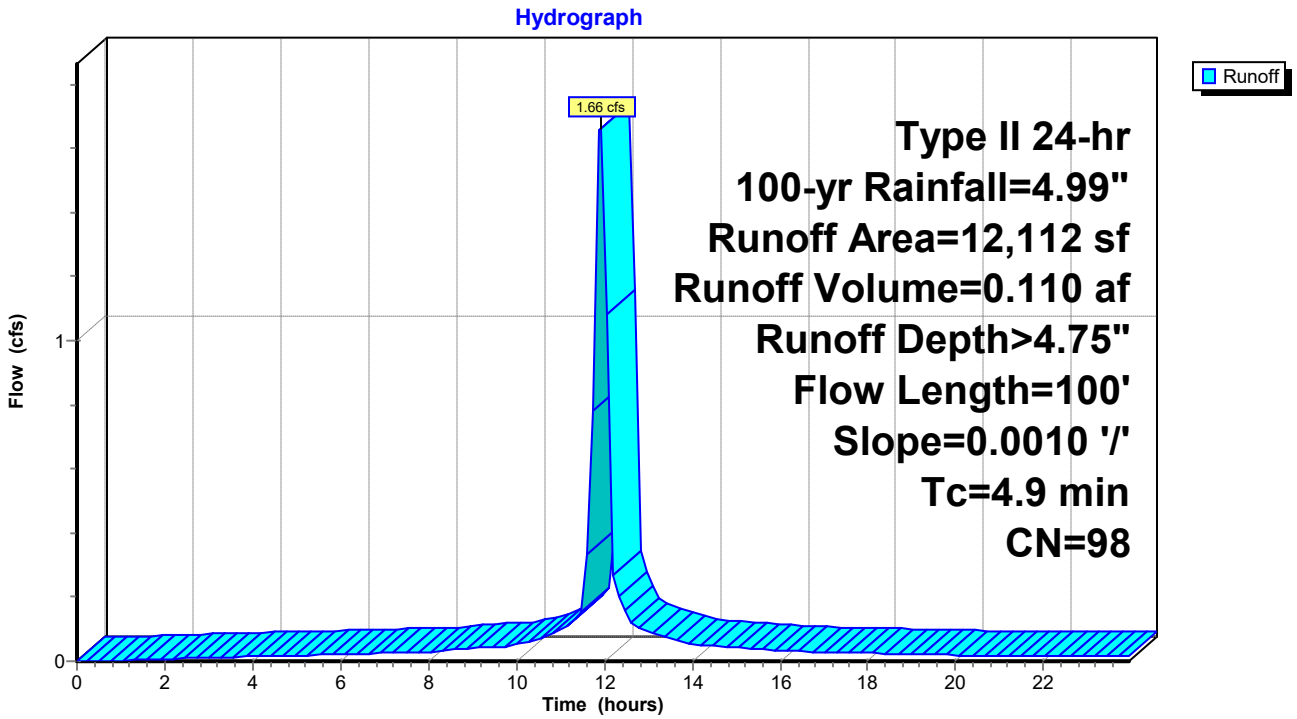
Runoff = 1.66 cfs @ 11.91 hrs, Volume= 0.110 af, Depth> 4.75"
Routed to Pond 6P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
12,112	98	Paved parking, HSG D
12,112		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 1S: Area to CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 2S: Area to CB2

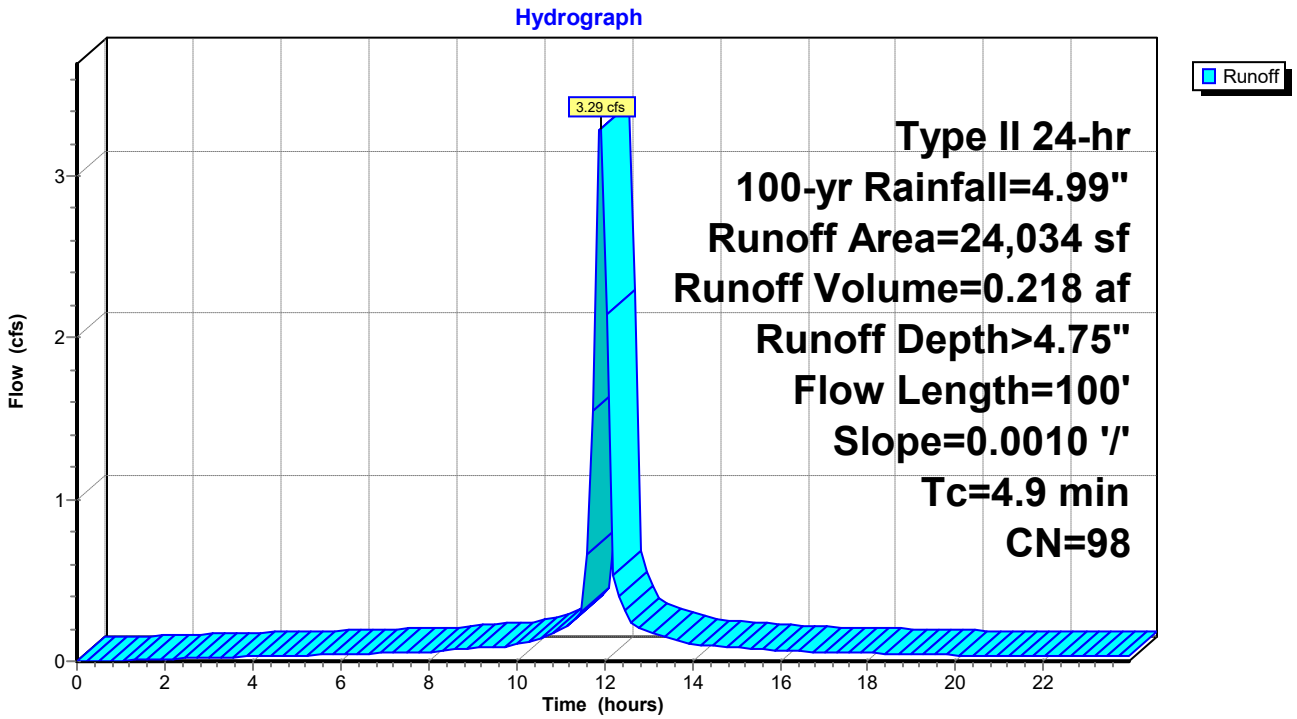
Runoff = 3.29 cfs @ 11.91 hrs, Volume= 0.218 af, Depth> 4.75"
Routed to Pond 7P : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
24,034	98	Paved parking, HSG D
24,034		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.0010	0.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 2S: Area to CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 3S: Area to East Swale

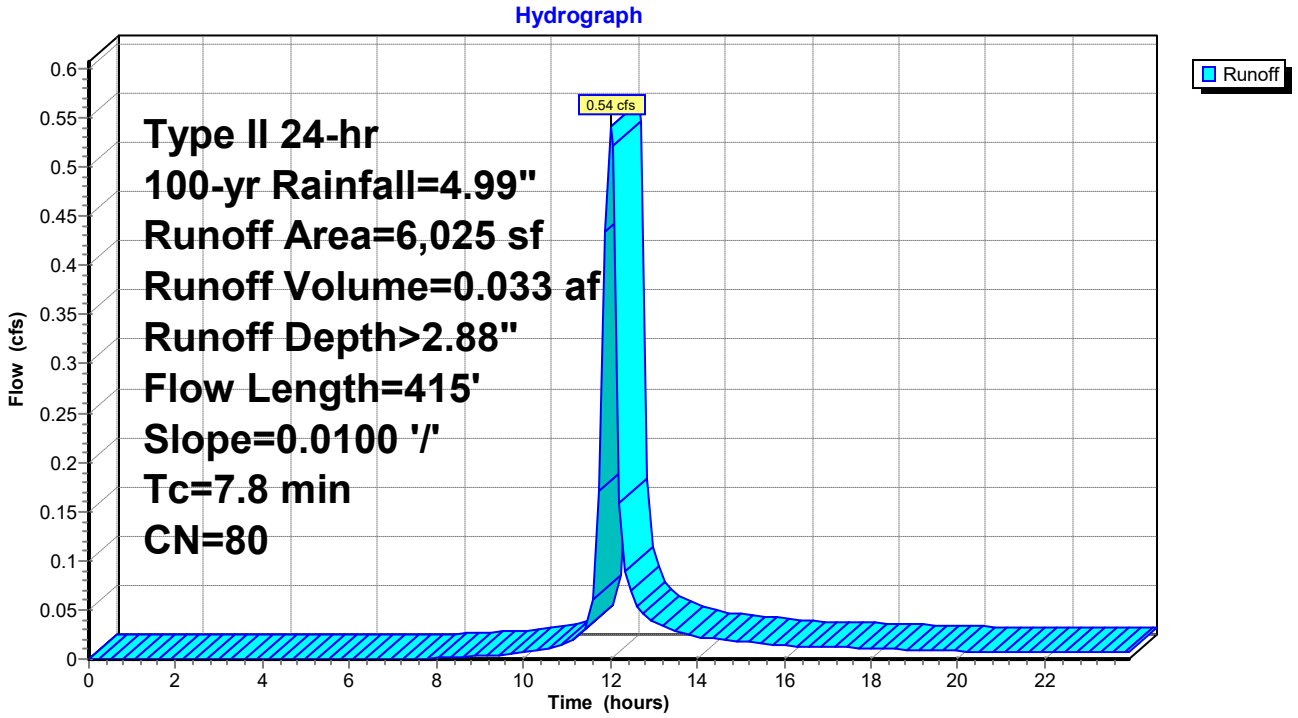
Runoff = 0.54 cfs @ 12.00 hrs, Volume= 0.033 af, Depth> 2.88"
Routed to Reach 4R : East Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
6,025	80	>75% Grass cover, Good, HSG D
6,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
4.4	400	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.8	415	Total			

Subcatchment 3S: Area to East Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 4S: Overland to Front Vegetated Swale

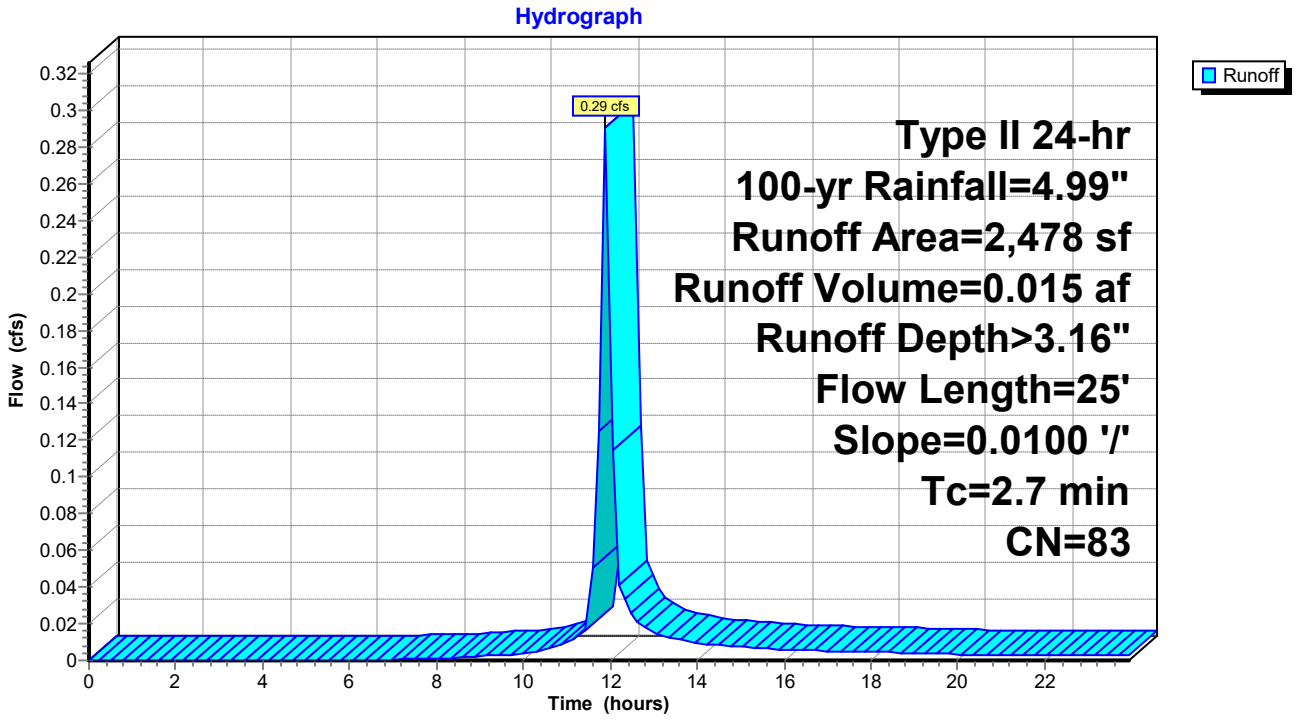
Runoff = 0.29 cfs @ 11.90 hrs, Volume= 0.015 af, Depth> 3.16"
Routed to Pond 5P : Front Vegetated Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
2,028	80	>75% Grass cover, Good, HSG D
450	98	Paved parking, HSG D
2,478	83	Weighted Average
2,028		81.84% Pervious Area
450		18.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	10	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
0.2	15	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.7	25	Total			

Subcatchment 4S: Overland to Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 5S: Area to Bio Area

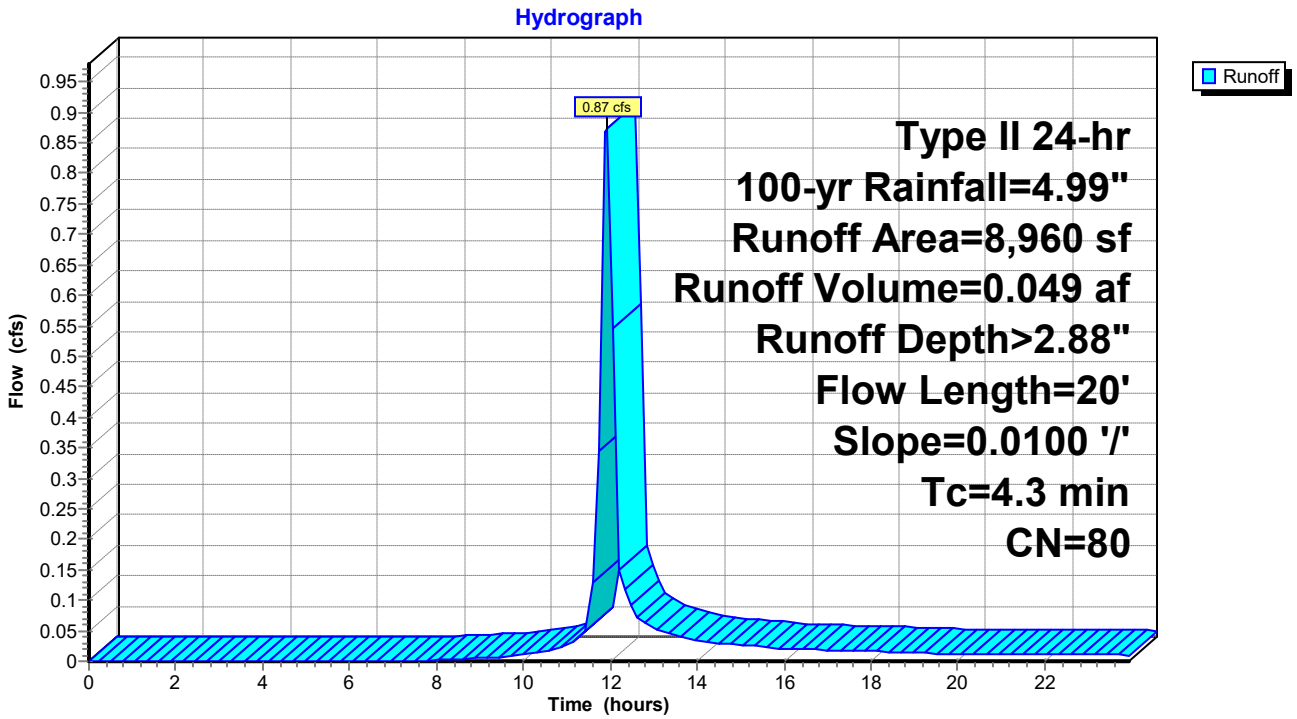
Runoff = 0.87 cfs @ 11.92 hrs, Volume= 0.049 af, Depth> 2.88"
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
8,960	80	>75% Grass cover, Good, HSG D
8,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	20	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"

Subcatchment 5S: Area to Bio Area



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 6S: Area Overland to South Dry Swale

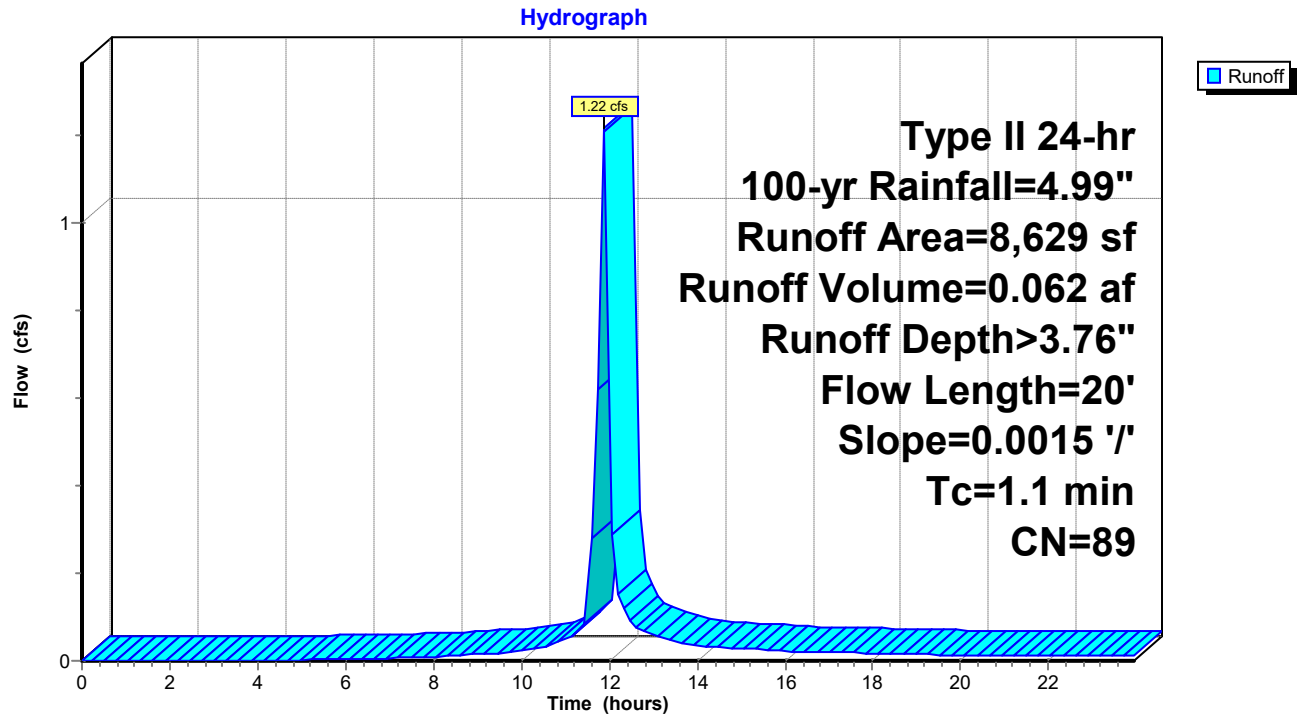
Runoff = 1.22 cfs @ 11.88 hrs, Volume= 0.062 af, Depth> 3.76"
Routed to Pond 41P : Level Spreader

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
4,208	80	>75% Grass cover, Good, HSG D
4,421	98	Paved parking, HSG D
8,629	89	Weighted Average
4,208		48.77% Pervious Area
4,421		51.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.0015	0.29		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 6S: Area Overland to South Dry Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 7S: Overland to Yard Drain

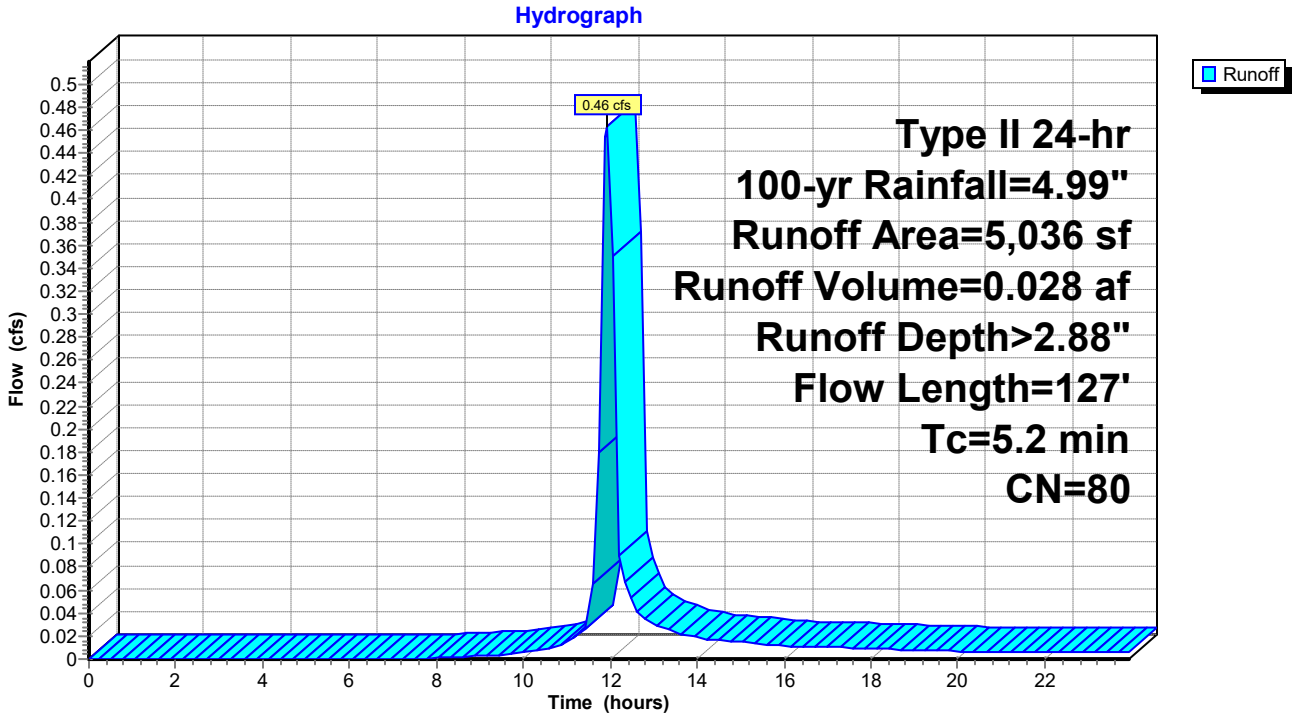
Runoff = 0.46 cfs @ 11.93 hrs, Volume= 0.028 af, Depth> 2.88"
Routed to Pond 47P : West Area to CB + YD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
5,036	80	>75% Grass cover, Good, HSG D
5,036		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.16"
1.8	112	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.2	127	Total			

Subcatchment 7S: Overland to Yard Drain



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 8S: Area to CB3

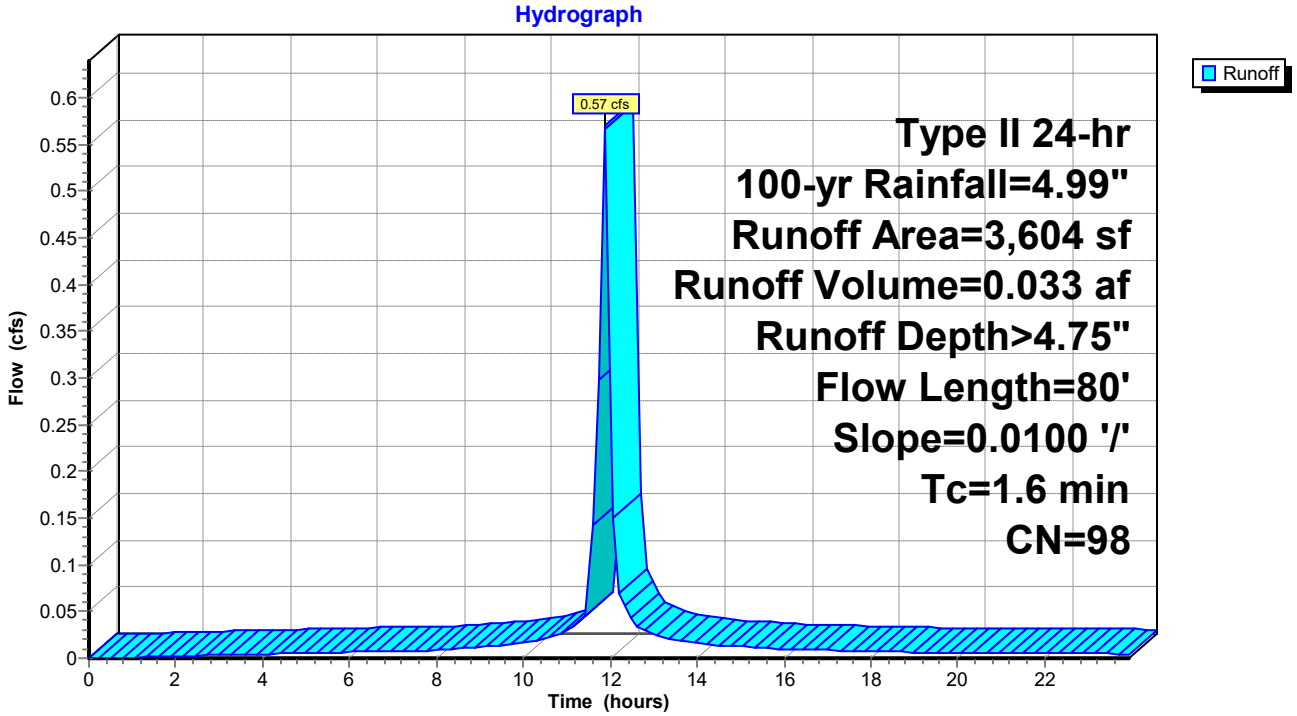
Runoff = 0.57 cfs @ 11.88 hrs, Volume= 0.033 af, Depth> 4.75"
Routed to Pond 42P : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
3,604	98	Paved parking, HSG D
3,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 8S: Area to CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 9S: Area to CB4

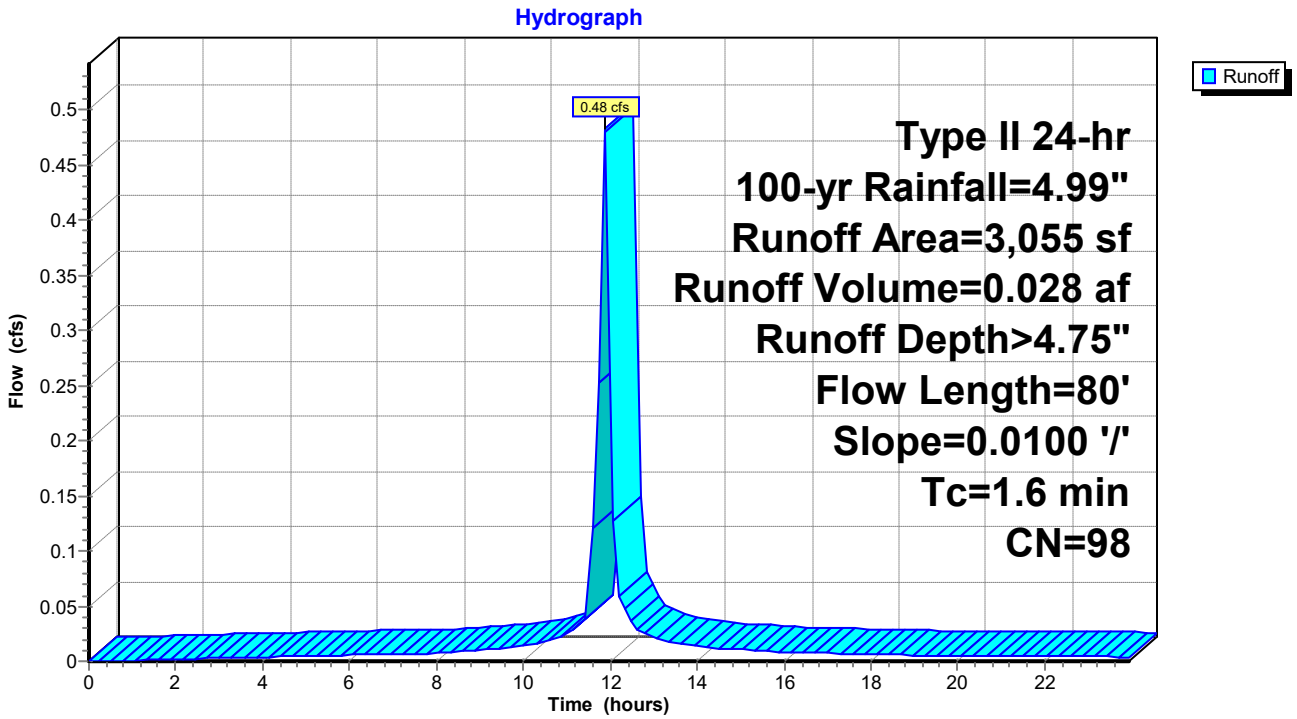
Runoff = 0.48 cfs @ 11.88 hrs, Volume= 0.028 af, Depth> 4.75"
Routed to Pond 44P : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
3,055	98	Paved parking, HSG D
3,055		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 9S: Area to CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Subcatchment 10S: Area to CB5

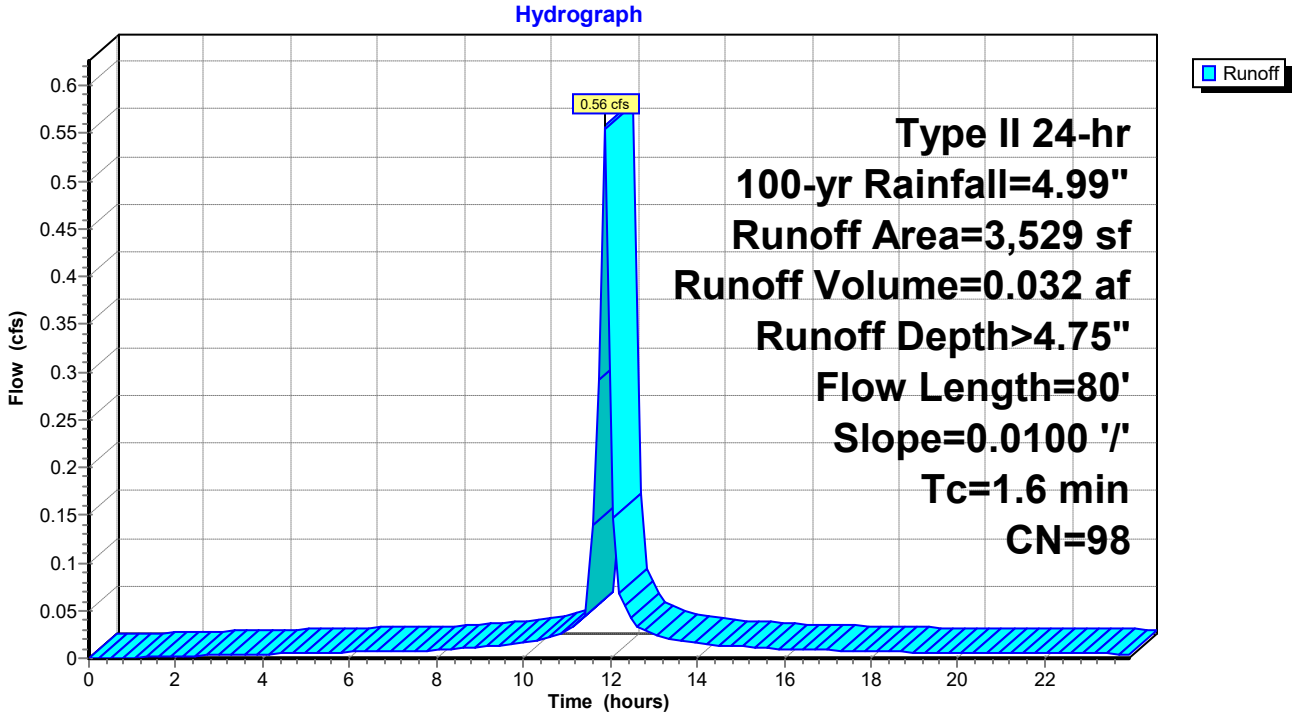
Runoff = 0.56 cfs @ 11.88 hrs, Volume= 0.032 af, Depth> 4.75"
Routed to Pond 45P : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Type II 24-hr 100-yr Rainfall=4.99"

Area (sf)	CN	Description
3,529	98	Paved parking, HSG D
3,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	80	0.0100	0.82		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.16"

Subcatchment 10S: Area to CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Reach 4R: East Swale

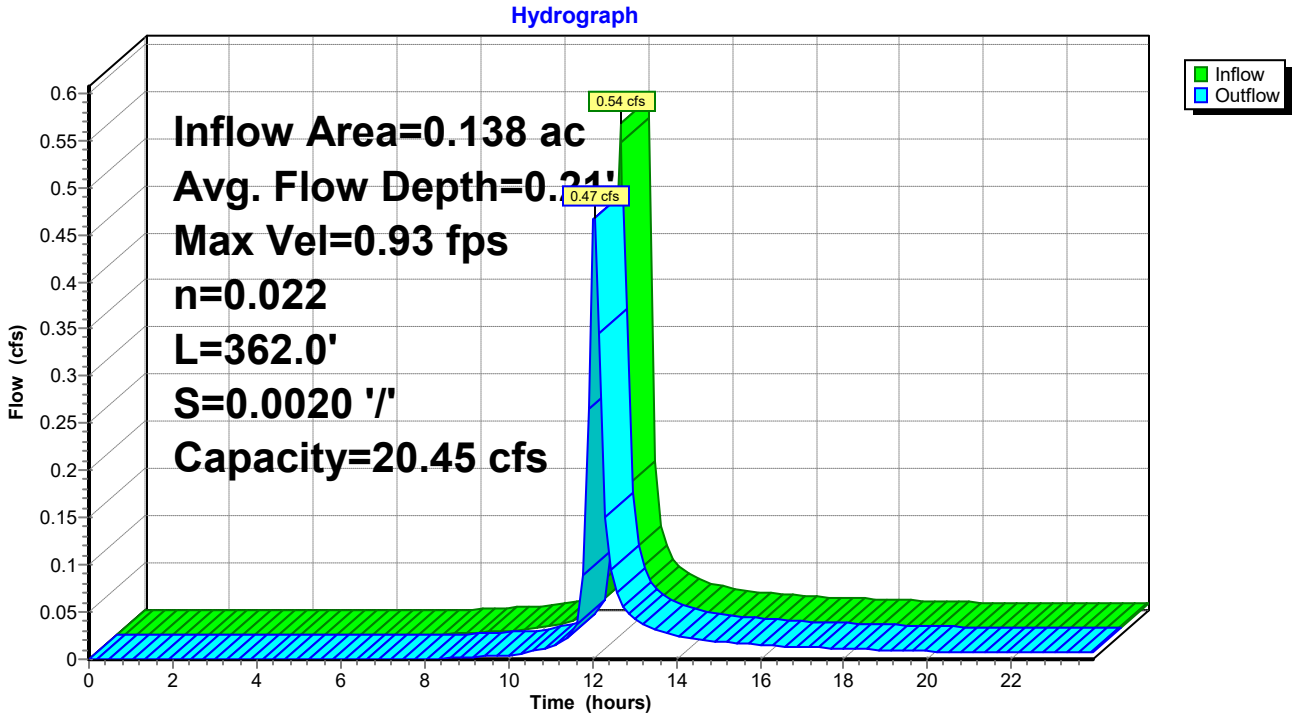
Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 2.88" for 100-yr event
Inflow = 0.54 cfs @ 12.00 hrs, Volume= 0.033 af
Outflow = 0.47 cfs @ 12.06 hrs, Volume= 0.033 af, Atten= 14%, Lag= 3.6 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.93 fps, Min. Travel Time= 6.5 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 22.4 min

Peak Storage= 182 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 2.83'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'





Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 5P: Front Vegetated Swale

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 4.65" for 100-yr event
Inflow = 5.24 cfs @ 11.91 hrs, Volume= 0.343 af
Outflow = 4.90 cfs @ 11.93 hrs, Volume= 0.341 af, Atten= 7%, Lag= 0.8 min
Primary = 4.88 cfs @ 11.93 hrs, Volume= 0.328 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.02 cfs @ 12.04 hrs, Volume= 0.013 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.33' @ 12.04 hrs Surf.Area= 664 sf Storage= 344 cf

Plug-Flow detention time= 6.3 min calculated for 0.339 af (99% of inflow)
Center-of-Mass det. time= 1.6 min (746.8 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	500	153	153
575.00	1,000	750	903

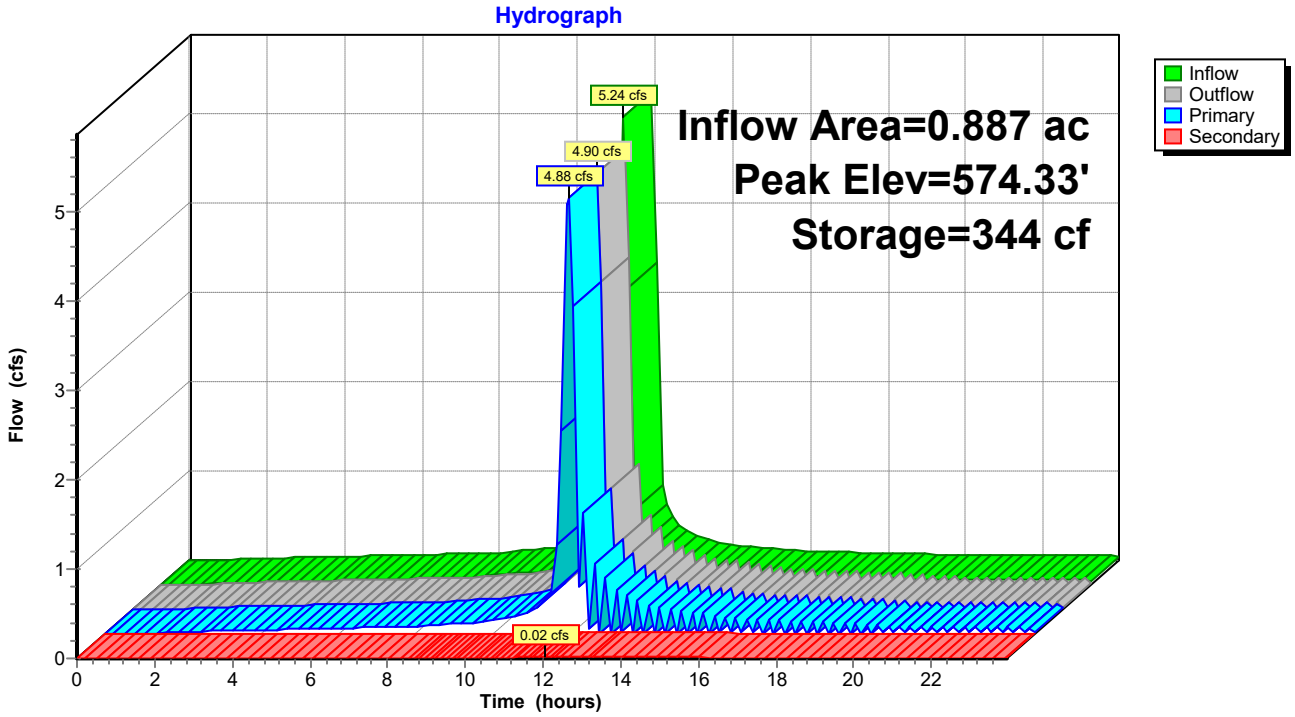
Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	**1.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=3.19 cfs @ 11.93 hrs HW=574.31' TW=574.23' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 3.19 cfs @ 1.16 fps)

Secondary OutFlow Max=0.02 cfs @ 12.04 hrs HW=574.33' TW=574.31' (Dynamic Tailwater)
2=Exfiltration (Exfiltration Controls 0.02 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 5P: Front Vegetated Swale



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 6P: CB1

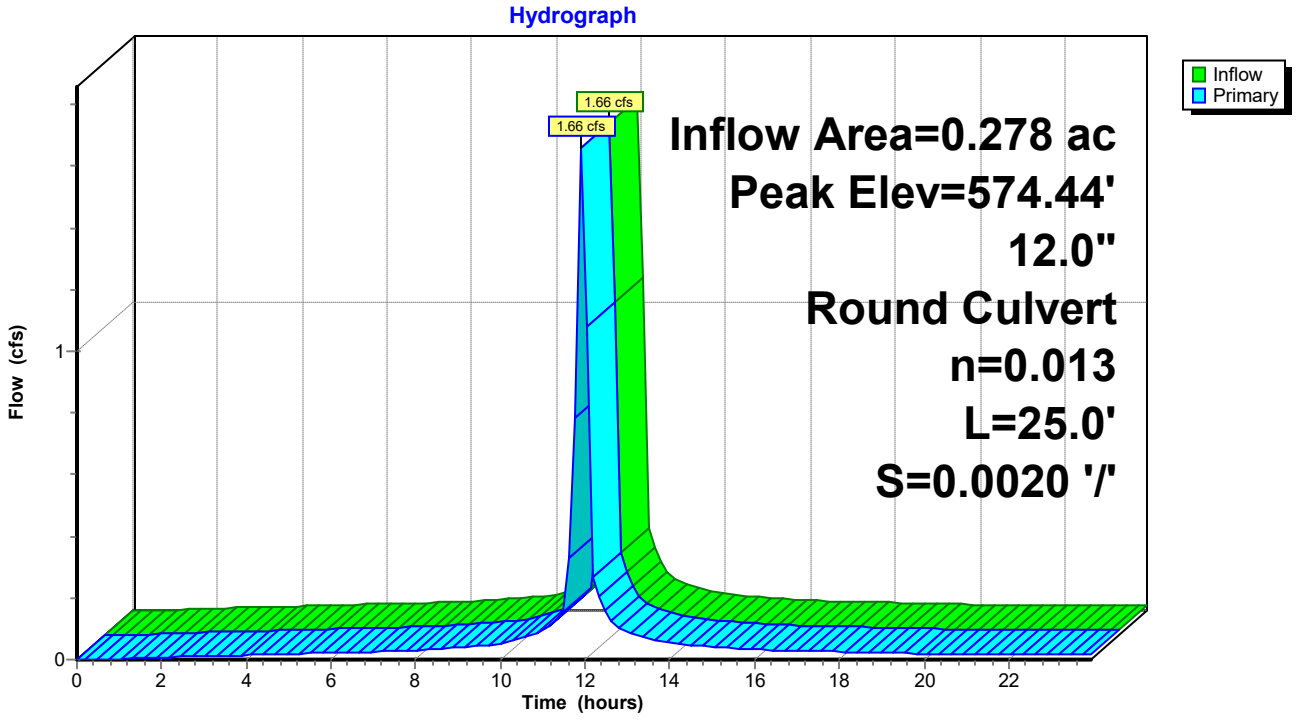
Inflow Area = 0.278 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 1.66 cfs @ 11.91 hrs, Volume= 0.110 af
Outflow = 1.66 cfs @ 11.91 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
Primary = 1.66 cfs @ 11.91 hrs, Volume= 0.110 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.44' @ 11.98 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.51'	**12.0" Round 12" CULVERT** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.51' / 573.46' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.03 cfs @ 11.91 hrs HW=574.42' TW=574.31' (Dynamic Tailwater)
1=12" CULVERT (Outlet Controls 1.03 cfs @ 1.80 fps)

Pond 6P: CB1



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 7P: CB2

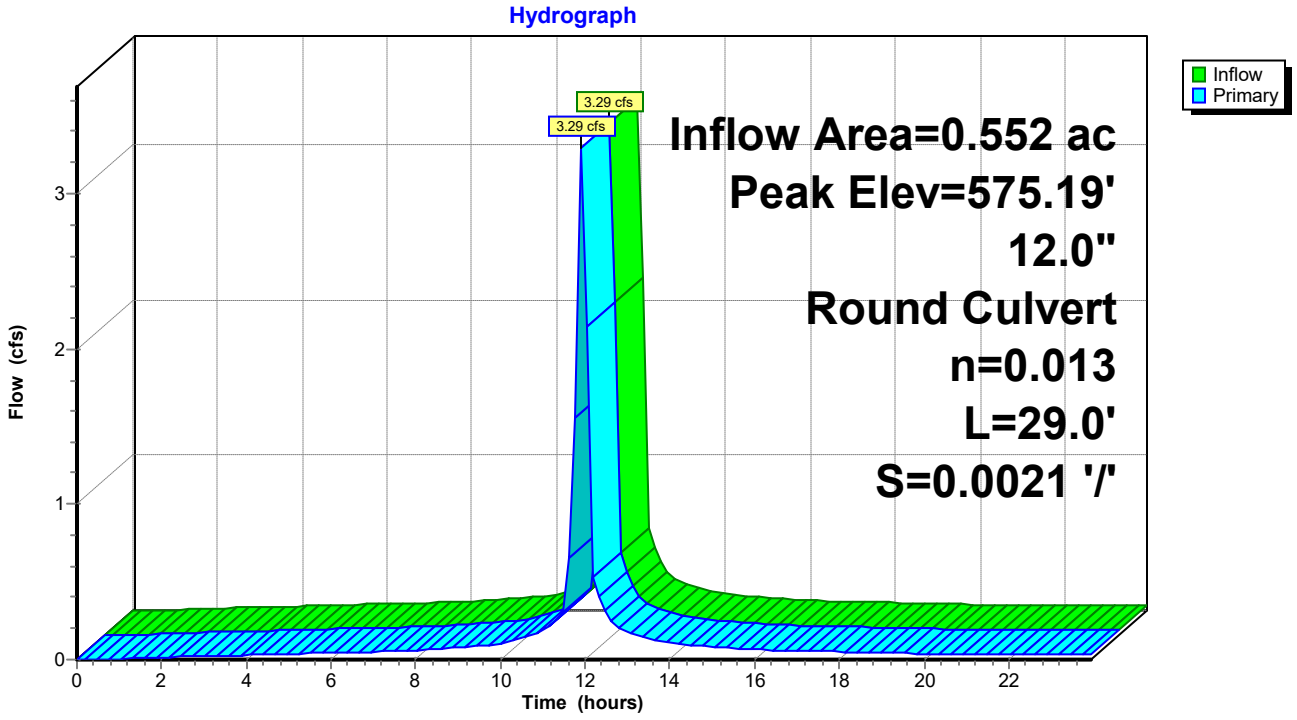
Inflow Area = 0.552 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 3.29 cfs @ 11.91 hrs, Volume= 0.218 af
Outflow = 3.29 cfs @ 11.91 hrs, Volume= 0.218 af, Atten= 0%, Lag= 0.0 min
Primary = 3.29 cfs @ 11.91 hrs, Volume= 0.218 af
Routed to Pond 5P : Front Vegetated Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 575.19' @ 11.91 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.59'	**12.0" Round 12" CULVERT** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.59' / 573.53' S= 0.0021 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=3.15 cfs @ 11.91 hrs HW=575.13' TW=574.31' (Dynamic Tailwater)
1=12" CULVERT (Barrel Controls 3.15 cfs @ 4.00 fps)

Pond 7P: CB2



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 4.29" for 100-yr event
Inflow = 5.77 cfs @ 11.92 hrs, Volume= 0.390 af
Outflow = 4.59 cfs @ 12.01 hrs, Volume= 0.352 af, Atten= 21%, Lag= 5.4 min
Primary = 0.04 cfs @ 12.02 hrs, Volume= 0.071 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 4.54 cfs @ 12.01 hrs, Volume= 0.281 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.31' @ 12.02 hrs Surf.Area= 3,814 sf Storage= 3,221 cf

Plug-Flow detention time= 80.7 min calculated for 0.352 af (90% of inflow)
Center-of-Mass det. time= 28.8 min (784.5 - 755.6)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

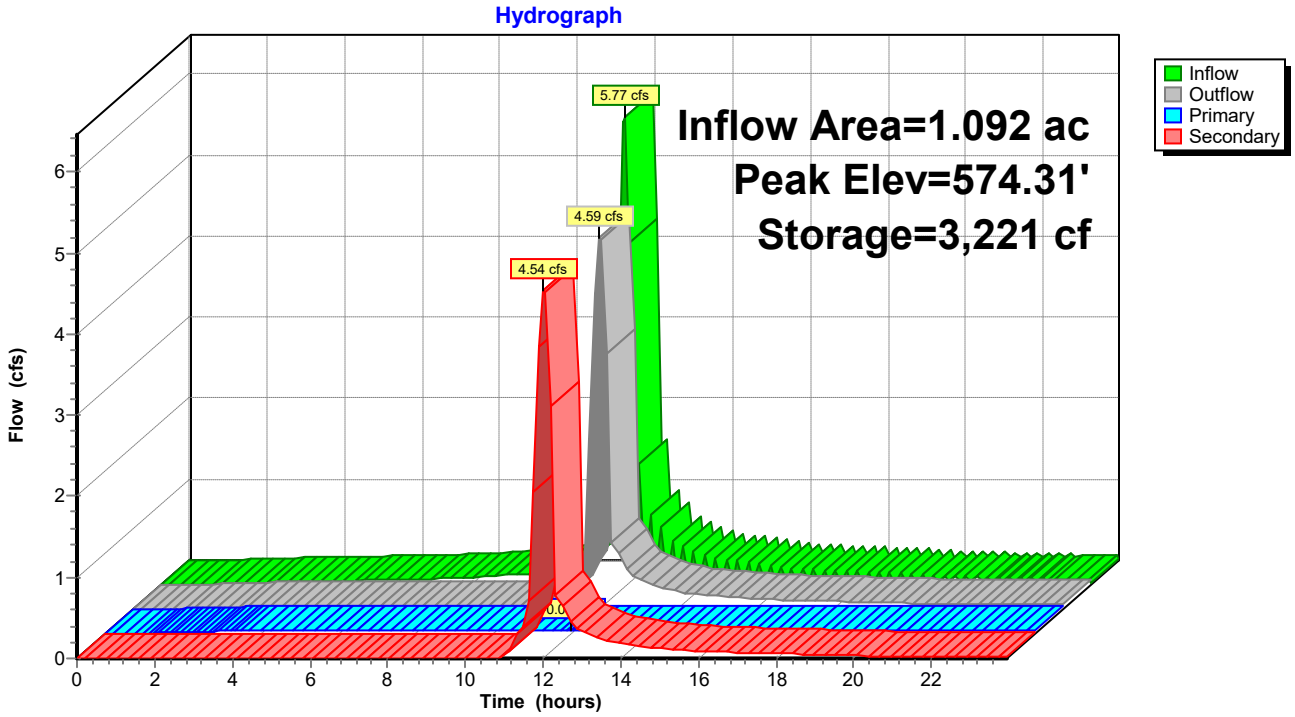
Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	**6.0" Horiz. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	**0.500 in/hr Exfiltration of Soil Media over Surface area**

Primary OutFlow Max=0.04 cfs @ 12.02 hrs HW=574.30' TW=571.69' (Dynamic Tailwater)
└**3=Exfiltration of Soil Media** (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=4.40 cfs @ 12.01 hrs HW=574.29' TW=571.68' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Orifice Controls 1.97 cfs @ 2.61 fps)
└**2=Orifice/Grate** (Orifice Controls 2.43 cfs @ 3.09 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 14P: Bio-Retention Area Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 15P: Bio-Retention Area Pipe and Filter Media Storage

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 3.86" for 100-yr event
Inflow = 4.59 cfs @ 12.01 hrs, Volume= 0.352 af
Outflow = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af, Atten= 72%, Lag= 19.6 min
Primary = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af
Routed to Pond 20P : Bio 1 Outlet Structure

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 572.71' @ 12.34 hrs Surf.Area= 3,410 sf Storage= 6,195 cf

Plug-Flow detention time= 95.9 min calculated for 0.317 af (90% of inflow)
Center-of-Mass det. time= 48.4 min (832.9 - 784.5)

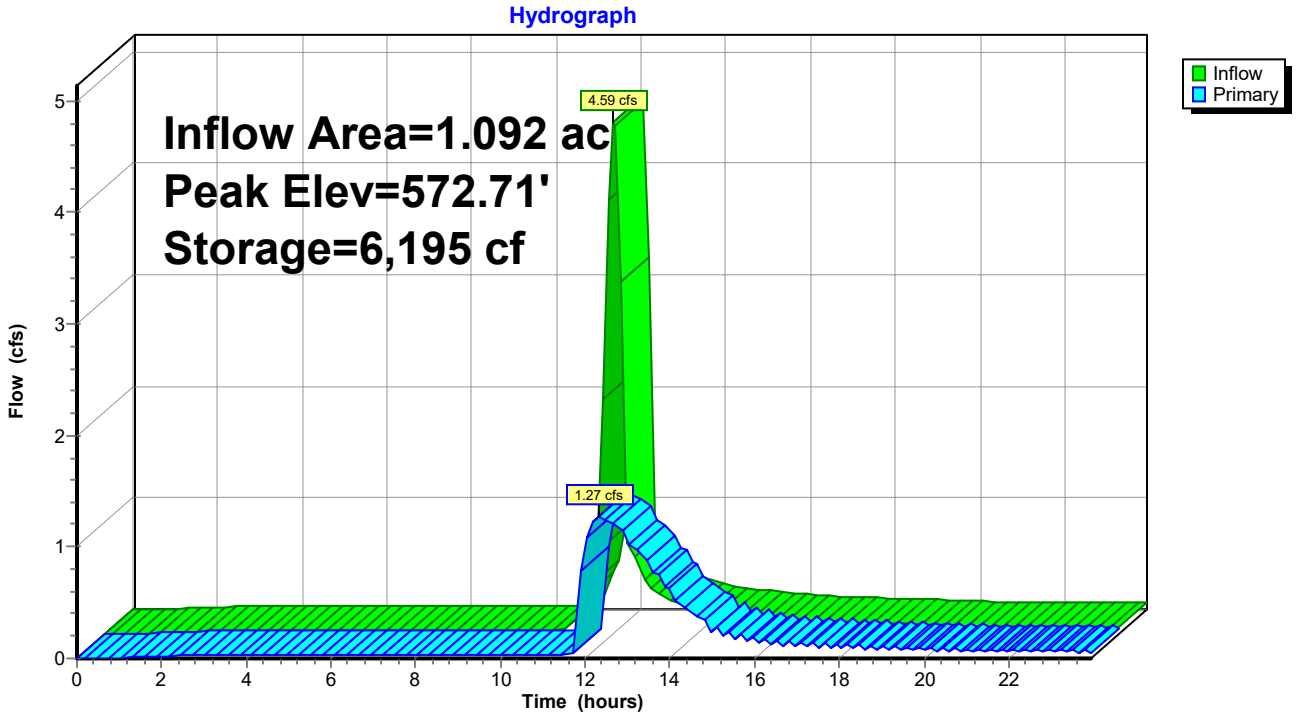
Volume	Invert	Avail.Storage	Storage Description
#1	569.37'	34 cf	**6.0" Round 6" Perforated HDPE** Inside #2 L= 173.0' S= 0.0020 '/'
#2	569.37'	7,543 cf	**16.00'W x 173.00'L x 4.00'H Filter Media Z=0.5** 12,605 cf Overall - 34 cf Embedded = 12,571 cf x 60.0% Voids
		7,577 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.02'	**6.0" Round Culvert after elbow assembly** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.02' / 570.01' S= 0.0020 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	569.37'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=1.29 cfs @ 12.34 hrs HW=572.69' TW=570.95' (Dynamic Tailwater)
└─**1=Culvert after elbow assembly** (Inlet Controls 1.25 cfs @ 6.35 fps)
└─**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 15P: Bio-Retention Area Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 16P: WEST PIPE TO MH

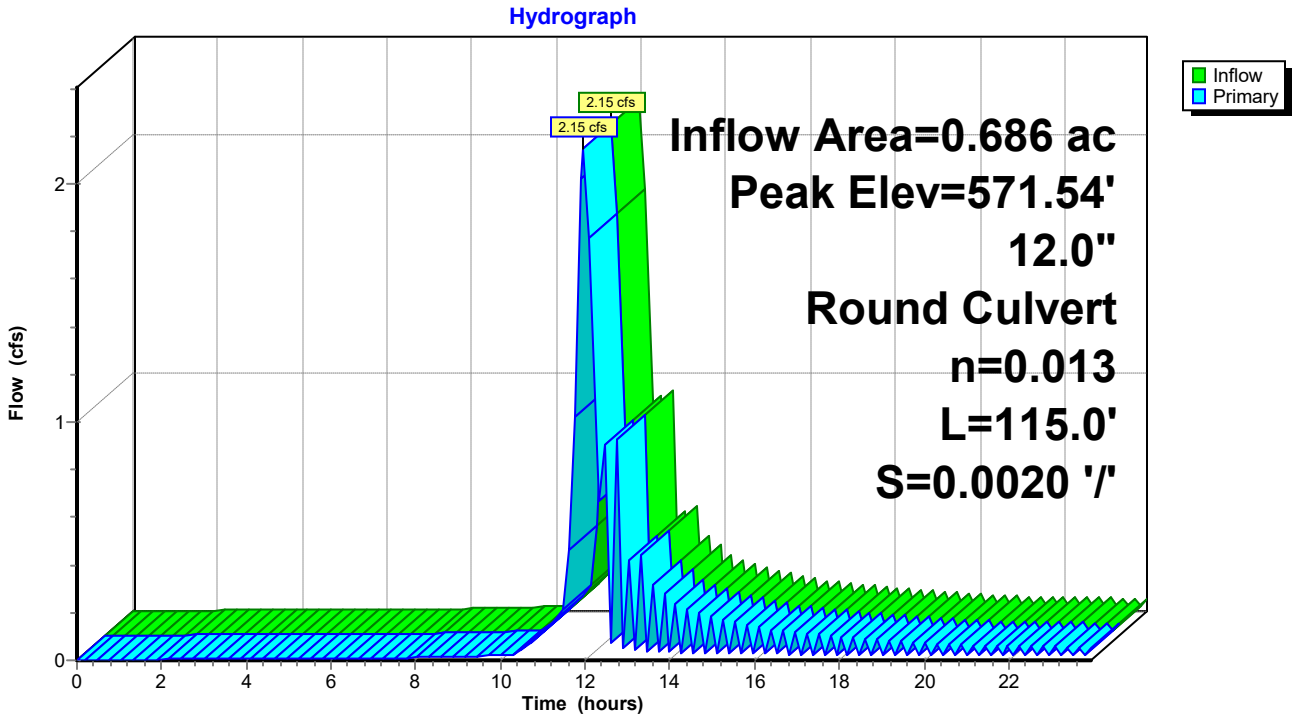
Inflow Area = 0.686 ac, 48.90% Impervious, Inflow Depth > 3.53" for 100-yr event
Inflow = 2.15 cfs @ 11.97 hrs, Volume= 0.202 af
Outflow = 2.15 cfs @ 11.97 hrs, Volume= 0.202 af, Atten= 0%, Lag= 0.0 min
Primary = 2.15 cfs @ 11.97 hrs, Volume= 0.202 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.54' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.32'	**12.0" Round Culvert** L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.32' / 570.09' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.02 cfs @ 11.97 hrs HW=571.48' TW=570.89' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.02 cfs @ 2.79 fps)

Pond 16P: WEST PIPE TO MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 3.95" for 100-yr event
Inflow = 3.08 cfs @ 11.89 hrs, Volume= 0.188 af
Outflow = 2.42 cfs @ 11.94 hrs, Volume= 0.182 af, Atten= 21%, Lag= 3.1 min
Primary = 0.01 cfs @ 11.92 hrs, Volume= 0.019 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 2.41 cfs @ 11.94 hrs, Volume= 0.163 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.59' @ 11.94 hrs Surf.Area= 1,094 sf Storage= 595 cf

Plug-Flow detention time= 33.3 min calculated for 0.182 af (97% of inflow)
Center-of-Mass det. time= 13.8 min (784.7 - 770.9)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

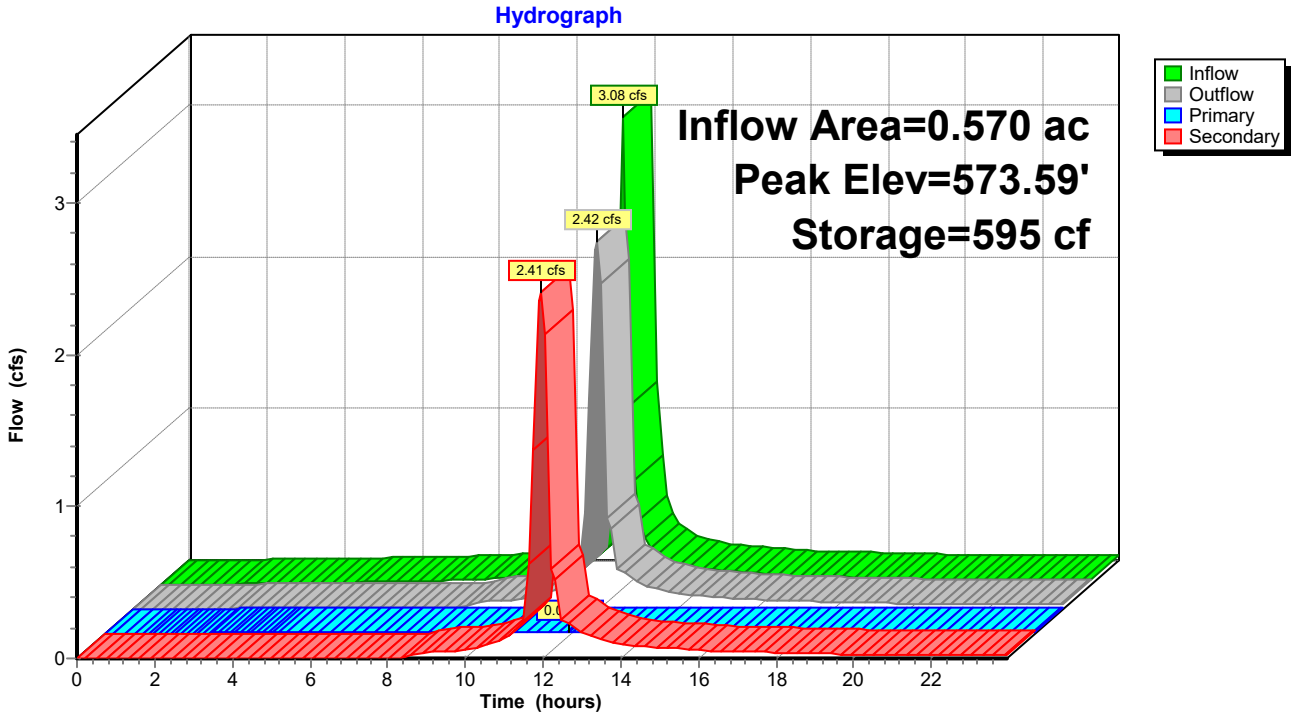
Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	**4.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	**0.500 in/hr Exfiltration through soil media over Surface area**

Primary OutFlow Max=0.01 cfs @ 11.92 hrs HW=573.57' TW=571.34' (Dynamic Tailwater)
└**3=Exfiltration through soil media** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=2.28 cfs @ 11.94 hrs HW=573.56' TW=571.39' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Orifice Controls 2.04 cfs @ 2.70 fps)
└**2=Orifice/Grate** (Orifice Controls 0.25 cfs @ 2.82 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 17P: South Dry Swale Storage above Filter Media



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 18P: South Dry Swale Pipe and Filter Media Storage

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 3.82" for 100-yr event
Inflow = 2.42 cfs @ 11.94 hrs, Volume= 0.182 af
Outflow = 1.76 cfs @ 11.96 hrs, Volume= 0.174 af, Atten= 27%, Lag= 0.9 min
Primary = 1.76 cfs @ 11.96 hrs, Volume= 0.174 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.69' @ 12.09 hrs Surf.Area= 2,748 sf Storage= 1,372 cf

Plug-Flow detention time= 44.8 min calculated for 0.173 af (95% of inflow)
Center-of-Mass det. time= 21.1 min (805.8 - 784.7)

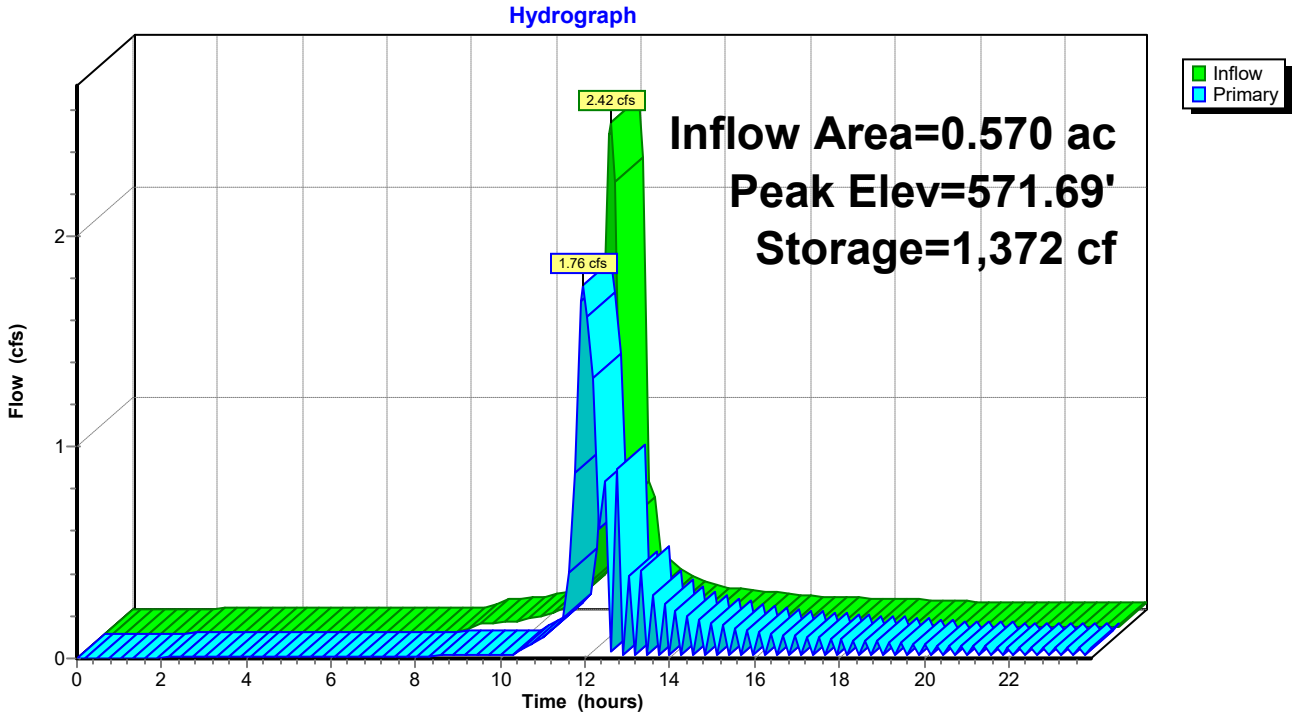
Volume	Invert	Avail.Storage	Storage Description
#1	570.04'	780 cf	**8.00'W x 154.00'L x 1.00'H Stone Fill Z=0.5** 1,313 cf Overall - 13 cf Embedded = 1,300 cf x 60.0% Voids
#2	570.94'	1,674 cf	**8.00'W x 154.00'L x 2.00'H Filter Media Z=0.5** 2,791 cf Overall x 60.0% Voids
#3	570.37'	13 cf	**4.0" Round 4" Perforated HDPE** Inside #1 L= 148.0' S= 0.0020 '/'
		2,468 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	570.35'	**12.0" Round 12" Culvert** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.35' / 570.32' S= 0.0021 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	570.04'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.03 cfs @ 11.96 hrs HW=571.43' TW=571.48' (Dynamic Tailwater)
1=12" Culvert (Controls 0.00 cfs)
2=Exfiltration (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 18P: South Dry Swale Pipe and Filter Media Storage



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 20P: Bio 1 Outlet Structure

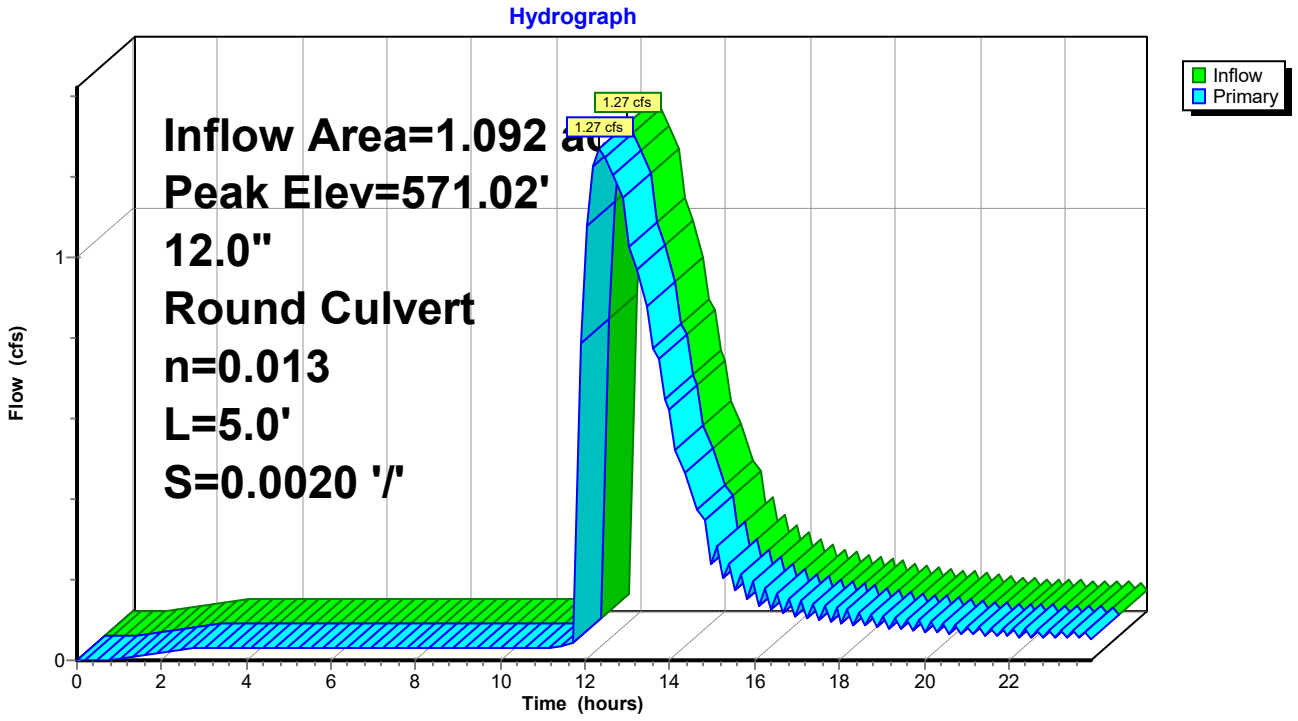
Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 3.50" for 100-yr event
Inflow = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af
Outflow = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.0 min
Primary = 1.27 cfs @ 12.34 hrs, Volume= 0.319 af
Routed to Pond 46P : STM MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 571.02' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.01'	**12.0" Round 12 " Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.01' / 570.00' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.83 cfs @ 12.34 hrs HW=570.95' TW=570.70' (Dynamic Tailwater)
1=12 " Culvert (Inlet Controls 1.83 cfs @ 2.39 fps)

Pond 20P: Bio 1 Outlet Structure



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 4.30" for 100-yr event
Inflow = 2.83 cfs @ 11.88 hrs, Volume= 0.155 af
Outflow = 2.83 cfs @ 11.88 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min
Primary = 2.42 cfs @ 11.88 hrs, Volume= 0.150 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.42 cfs @ 11.90 hrs, Volume= 0.005 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.32' @ 11.89 hrs
Flood Elev= 576.20'

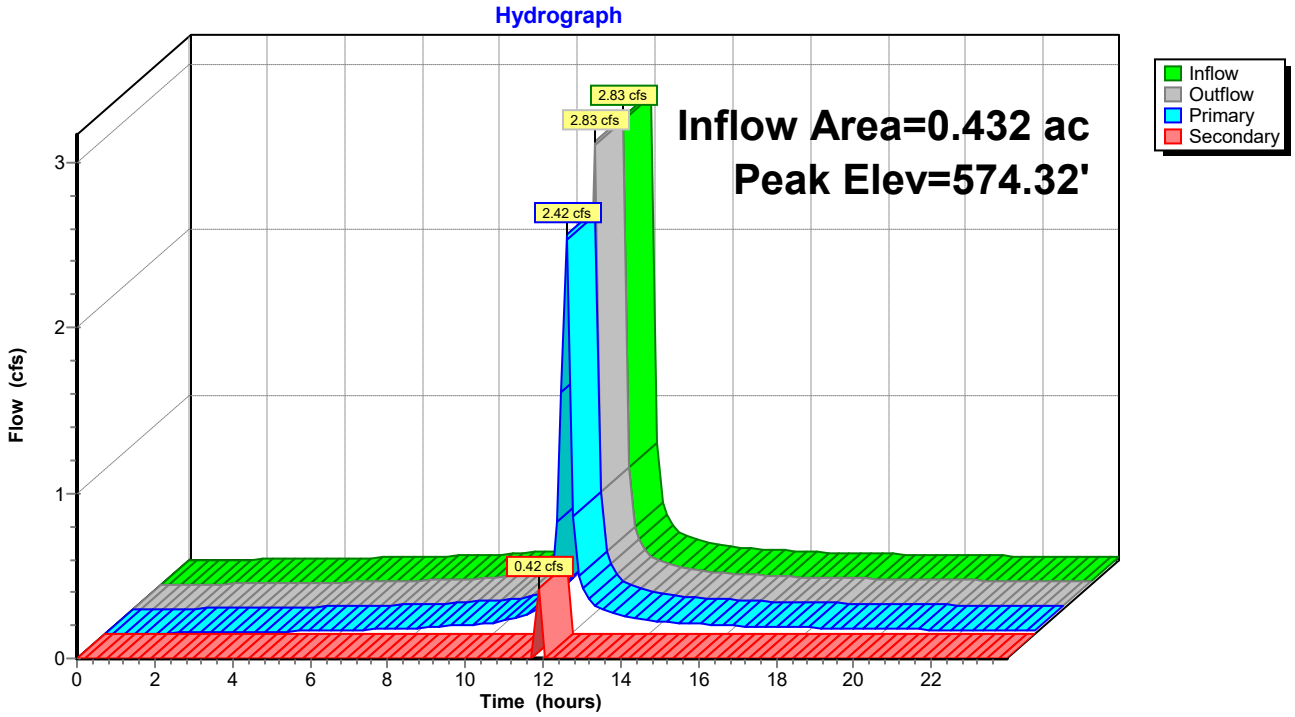
Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	**6.0" Horiz. Orifice/Grate X 5.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.18 cfs @ 11.88 hrs HW=574.25' TW=573.55' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.38 cfs @ 4.02 fps)
- **2=Orifice/Grate** (Orifice Controls 0.76 cfs @ 4.02 fps)
- **3=Orifice/Grate** (Orifice Controls 0.72 cfs @ 3.79 fps)
- **4=Orifice/Grate** (Orifice Controls 0.32 cfs @ 3.39 fps)

Secondary OutFlow Max=0.42 cfs @ 11.90 hrs HW=574.31' TW=573.58' (Dynamic Tailwater)
- **5=Orifice/Grate** (Weir Controls 0.42 cfs @ 0.83 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 41P: Level Spreader



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 42P: CB3

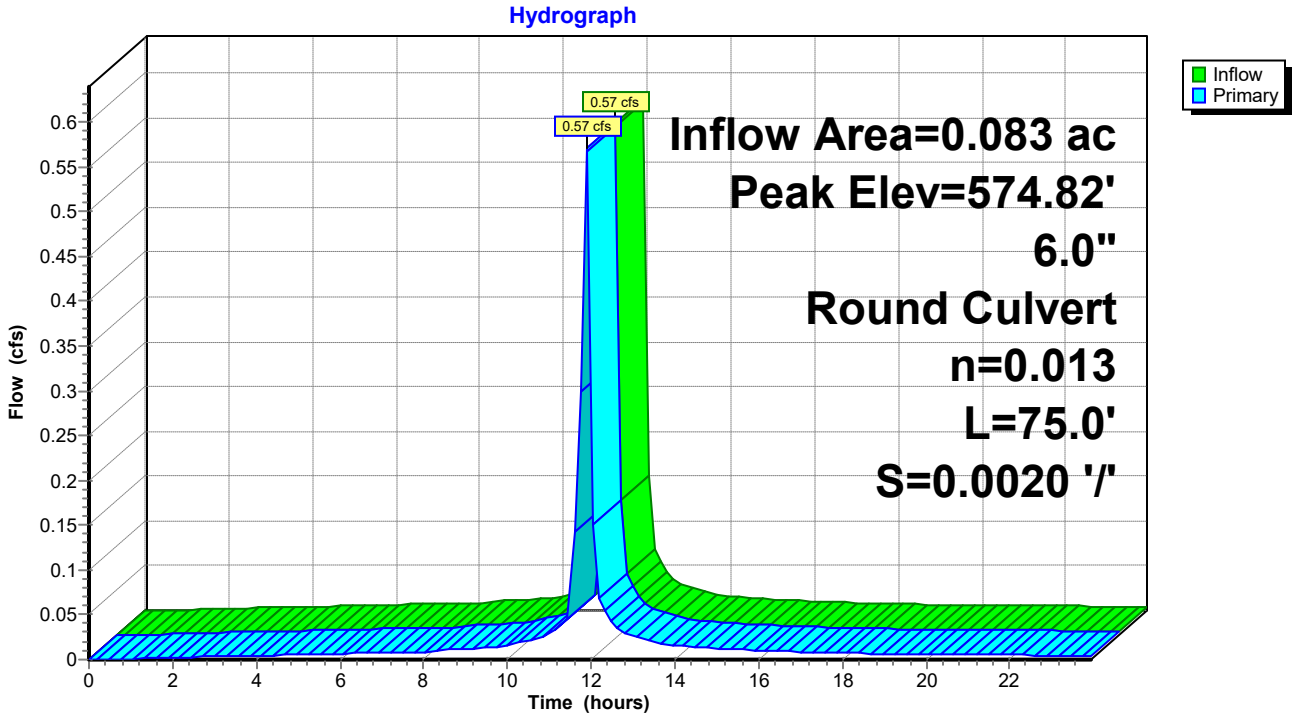
Inflow Area = 0.083 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 0.57 cfs @ 11.88 hrs, Volume= 0.033 af
Outflow = 0.57 cfs @ 11.88 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 11.88 hrs, Volume= 0.033 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.82' @ 11.92 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.39 cfs @ 11.88 hrs HW=574.71' TW=574.26' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.39 cfs @ 1.97 fps)

Pond 42P: CB3



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 44P: CB4

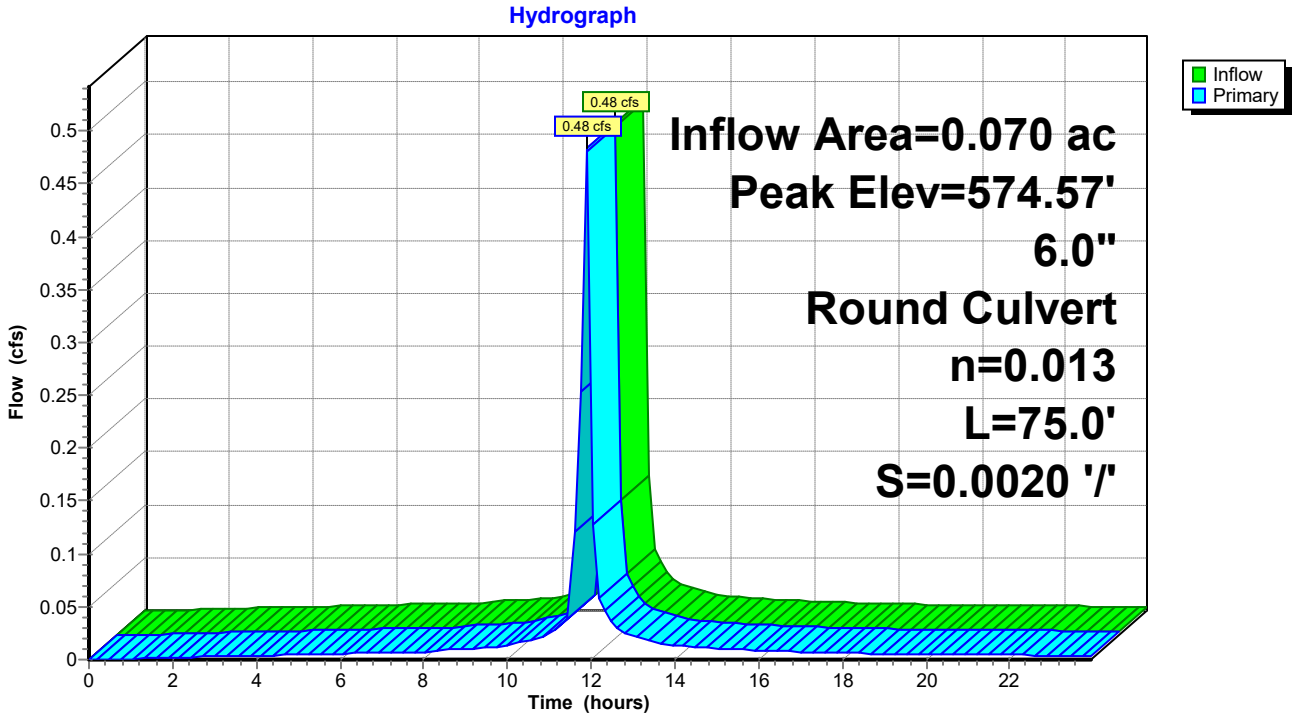
Inflow Area = 0.070 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 0.48 cfs @ 11.88 hrs, Volume= 0.028 af
Outflow = 0.48 cfs @ 11.88 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 11.88 hrs, Volume= 0.028 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.57' @ 11.94 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.26 cfs @ 11.88 hrs HW=574.46' TW=574.26' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.26 cfs @ 1.32 fps)

Pond 44P: CB4



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 45P: CB5

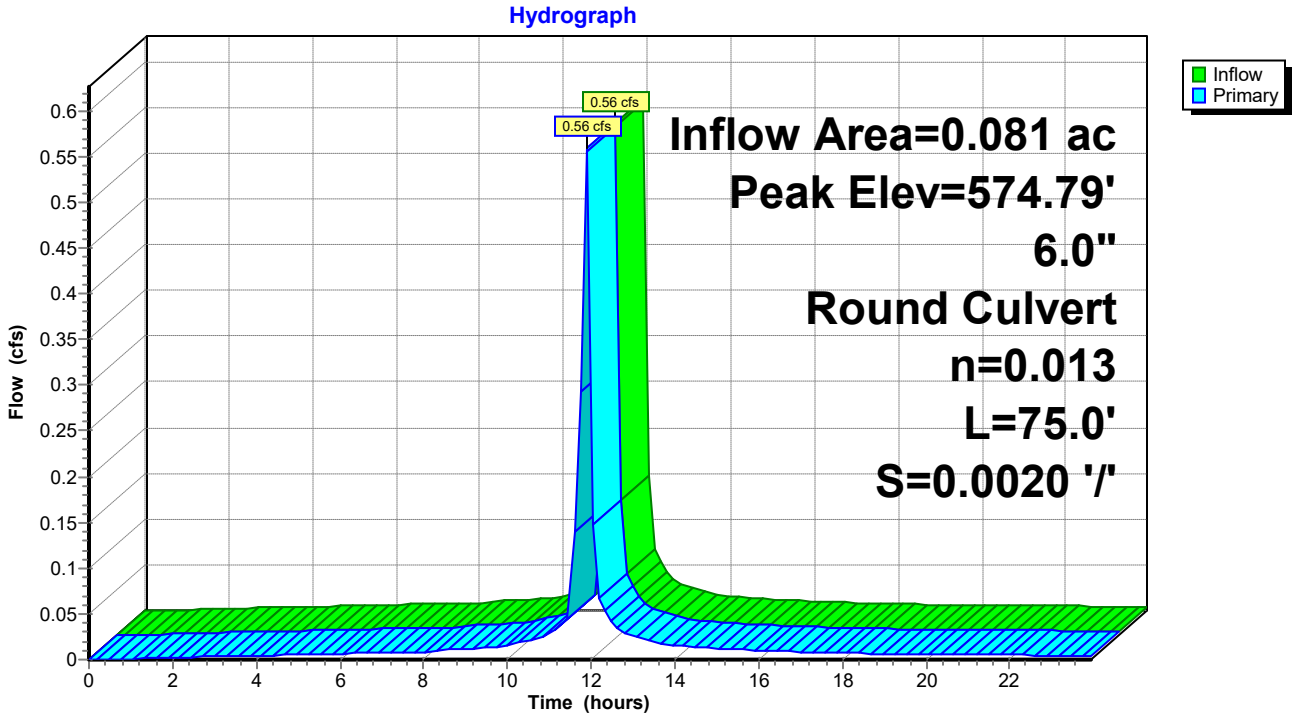
Inflow Area = 0.081 ac,100.00% Impervious, Inflow Depth > 4.75" for 100-yr event
Inflow = 0.56 cfs @ 11.88 hrs, Volume= 0.032 af
Outflow = 0.56 cfs @ 11.88 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 11.88 hrs, Volume= 0.032 af
Routed to Pond 41P : Level Spreader

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.79' @ 11.93 hrs
Flood Elev= 576.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**6.0" Round 6" CULVERT** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 573.40' / 573.25' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.37 cfs @ 11.88 hrs HW=574.67' TW=574.26' (Dynamic Tailwater)
1=6" CULVERT (Outlet Controls 0.37 cfs @ 1.89 fps)

Pond 45P: CB5



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 46P: STM MH

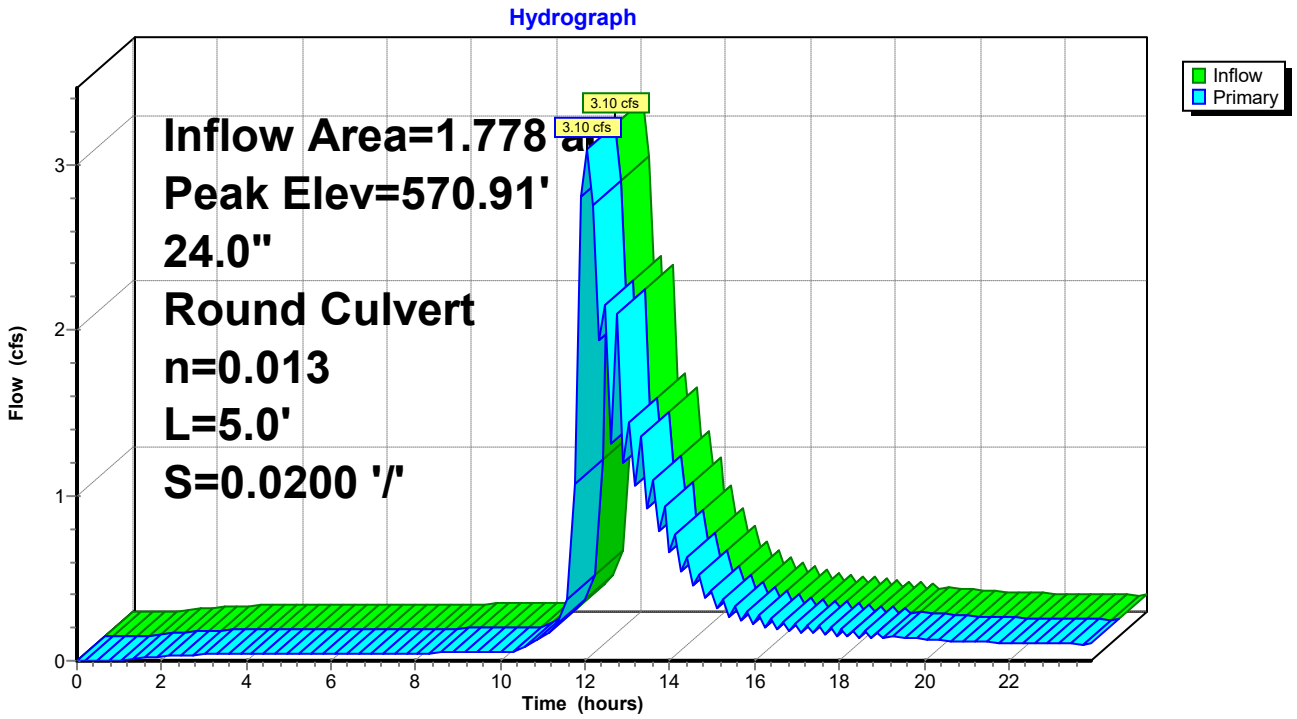
Inflow Area = 1.778 ac, 66.10% Impervious, Inflow Depth > 3.52" for 100-yr event
Inflow = 3.10 cfs @ 12.03 hrs, Volume= 0.521 af
Outflow = 3.10 cfs @ 12.03 hrs, Volume= 0.521 af, Atten= 0%, Lag= 0.0 min
Primary = 3.10 cfs @ 12.03 hrs, Volume= 0.521 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 570.91' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	**24.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 570.00' / 569.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=3.08 cfs @ 12.03 hrs HW=570.91' (Free Discharge)
1=Culvert (Barrel Controls 3.08 cfs @ 3.26 fps)

Pond 46P: STM MH



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 47P: West Area to CB + YD

Inflow Area = 0.116 ac, 0.00% Impervious, Inflow Depth > 2.88" for 100-yr event
Inflow = 0.46 cfs @ 11.93 hrs, Volume= 0.028 af
Outflow = 0.41 cfs @ 12.01 hrs, Volume= 0.028 af, Atten= 11%, Lag= 4.4 min
Primary = 0.41 cfs @ 12.01 hrs, Volume= 0.028 af
Routed to Pond 16P : WEST PIPE TO MH
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 16P : WEST PIPE TO MH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.91' @ 12.00 hrs Surf.Area= 804 sf Storage= 76 cf

Plug-Flow detention time= 1.9 min calculated for 0.028 af (99% of inflow)
Center-of-Mass det. time= 1.8 min (819.1 - 817.3)

Volume	Invert	Avail.Storage	Storage Description
#1	574.72'	169 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.72	10	0	0
575.00	1,200	169	169

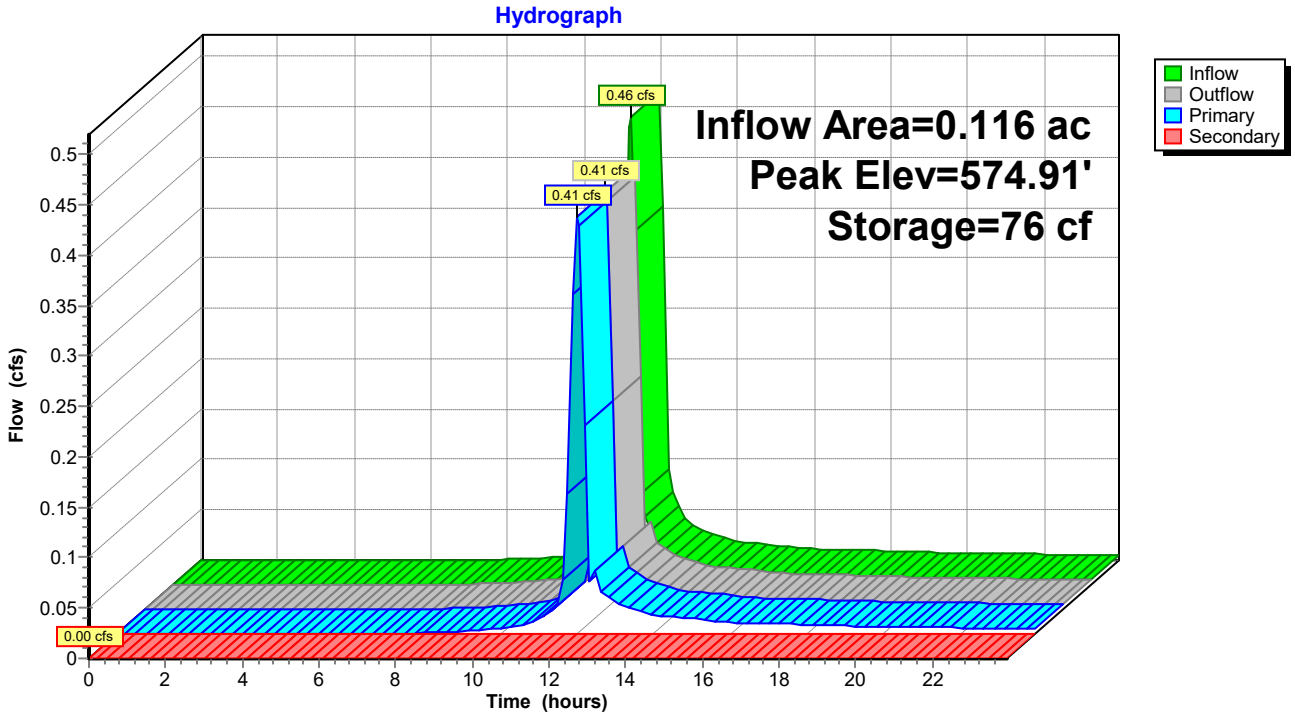
Device	Routing	Invert	Outlet Devices
#1	Primary	574.72'	**6.0" Horiz. 6" Yard Drain** C= 0.600 Limited to weir flow at low heads
#2	Secondary	574.99'	**1.7" x 3.2" Horiz. CB Grate X 7.00 columns** X 7 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area)

Primary OutFlow Max=0.39 cfs @ 12.01 hrs HW=574.90' TW=571.48' (Dynamic Tailwater)
↑—**1=6" Yard Drain** (Weir Controls 0.39 cfs @ 1.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=574.72' TW=570.32' (Dynamic Tailwater)
↑—**2=CB Grate** (Controls 0.00 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pond 47P: West Area to CB + YD



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix A-3
Drainage Calculations
WQv, RRv, Q_{WQv} & CPv Calculations

321 Commerce, LLC

Design Report & Stormwater Pollution Prevention Plan

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Advanced Design Group
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716)754-2256

Project #: 21-4768 Calc. By: JRJ Date: 1-
Page 1 of 5 Check By: SRF Date: 1-18-22
Revised By: _____ Date: _____
Rev. Check By: _____ Date: _____

1.f

Commerce Drive

Total Site Area = 1.78 ac

Water Quality Volume (WQ_v)

$$WQ_v = \frac{(P)(R_v)(A)}{12}$$

$$WQ_v = \frac{(1.0)(0.652)(1.78ac)}{12}$$

$WQ_v = 0.097$ ac.ft required

P = 90% Annual Rainfall Event = 1.00

$R_v = 0.05 + 0.009(I)$ I = % Impervious

Proposed Impervious = 51,850 sq. ft
= 1.19 ac

$I = 1.19ac / 1.78ac = 0.67 = 67\%$

$R_v = 0.05 + 0.009(67) = 0.652$

Run-off Reduction Volume (RR_v)

$$RR_v = \frac{(P)(R_v^*)(A_i)}{12}$$

$$RR_v = \frac{(1.0)(0.95)(0.238ac)}{12}$$

$RR_v = 0.019$ ac.ft required

P = 1.00 $R_v^* = 0.05 + 0.009(I)$ I = 100%
$R_v^* = 0.95$

$A_i = (S)(A_{ic}) = (0.2)(1.19ac) = 0.238ac$

S = specific reduction factor
= 0.2 for "D" soils

A_{ic} = Area of new impervious
= 1.19ac

A Bio-Retention Area and Dry Swale will be utilized to provide the WQ_v and RR_v requirements.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Advanced Design Group
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761 Cayuga Street
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Phone (716)754-2256

Project #: 21-47768 Calc. By: JRS Date: 1-
Page 2 of 5 Check By: SRF Date: 1-18-22
Revised By: _____ Date: _____
Rev. Check By: _____ Date: _____

1.f

Commerce Drive (cont.)

WQ_v Treatment:

Bio-Retention Area ⟹ Determine WQ_v + RR_v Provided

$$A_f = \frac{(WQ_v)(d_f)}{[K(h_f + d_f)(t_f)]}$$

where: A_f = Area of Filtration = 3,200 ft²

WQ_v = Water Quality Volume

d_f = Depth of Soil Media = 2.5 FT

K = Hydraulic Conductivity = 0.5 FT/Day

h_f = Avg. height of Ponding = 0.25 ft

t_f = Time to Filter = 2 days

$$3{,}200\ FT^2 = \frac{(WQ_v)(2.5\ FT)}{[0.5(0.25+2.5)(2)]}$$

$WQ_v = 3{,}520$ sq ft / 43,560 ft²/ac

WQ_v = 0.081 ac·ft provided

According to Table 3.5 in the NYS Stormwater Management Design Manual, a bio-retention area can utilize 40% of the WQ_v provided by the technique towards the RR_v requirement.

WQ_v Provided = 0.081 ac.ft ∴ RR_v provided = (0.40)(0.081 ac.ft)

= **0.032 ac·ft**

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

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Phone (716)754-2256

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Page 3 of 5 Check By: SRF Date: 1-18-22
Revised By: _____ Date: _____
Rev. Check By: _____ Date: _____

1.f

Commerce Drive (cont.)

WQ_v Treatment:

Dry Swale ⟹ Determine WQ_v + RR_v provided

$$A_f = \frac{(WQ_v)(d_f)}{[K(h_f + d_f)(t_f)]}$$

where: $A_f = 900\ ft^2$

$d_f = 2.0\ ft$

$K = 0.5\ FT/Day$

$h_f = 0.25\ ft$

$t_f = 1.6\ days$

$$900\ ft^2 = \frac{(WQ_v)(2.0\ ft)}{[0.5\ (0.25 + 2.0)\ 1.6]}$$

$WQ_v = 810\ FT^2 = 0.019\ ac.ft$ provided

According to Table 3.5 in the NYS Stormwater Management Design Manual, a dry swale can utilize 20% of the WQ_v provided by the technique towards the RR_v requirement.

WQ_v Provided = 0.019 ac.ft ∴ RR_v provided = (0.2)(0.019 ac.ft)

= 0.004 ac.ft

Total WQ_v Provided = 0.081 ac.ft (Bio-Area) + 0.019 ac.ft (Dry Swales) = 0.1 ac.ft

Total RR_v Provided = 0.032 ac.ft (Bio-Area) + 0.004 ac.ft (Dry Swale) = 0.036 ac.ft

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Page 4 of 5 Check By: SRF Date: 1-18-22
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Commerce Drive (cont.)

Channel Protection Volume (CP_v)

Area = 1.78 ac CN = 92 $I_a = 200/CN - 2$

$I_a = 200/92 - 2 = 0.174$ $P_{1-yr} = 1.91$ inch

$I_a/P = 0.17/1.91 = 0.09$

T_c = Area to East Vegetated Swale = 12.4 min = 0.21 hr

Using Exhibit 4-II from TR-55 w/ $I_a/P = 0.09$ and $T_c = 0.21$ hr

$q_u = 800$ csm/in

Using Figure 8.5 from the N.Y.S. Stormwater Management Design Manual for T = 24 hrs

$q_o/q_i = 0.025$

$$V_s/V_r = 0.683 - 1.43(q_o/q_i) + 1.64(q_o/q_i)^2 - 0.804(q_o/q_i)^3$$

$$V_s/V_r = 0.683 - 1.43(0.025) + 1.64(0.025)^2 - 0.804(0.025)^3$$

$V_s/V_r = 0.648 = 0.648 V_r$ $V_r = 0.51''$ (East Swale)

$V_s = 0.648(0.51)(1/12) = 0.028$ FT

CP_v req = 0.028 FT x 1.78 ac = 0.049 ac ft

Required CP_v = 2,135 FT^3

CP_v Provided = 330 ft^3 (front veg.) + 2,082 ft^3 (Bio-Area) + 313 ft^3 (Dry Swale) = 2,725 FT^3

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Page 5 of 5 Check By: SRF Date: 1-18-22
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1.f

Commerce Drive (cont.)

Level Spreader Sizing Check:

Proposed ⇒ 100 L.F. 6" Perf. Pipe
Must Pass 10-Yr Storm: Flow = 1.80 cfs HW = 573.95

Determine Outflow from Perforation:

$Q_p = C_d A \sqrt{2gh}$ where: Q_p = Free Outfall Rate (FT^3/sec)

$Q_p = (0.6)(0.00076)\sqrt{2(32.2)(0.45)}$ C_d = Coeff. of Discharge = 0.60

$Q_p = 0.0025$ $FT^3/sec/perf$ A = X-sec. Area of one perforation
= 0.875 in x 0.125 in = 0.109375 i
= 0.00076 FT

Min. inlet area = 1.0 in^2/FT = 0.00694 FT^2/FT

No. Perf/FT = (0.00694 FT^2/FT) / 0.00076 $FT^2/perf$ g = Gravitational Constant = 32.2 FT/

= 9.1 perf/FT h = height of water above perforation

Inv. = 573.25 HW = 573.95

⇒ Determine Flow per Foot:

Use ½ Pipe Dia = 0.25' ⇒ 573.25 +
= 573.50

∴ h = 573.95 − 573.50 = 0.45

(0.0025 $FT^3/sec/perf$)(9.1 perf/ft)
= 0.022 $FT^3/sec/FT$

⇒ Determine length of pipe required:

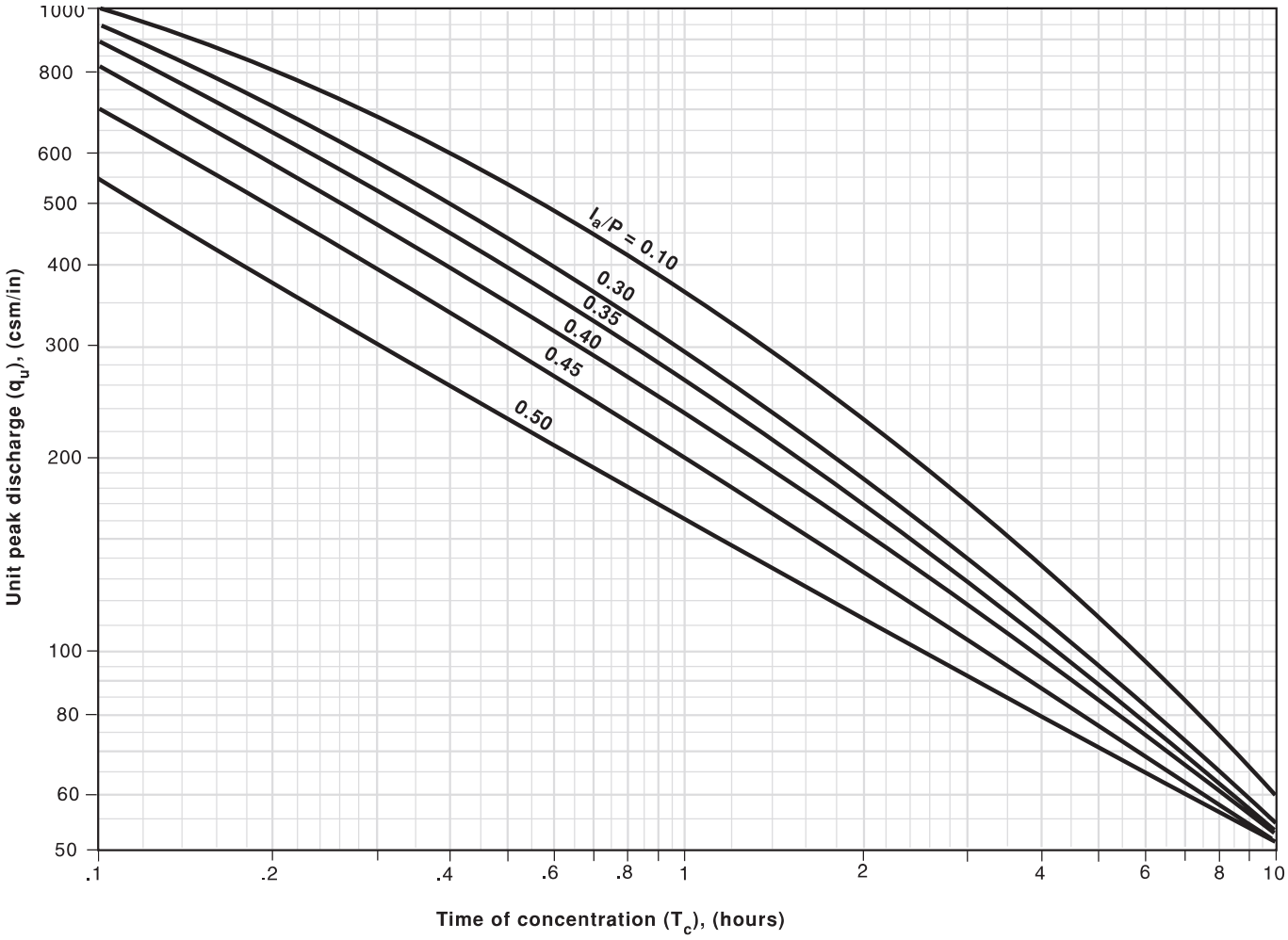
10-Yr Flow = 1.80 cfs 1.80 cfs / 0.022 $FT^3/sec/FT$ = 80.58 FT

∴ 100 L.F. Provided

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Exhibit 4-II Unit peal discharge (q_u) for NRCS (SCS) type II rainfall distribution



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

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Compute Stream Channel Protection Volume, (Cp_v) (see Section 4.3 and Appendix B)

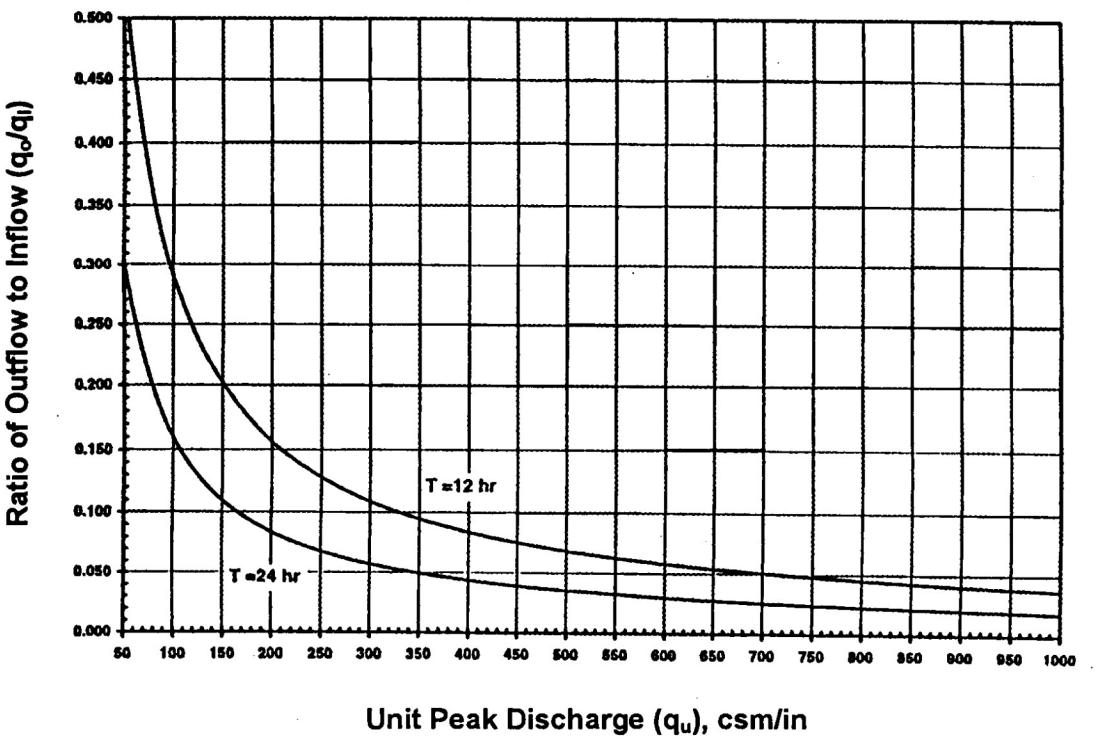
For stream channel protection, provide 24 hours of extended detention (T) for the one-year event.

Compute Channel Protection Storage Volume

First, determine the value of the unit peak discharge (q_u) using TR-55 and Type II Rainfall Distribution

- Initial abstraction (Ia) for CN of 78 is 0.564: [Ia = (200/CN - 2)]
- Ia/P = (0.564)/ 2.3 inches = 0.245
- T_c = 0.35 hours
- Using the above data and Exhibit 4-II from TR-55 (NRCS, 1986), q_u = 570 csm/in (cubic feet per second per square mile per year)
- Knowing q_u and T = 24 hours, find q_o/q_i using Figure 8.5 (also see methodology in Appendix B)
- Peak outflow discharge/peak inflow discharge (q_o/q_i) = 0.035
- $Vs/Vr = 0.683 - 1.43(q_o/q_i) + 1.64(q_o/q_i)^2 - 0.804(q_o/q_i)^3$ (from Appendix B)
  Where Vs equals channel protection storage (Cp_v) and Vr equals the volume of runoff in inches.

Figure 8.5 Detention Time vs. Discharge Ratios (Source: MDE, 2000)



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Summary for Pond 5P: Front Vegetated Swale

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=17)
[80] Warning: Exceeded Pond 6P by 0.09' @ 12.32 hrs (0.37 cfs 0.010 af)
[80] Warning: Exceeded Pond 7P by 0.05' @ 12.32 hrs (0.18 cfs 0.004 af)

Inflow Area = 0.887 ac, 94.75% Impervious, Inflow Depth > 1.62" for 1-yr event
Inflow = 2.14 cfs @ 11.89 hrs, Volume= 0.119 af
Outflow = 1.82 cfs @ 11.90 hrs, Volume= 0.116 af, Atten= 15%, Lag= 0.5 min
Primary = 1.80 cfs @ 11.90 hrs, Volume= 0.093 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media
Secondary = 0.03 cfs @ 12.35 hrs, Volume= 0.023 af
Routed to Pond 14P : Bio-Retention Area Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.97' @ 12.35 hrs Surf.Area= 1,144 sf Storage= 330 cf

Plug-Flow detention time= 29.7 min calculated for 0.115 af (96% of inflow)
Center-of-Mass det. time= 10.4 min (774.1 - 763.7)

Volume	Invert	Avail.Storage	Storage Description
#1	573.40'	1,863 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.40	10	0	0
574.00	1,200	363	363
575.00	1,800	1,500	1,863

Device	Routing	Invert	Outlet Devices
#1	Primary	573.40'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Secondary	573.40'	**1.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.00 cfs @ 11.90 hrs HW=573.82' TW=573.83' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.03 cfs @ 12.35 hrs HW=573.96' TW=573.92' (Dynamic Tailwater)
└─**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 14P: Bio-Retention Area Storage above Filter Media

[80] Warning: Exceeded Pond 5P by 0.13' @ 12.04 hrs (2.29 cfs 0.159 af)
[78] Warning: Submerged Pond 5P Secondary device # 2 by 0.59'
[80] Warning: Exceeded Pond 5P by 0.13' @ 12.04 hrs (0.03 cfs 0.008 af)

Inflow Area = 1.092 ac, 76.91% Impervious, Inflow Depth > 1.37" for 1-yr event
Inflow = 1.96 cfs @ 11.90 hrs, Volume= 0.124 af
Outflow = 0.83 cfs @ 12.08 hrs, Volume= 0.092 af, Atten= 58%, Lag= 10.7 min
Primary = 0.04 cfs @ 12.09 hrs, Volume= 0.057 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage
Secondary = 0.79 cfs @ 12.08 hrs, Volume= 0.035 af
Routed to Pond 15P : Bio-Retention Area Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 574.00' @ 12.09 hrs Surf.Area= 3,503 sf Storage= 2,082 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 71.9 min (852.6 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	573.38'	3,946 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
573.38	3,181	0	0
574.00	3,500	2,071	2,071
574.50	4,000	1,875	3,946

Device	Routing	Invert	Outlet Devices
#1	Secondary	574.00'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.88'	**6.0" Horiz. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.38'	**0.500 in/hr Exfiltration of Soil Media over Surface area**

Primary OutFlow Max=0.04 cfs @ 12.09 hrs HW=573.98' TW=569.71' (Dynamic Tailwater)
└**3=Exfiltration of Soil Media** (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=0.69 cfs @ 12.08 hrs HW=573.98' TW=569.69' (Dynamic Tailwater)
├**1=Emergency Overflow (Catch Basin)** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Weir Controls 0.69 cfs @ 1.05 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 17P: South Dry Swale Storage above Filter Media

Inflow Area = 0.570 ac, 58.81% Impervious, Inflow Depth > 1.14" for 1-yr event
Inflow = 0.93 cfs @ 11.89 hrs, Volume= 0.054 af
Outflow = 0.90 cfs @ 11.90 hrs, Volume= 0.049 af, Atten= 4%, Lag= 0.8 min
Primary = 0.01 cfs @ 11.90 hrs, Volume= 0.015 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage
Secondary = 0.89 cfs @ 11.90 hrs, Volume= 0.034 af
Routed to Pond 18P : South Dry Swale Pipe and Filter Media Storage

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.31' @ 11.90 hrs Surf.Area= 943 sf Storage= 313 cf

Plug-Flow detention time= 73.1 min calculated for 0.049 af (90% of inflow)
Center-of-Mass det. time= 22.3 min (815.7 - 793.4)

Volume	Invert	Avail.Storage	Storage Description
#1	572.92'	1,122 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
572.92	10	0	0
573.00	850	34	34
573.50	1,000	463	497
574.00	1,500	625	1,122

Device	Routing	Invert	Outlet Devices
#1	Secondary	573.25'	**1.7" x 3.2" Horiz. Emergency Overflow (Catch Basin) X 20.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	573.22'	**4.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	572.92'	**0.500 in/hr Exfiltration through soil media over Surface area**

Primary OutFlow Max=0.01 cfs @ 11.90 hrs HW=573.31' TW=570.55' (Dynamic Tailwater)
└**3=Exfiltration through soil media** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.88 cfs @ 11.90 hrs HW=573.31' TW=570.54' (Dynamic Tailwater)
└**1=Emergency Overflow (Catch Basin)** (Weir Controls 0.79 cfs @ 0.80 fps)
└**2=Orifice/Grate** (Weir Controls 0.09 cfs @ 0.98 fps)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Summary for Pond 41P: Level Spreader

Inflow Area = 0.432 ac, 77.64% Impervious, Inflow Depth > 2.68" for 10-yr event
Inflow = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af
Outflow = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 11.89 hrs, Volume= 0.096 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Peak Elev= 573.98' @ 11.89 hrs
Flood Elev= 576.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	573.25'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	573.42'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	573.59'	**0.1" W x 0.9" H Vert. Orifice/Grate X 303.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	573.75'	**0.1" x 0.9" Horiz. Orifice/Grate X 152.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	574.25'	**6.0" Horiz. Orifice/Grate X 5.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.69 cfs @ 11.89 hrs HW=573.95' TW=573.39' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.34 cfs @ 3.60 fps)
- **2=Orifice/Grate** (Orifice Controls 0.64 cfs @ 3.36 fps)
- **3=Orifice/Grate** (Orifice Controls 0.51 cfs @ 2.71 fps)
- **4=Orifice/Grate** (Orifice Controls 0.20 cfs @ 2.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=573.25' TW=572.92' (Dynamic Tailwater)
- **5=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Reach 4R: East Swale

Inflow Area = 0.138 ac, 0.00% Impervious, Inflow Depth > 0.51" for 1-yr event
Inflow = 0.09 cfs @ 12.06 hrs, Volume= 0.006 af
Outflow = 0.05 cfs @ 12.21 hrs, Volume= 0.006 af, Atten= 36%, Lag= 9.3 min
Routed to Pond 17P : South Dry Swale Storage above Filter Media

Routing by Dyn-Stor-Ind method, Time Span= 0.00-23.94 hrs, dt= 0.14 hrs
Max. Velocity= 0.44 fps, Min. Travel Time= 13.8 min
Avg. Velocity = 0.20 fps, Avg. Travel Time= 30.5 min

Peak Storage= 45 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 2.24'
Bank-Full Depth= 1.50' Flow Area= 7.5 sf, Capacity= 20.45 cfs

2.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 8.00'
Length= 362.0' Slope= 0.0020 '/'
Inlet Invert= 574.37', Outlet Invert= 573.65'



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Appendix B
General Permit No. GP-0-20-001

321 Commerce, LLC

Stormwater Pollution Prevention Plan

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

Discharges authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* ("SWPPP") the reason(s) for the

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deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

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listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharges* are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

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(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

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For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

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calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

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(Part I.C.2.c)

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

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d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

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E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: “Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned”; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

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operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

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8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

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(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

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B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

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must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

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b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

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use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

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regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

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operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

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b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

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the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

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b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

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schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

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b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

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3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

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begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

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in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

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d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

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(Part IV.C.4.a)

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

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l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

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b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

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b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

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Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

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E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

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(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

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superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

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include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

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3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

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R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

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APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

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Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

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and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

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Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

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New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

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Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

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SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

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Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

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training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

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APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

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Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

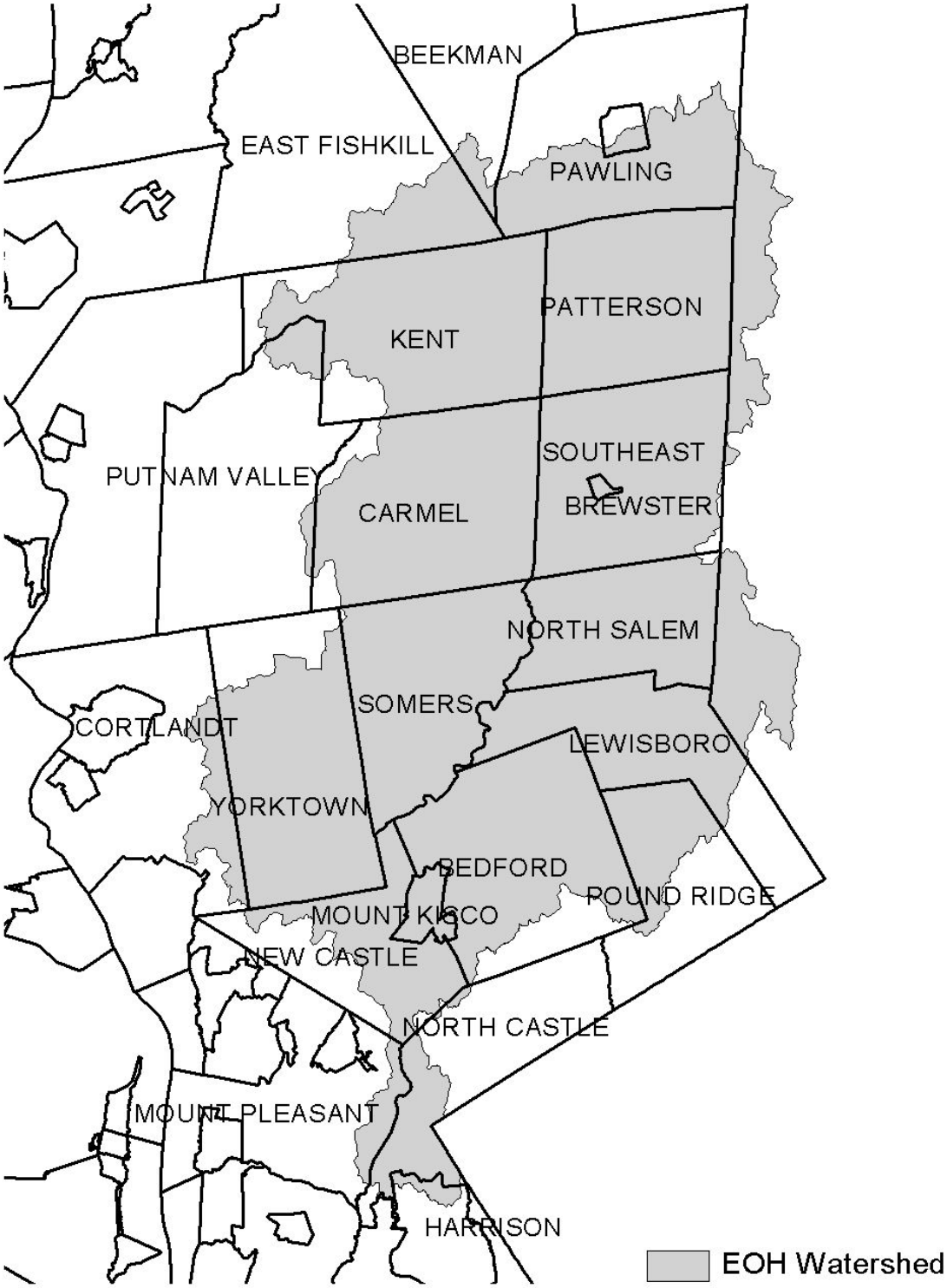
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Figure 1 - New York City Watershed East of the Hudson



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

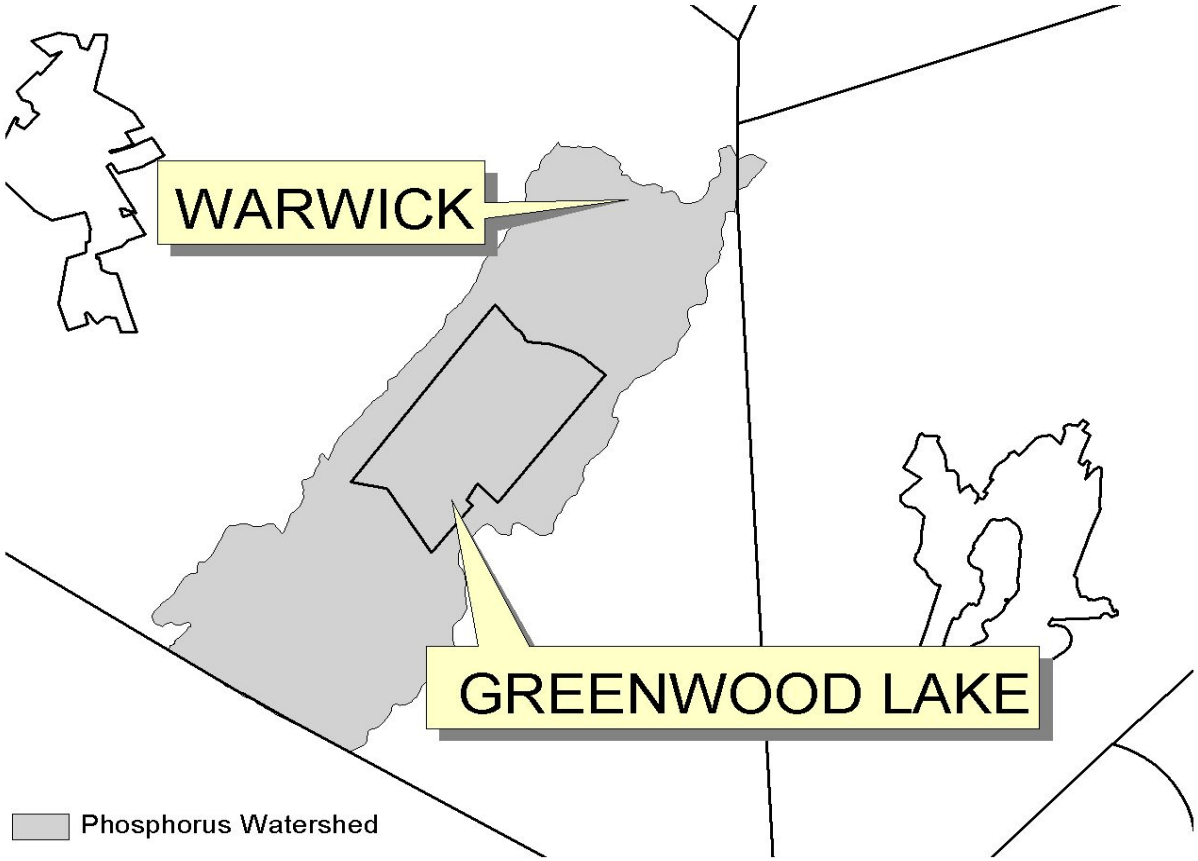
Figure 2 - Onondaga Lake Watershed



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix C

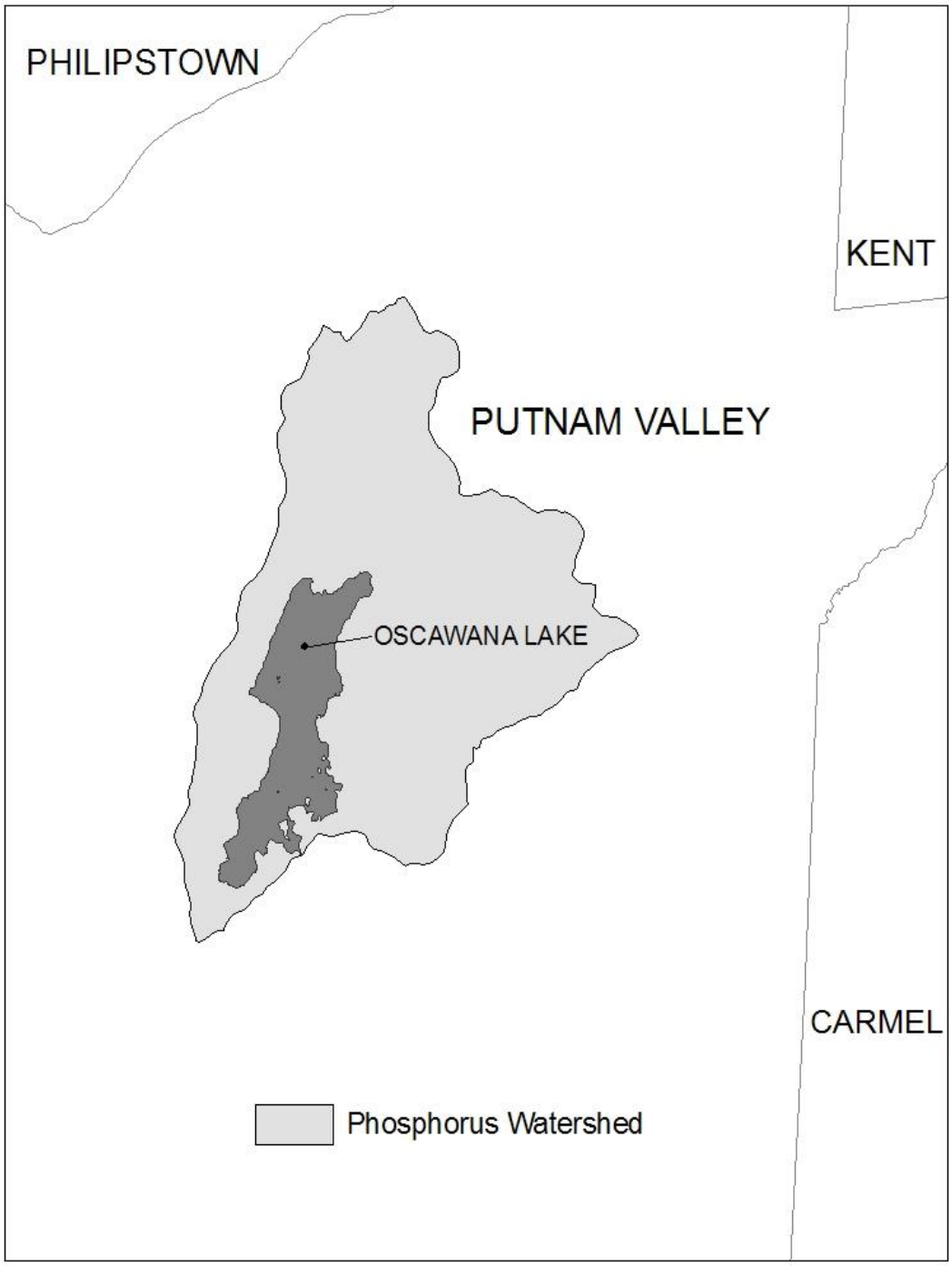
Figure 3 - Greenwood Lake Watershed



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix C

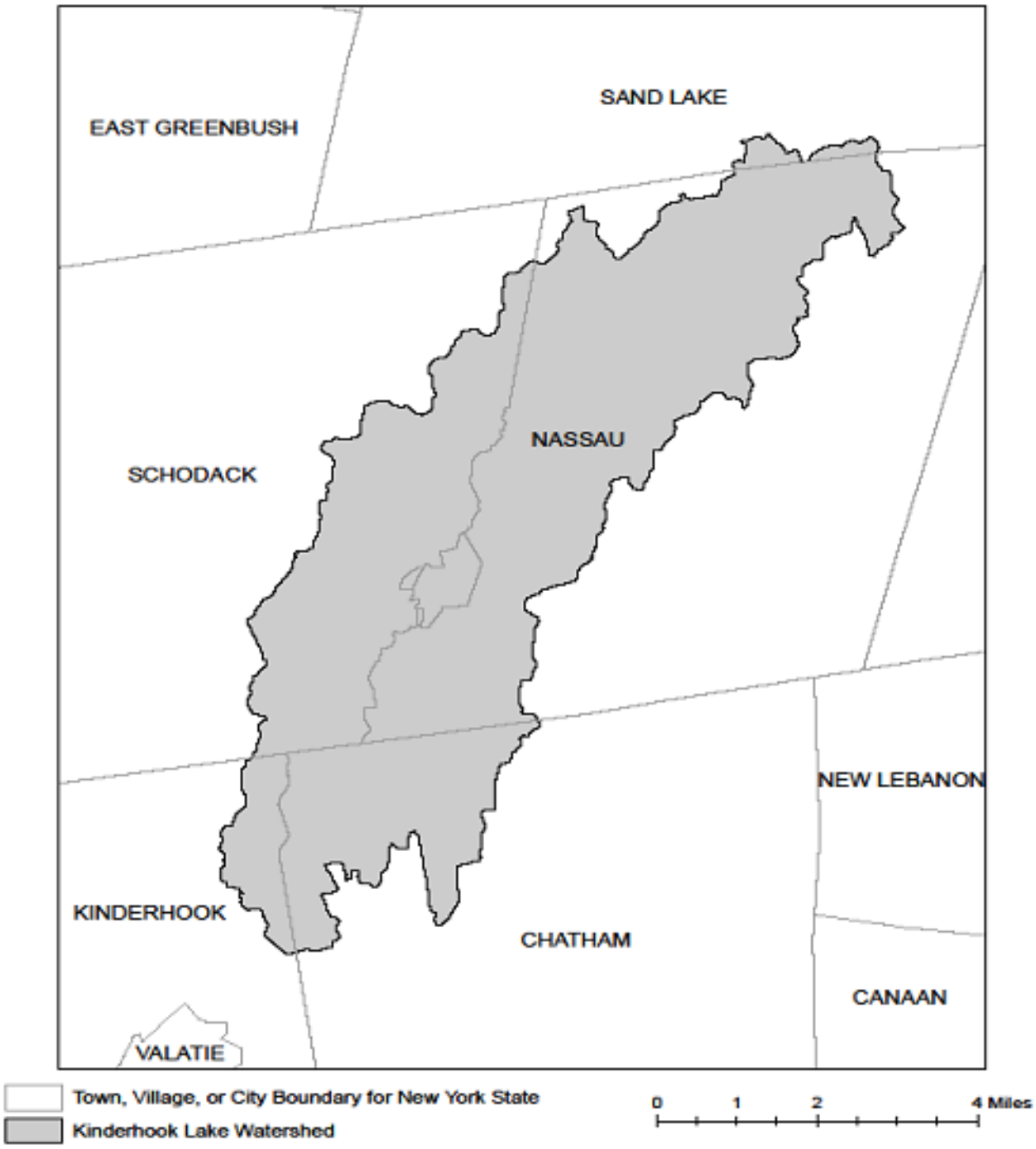
Figure 4 - Oscawana Lake Watershed



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix C

Figure 5 - Kinderhook Lake Watershed



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix C
MS4 SWPPP Acceptance Form / Notice of Intent (NOI)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix C-1
MS4 SWPPP Acceptance Form

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	321 Commerce, LLC
2. Contact Person:	Eric Bogart
3. Street Address:	321 Commerce Drive
4. City/State/Zip:	Amherst, NY 14228
II. Project Site Information	
5. Project/Site Name:	321 Commerce, LLC
6. Street Address:	321 Commerce Drive
7. City/State/Zip:	Amherst, NY 14228
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix C-2
N.O.I.

321 Commerce, LLC

Design Report & Stormwater Pollution Prevention Plan

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.32

(Submission #: HP9-P8ER-D2S0M, version 1)

Details

Originally Started By	Rebecca Romanow
Alternate Identifier	321 Commerce, LLC
Submission ID	HP9-P8ER-D2S0M
Submission Reason	New
Status	Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
321 Commerce, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Bogart

Owner/Operator Contact Person First Name
Eric

Owner/Operator Mailing Address
6885 Campbell Blvd

City
North Tonawanda

State
NY

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Zip
14120

Phone
716-807-2388

Email
bogartlandscape@yahoo.com

Federal Tax ID
NONE PROVIDED

Project Location

Project/Site Name
321 Commerce, LLC

Street Address (Not P.O. Box)
321 Commerce Drive

Side of Street
South

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Town of Amherst

State
NY

Zip
14228

DEC Region
9

County
ERIE

Name of Nearest Cross Street
Hazelwood Drive

Distance to Nearest Cross Street (Feet)
100

Project In Relation to Cross Street
South

Tax Map Numbers Section-Block-Parcel
NONE PROVIDED

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Tax Map Numbers
40.07-3-2.112

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
43.02659999999999,-78.810345

Project Details

2. What is the nature of this project?
New Construction

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Commercial

Post-Development Future Land Use
Commercial

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
1.78

Total Area to be Disturbed (acres)
1.78

Existing Impervious Area to be Disturbed (acres)
0

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Future Impervious Area Within Disturbed Area (acres)
1.19

5. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
0

C (%)
0

D (%)
100

7. Is this a phased project?
No

8. Enter the planned start and end dates of the disturbance activities.

Start Date
4/1/2022

End Date
4/1/2023

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Ellicott Creek

9a. Type of waterbody identified in question 9?
Stream/Creek Off Site

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
NONE PROVIDED

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
No

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
NONE PROVIDED

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?
NONE PROVIDED

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
Kristin L. Savard

Contact Name (Last, Space, First)
Savard, Kristin

Mailing Address
761 Cayuga Street

City
Lewistin

State
New York

Zip
14092

Phone
(716) 754-2256

Email
kristin.savard@adgengineers.com

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification

Commerce SWPPP Preparer Certification.pdf - 01/17/2022 02:17 PM
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Check Dams
Silt Fence
Stabilized Construction Entrance
Sediment Traps
Storm Drain Inlet Protection

Biotechnical
None

Vegetative Measures
Grassed Waterway
Vegetating Waterways
Seeding

Permanent Structural
Land Grading
Rock Outlet Protection

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
NONE PROVIDED

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
0.097

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.036

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
No

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
0.019

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
Yes

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
0.1

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
0.136

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
0.049

CPv Provided (acre-feet)
0.063

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Pre-Development (CFS)
NONE PROVIDED

Post-Development (CFS)
NONE PROVIDED

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
NONE PROVIDED

Post-Development (CFS)
NONE PROVIDED

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
NONE PROVIDED

If Yes, Identify the entity responsible for the long term Operation and Maintenance
NONE PROVIDED

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
The site limitations for not reducing 100% of the WQv are seasonal high groundwater and soils with an infiltration rate less than
0.5 inches/hour.

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
0.84

Total Contributing Impervious Acres for Dry Swale (O-1)
0.34

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
Yes - Please attach the MS4 Acceptance form below

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
NONE PROVIDED

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
Commerce MS4 Acceptance.pdf - 01/17/2022 02:40 PM
Comment
Not Signed

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Upload Owner/Operator Certification Form

Owner-Operator Certification Form.pdf - 01/17/2022 02:41 PM

Comment

Not Signed

Attachments

Date	Attachment Name	Context	User
1/17/2022 2:41 PM	Owner-Operator Certification Form.pdf	Attachment	Rebecca Romanow
1/17/2022 2:40 PM	Commerce MS4 Acceptance.pdf	Attachment	Rebecca Romanow
1/17/2022 2:17 PM	Commerce SWPPP Preparer Certification.pdf	Attachment	Rebecca Romanow

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

Project Site Information

Project/Site Name

321 Commerce, LLC

Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

321 Commerce, LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Kristin	L	Savard
First name	MI	Last Name

Kristin L. Savard, PE

Signature

01 - 17 - 2022

Date

Revised: January 2020

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: 321 Commerce, LLC

eNOI Submission Number: HP9-P8ER-D2S0M

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

Signature

Date 1/21/2022

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix D
Notice of Termination (NOT) Form

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:	
Title/Position:	
Signature:	Date:

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

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Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix E
Contractor Certification Form

321 Commerce, LLC

Stormwater Pollution Prevention Plan

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

CONTRACTOR'S CERTIFICATION STATEMENT

All contractors that will be responsible for installing, constructing, repairing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractors that will be responsible for the construction of all post-construction storm water management practices included in the SWPPP must sign the following certification statement before commencing any construction activity.

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

Site Location:_____

Name:_____

Company:_____ **Title:**_____

Company Address:_____

_____

Company Telephone:_____ **Fax:**_____

Signature:_____ **Date:**_____

Elements of SWPPP responsible for: _____

_____

Trained Individual Responsible for Implementation:_____

Title:_____

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

SUBCONTRACTOR'S CERTIFICATION STATEMENT

All subcontractors that will be responsible for installing, constructing, repairing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the subcontractors that will be responsible for the construction of all post-construction storm water management practices included in the SWPPP must sign the following certification statement before commencing any construction activity.

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

Site Location:_____

Name:_____

Company:_____ **Title:**_____

Company Address:_____

_____

Company Telephone:_____ **Fax:**_____

Signature:_____ **Date:**_____

Elements of SWPPP responsible for: _____

_____

Trained Individual Responsible for Implementation:_____

Title:_____

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

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Appendix F
NYSDEC Phase II SPDES Letter (folder for insert)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix G
Soil Erosion & Sediment Control Details and Specifications

321 Commerce, LLC

Stormwater Pollution Prevention Plan

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR TEMPORARY CONSTRUCTION AREA SEEDING



Definition & Scope

Providing temporary erosion control protection to disturbed areas and/or localized critical areas for an interim period by covering all bare ground that exists as a result of construction activities or a natural event. Critical areas may include but are not limited to steep excavated cut or fill slopes and any disturbed, denuded natural slopes subject to erosion.

Conditions Where Practice Applies

Temporary seedings may be necessary on construction sites to protect an area, or section, where final grading is complete, when preparing for winter work shutdown, or to provide cover when permanent seedings are likely to fail due to mid-summer heat and drought. The intent is to provide temporary protective cover during temporary shutdown of construction and/or while waiting for optimal planting time.

Criteria

Water management practices must be installed as appropriate for site conditions. The area must be rough graded and slopes physically stable. Large debris and rocks are usually removed. Seedbed must be seeded within 24 hours of disturbance or scarification of the soil surface will be necessary prior to seeding.

Fertilizer or lime are not typically used for temporary seedings.

IF: Spring or summer or early fall, then seed the area with ryegrass (annual or perennial) at 30 lbs. per acre (Approximately 0.7 lb./1000 sq. ft. or use 1 lb./1000 sq. ft.).

IF: Late fall or early winter, then seed Certified 'Aroostook' winter rye (cereal rye) at 100 lbs. per acre (2.5 lbs./1000 sq. ft.).

Any seeding method may be used that will provide uniform application of seed to the area and result in relatively good soil to seed contact.

Mulch the area with hay or straw at 2 tons/acre (approx. 90 lbs./1000 sq. ft. or 2 bales). Quality of hay or straw mulch allowable will be determined based on long term use and visual concerns. Mulch anchoring will be required where wind or areas of concentrated water are of concern. Wood fiber hydromulch or other sprayable products approved for erosion control (nylon web or mesh) may be used if applied according to manufacturers' specification. Caution is advised when using nylon or other synthetic products. They may be difficult to remove prior to final seeding and can be a hazard to young wildlife species.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR PERMANENT CONSTRUCTION AREA PLANTING



Definition & Scope

Establishing **permanent** grasses with other forbs and/or shrubs to provide a minimum 80% perennial vegetative cover on areas disturbed by construction and critical areas to reduce erosion and sediment transport. Critical areas may include but are not limited to steep excavated cut or fill slopes as well as eroding or denuded natural slopes and areas subject to erosion.

Conditions Where Practice Applies

This practice applies to all disturbed areas void of, or having insufficient, cover to prevent erosion and sediment transport. See additional standards for special situations such as sand dunes and sand and gravel pits.

Criteria

All water control measures will be installed as needed prior to final grading and seedbed preparation. Any severely compacted sections will require chiseling or disking to provide an adequate rooting zone, to a minimum depth of 12", see Soil Restoration Standard. The seedbed must be prepared to allow good soil to seed contact, with the soil not too soft and not too compact. Adequate soil moisture must be present to accomplish this. If surface is powder dry or sticky wet, postpone operations until moisture changes to a favorable condition. If seeding is accomplished within 24 hours of final grading, additional scarification is generally not needed, especially on ditch or stream banks. Remove all stones and other debris from the surface that are greater than 4 inches, or that will interfere with future mowing or maintenance.

Soil amendments should be incorporated into the upper 2 inches of soil when feasible. **The soil should be tested to determine the amounts of amendments needed.** Apply ground agricultural limestone to attain a pH of 6.0 in the upper 2 inches of soil. If soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 600 lbs. per acre of 5-5 -10 or equivalent. If manure is used, apply a quantity to meet the nutrients of the above fertilizer. This requires an appropriate manure analysis prior to applying to the site. Do not use manure on sites to be planted with birdsfoot trefoil or in the path of concentrated water flow.

Seed mixtures may vary depending on location within the state and time of seeding. Generally, warm season grasses should only be seeded during early spring, April to May. These grasses are primarily used for vegetating excessively drained sands and gravels. See Standard and Specification for Sand and Gravel Mine Reclamation. Other grasses may be seeded any time of the year when the soil is not frozen and is workable. When legumes such as birdsfoot trefoil are included, spring seeding is preferred. See Table 4.4, "Permanent Construction Area Planting Mixture Recommendations" for additional seed mixtures.

General Seed Mix:	**Variety**	**lbs./ acre**	**lbs/1000 sq. ft.**
Red Clover[1] OR	Acclaim, Rally, Red Head II, Renegade	8[2]	0.20
Common white clover[1]	Common	8	0.20
PLUS			
Creeping Red Fescue	Common	20	0.45
PLUS			
Smooth Bromegrass OR	Common	2	0.05
Ryegrass (perennial)	Pennfine/Linn	5	0.10

[1] add inoculant immediately prior to seeding
[2] Mix 4 lbs each of Empire and Pardee OR 4 lbs of Birdsfoot and 4 lbs white clover per acre. All seeding rates are given for Pure Live Seed (PLS)

Pure Live Seed, or (PLS) refers to the amount of live seed in a lot of bulk seed. Information on the seed bag label includes the type of seed, supplier, test date, source of seed, purity, and germination. Purity is the percentage of pure seed. Germination is the percentage of pure seed that will produce normal plants when planted under favorable conditions.

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To compute Pure Live Seed multiply the "germination percent" times the "purity" and divide that by 100 to get Pure Live Seed.

$$\text{Pure Live Seed (PLS)} = \frac{\%\,\text{Germination} \times \%\,\text{Purity}}{100}$$

For example, the PLS for a lot of Kentucky Blue grass with 75% purity and 96% germination would be calculated as follows:

$$\frac{(96) \times (75)}{100} = 72\%\ \text{Pure Live Seed}$$

For 10lbs of PLS from this lot =

$$\frac{10}{0.72} = 13.9\ \text{lbs}$$

Therefore, 13.9 lbs of seed is the actual weight needed to meet 10lbs PSL from this specific seed lot.

Time of Seeding: The optimum timing for the general seed mixture is early spring. Permanent seedings may be made any time of year if properly mulched and adequate moisture is provided. Late June through early August is not a good time to seed, but may facilitate covering the land without additional disturbance if construction is completed. Portions of the seeding may fail due to drought and heat. These areas may need reseeding in late summer/fall or the following spring.

Method of seeding: Broadcasting, drilling, cultipack type seeding, or hydroseeding are acceptable methods. Proper soil to seed contact is key to successful seedings.

Mulching: Mulching is essential to obtain a uniform stand of seeded plants. Optimum benefits of mulching new seedings are obtained with the use of small grain straw applied at a rate of 2 tons per acre, and anchored with a netting or tackifier. See the Standard and Specifications for Mulching for choices and requirements.

Irrigation: Watering may be essential to establish a new seeding when a drought condition occurs shortly after a new seeding emerges. Irrigation is a specialized practice and care must be taken not to exceed the application rate for the soil or subsoil. When disconnecting irrigation pipe, be sure pipes are drained in a safe manor, not creating an erosion concern.



80% Perennial Vegetative Cover



50% Perennial Vegetative Cover

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Table 4.4
Permanent Construction Area Planting Mixture Recommendations

Seed Mixture	Variety	Rate in lbs./acre (PLS)	Rate in lbs./ 1, 000 ft^2
Mix #1			
Creeping red fescue	Ensylva, Pennlawn, Boreal	10	.25
Perennial ryegrass	Pennfine, Linn	10	.25
*This mix is used extensively for shaded areas.			
Mix #2			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	20	.50
*This rate is in pure live seed, this would be an excellent choice along the upland edge of a wetland to filter runoff and provide wildlife benefits. In areas where erosion may be a problem, a companion seeding of sand lovegrass should be added to provide quick cover at a rate of 2 lbs. per acre (0.05 lbs. per 1000 sq. ft.).			
Mix #3			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	4	.10
Big bluestem	Niagara	4	.10
Little bluestem	Aldous or Camper	2	.05
Indiangrass	Rumsey	4	.10
Coastal panicgrass	Atlantic	2	.05
Sideoats grama	El Reno or Trailway	2	.05
Wildflower mix		.50	.01
*This mix has been successful on sand and gravel plantings. It is very difficult to seed without a warm season grass seeder such as a Truax seed drill. Broadcasting this seed is very difficult due to the fluffy nature of some of the seed, such as bluestems and indiangrass.			
Mix #4			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	10	.25
Coastal panicgrass	Atlantic	10	.25
*This mix is salt tolerant, a good choice along the upland edge of tidal areas and roadsides.			
Mix #5			
Saltmeadow cordgrass (Spartina patens)—This grass is used for tidal shoreline protection and tidal marsh restoration. It is planted by vegetative stem divisions. 'Cape' American beachgrass can be planted for sand dune stabilization above the saltmeadow cordgrass zone.			
Mix #6			
Creeping red fescue	Ensylva, Pennlawn, Boreal	20	.45
Chewings Fescue	Common	20	.45
Perennial ryegrass	Pennfine, Linn	5	.10
Red Clover	Common	10	.45
*General purpose erosion control mix. Not to be used for a turf planting or play grounds.			

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STANDARD AND SPECIFICATIONS FOR STABILIZED CONSTRUCTION ACCESS



Definition & Scope

A stabilized pad of aggregate underlain with geotextile located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk, or parking area. The purpose of stabilized construction access is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets.

Conditions Where Practice Applies

A stabilized construction access shall be used at all points of construction ingress and egress.

Design Criteria

See Figure 2.1 on page 2.31 for details.

Aggregate Size: Use a matrix of 1-4 inch stone, or reclaimed or recycled concrete equivalent.

Thickness: Not less than six (6) inches.

Width: 12-foot minimum but not less than the full width of points where ingress or egress occurs. 24-foot minimum if there is only one access to the site.

Length: As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).

Geotextile: To be placed over the entire area to be covered with aggregate. Filter cloth will not be required on a single-family residence lot. Piping of surface water under entrance shall be provided as required. If piping is impossible, a mountable berm with 5:1 slopes will be permitted.

Criteria for Geotextile: The geotextile shall be woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydro-carbons, mildew, rot resistant, and conform to the fabric properties as shown:

Fabric Properties[3]	Light Duty[1] Roads Grade Subgrade	Heavy Duty[2] Haul Roads Rough Graded	Test Method
Grab Tensile Strength (lbs)	200	220	ASTM D1682
Elongation at Failure (%)	50	60	ASTM D1682
Mullen Burst Strength (lbs)	190	430	ASTM D3786
Puncture Strength (lbs)	40	125	ASTM D751 Modified
Equivalent	40-80	40-80	US Std Sieve
Opening Size			CW-02215
Aggregate Depth	6	10	-

[1]Light Duty Road: Area sites that have been graded to subgrade and where most travel would be single axle vehicles and an occasional multi-axle truck. Acceptable materials are Trevira Spunbond 1115, Mirafi 100X, Typar 3401, or equivalent.

[2]Heavy Duty Road: Area sites with only rough grading, and where most travel would be multi-axle vehicles. Acceptable materials are Trevira Spunbond 1135, Mirafi 600X, or equivalent.

[3]Fabrics not meeting these specifications may be used only when design procedure and supporting documentation are supplied to determine aggregate depth and fabric strength.

Maintenance

The access shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. This may require periodic top dressing with additional aggregate. All sediment spilled, dropped, or washed onto public rights-of-way must be removed immediately.

When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device. All sediment shall be prevented from entering storm drains, ditches, or watercourses.

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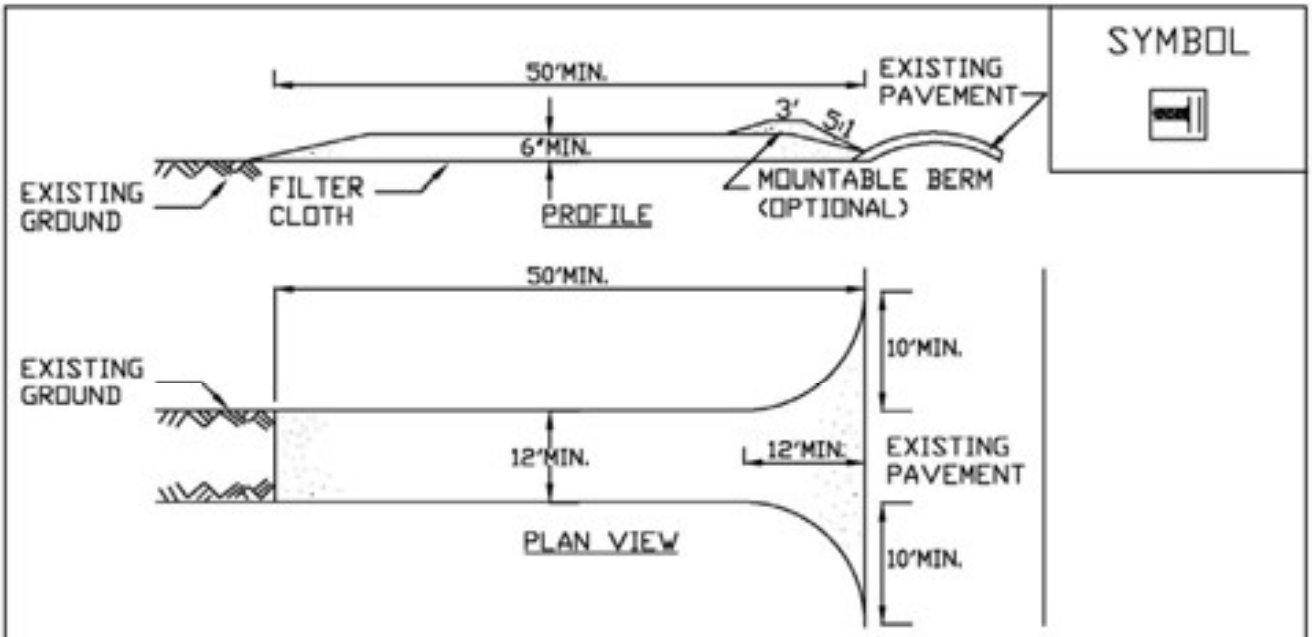
Figure 2.1
Stabilized Construction Access



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STABILIZED CONSTRUCTION ACCESS

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR SILT FENCE



Definition & Scope

A **temporary** barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil by temporarily ponding the sediment laden runoff allowing settling to occur. The maximum period of use is limited by the ultraviolet stability of the fabric (approximately one year).

Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope length and fence length will not exceed the limits shown in the Design Criteria for the specific type of silt fence used ; and
2. Maximum ponding depth of 1.5 feet behind the fence; and
3. Erosion would occur in the form of sheet erosion; and
4. There is no concentration of water flowing to the barrier; and
5. Soil conditions allow for proper keying of fabric, or other anchorage, to prevent blowouts.

Design Criteria

1. Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff.
2. All silt fences shall be placed as close to the disturbed area as possible, but at least 10 feet from the toe of a slope steeper than 3H:1V, to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.
3. The type of silt fence specified for each location on the plan shall not exceed the maximum slope length and maximum fence length requirements shown in the following table:

		Slope Length/Fence Length (ft.)		
Slope	Steepness	Standard	Reinforced	Super
<2%	< 50:1	300/1500	N/A	N/A
2-10%	50:1 to 10:1	125/1000	250/2000	300/2500
10-20%	10:1 to 5:1	100/750	150/1000	200/1000
20-33%	5:1 to 3:1	60/500	80/750	100/1000
33-50%	3:1 to 2:1	40/250	70/350	100/500
>50%	> 2:1	20/125	30/175	50/250

Standard Silt Fence (SF) is fabric rolls stapled to wooden stakes driven 16 inches in the ground.
Reinforced Silt Fence (RSF) is fabric placed against welded wire fabric with anchored steel posts driven 16 inches in the ground.
Super Silt Fence (SSF) is fabric placed against chain link fence as support backing with posts driven 3 feet in the ground.

4. Silt fence shall be removed as soon as the disturbed area has achieved final stabilization.

The silt fence shall be installed in accordance with the appropriate details. Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. Butt joints are not acceptable. A detail of the silt fence shall be shown on the plan. See Figure 5.30 on page 5.56 for Reinforced Silt Fence as an example of details to be provided.

Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	110	ASTM D 4632
Elongation at Failure (%)	20	ASTM D 4632
Mullen Burst Strength (PSI)	300	ASTM D 3786
Puncture Strength (lbs)	60	ASTM D 4833
Minimum Trapezoidal Tear Strength (lbs)	50	ASTM D 4533
Flow Through Rate (gal/ min/sf)	25	ASTM D 4491
Equivalent Opening Size	40-80	US Std Sieve ASTM D 4751
Minimum UV Residual (%)	70	ASTM D 4355

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.5 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot. Posts for super silt fence shall be standard chain link fence posts.

3. Wire Fence for reinforced silt fence: Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.

4. Prefabricated silt fence is acceptable as long as all material specifications are met.

Reinforced Silt Fence

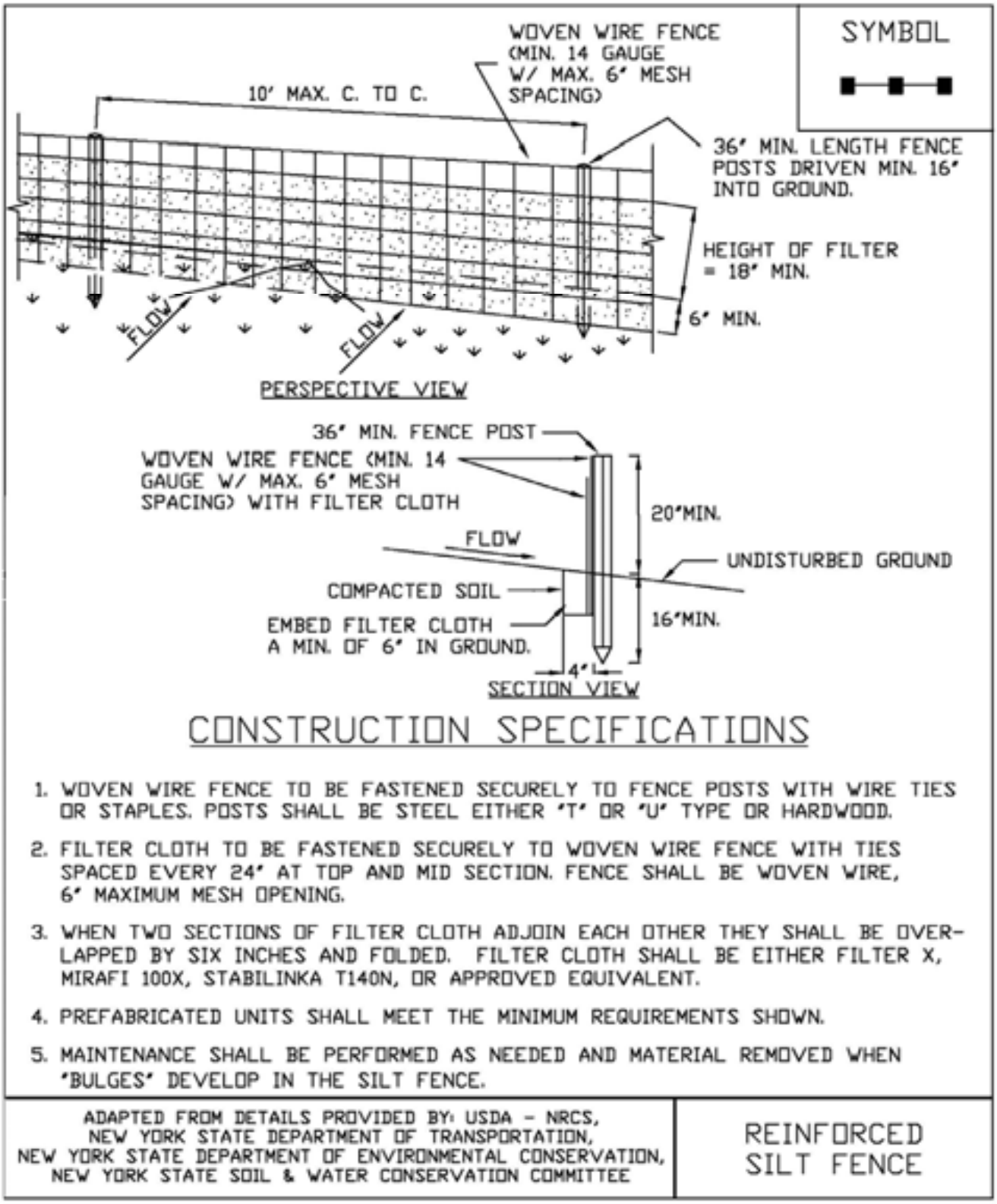


Super Silt Fence



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Figure 5.30
Reinforced Silt Fence



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR COMPOST FILTER SOCK



Definition & Scope

A **temporary** sediment control practice composed of a degradable geotextile mesh tube filled with compost filter media to filter sediment and other pollutants associated with construction activity to prevent their migration offsite.

Condition Where Practice Applies

Compost filter socks can be used in many construction site applications where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock. In areas with steep slopes and/or rocky terrain, soil conditions must be such that good continuous contact between the sock and the soil is maintained throughout its length. For use on impervious surfaces such as road pavement or parking areas, proper anchorage must be provided to prevent shifting of the sock or separation of the contact between the sock and the pavement. Compost filter socks are utilized both at the site perimeter as well as within the construction areas. These socks may be filled after placement by blowing compost into the tube pneumatically, or filled at a staging location and moved into its designed location.

Design Criteria

1. Compost filter socks will be placed on the contour with both terminal ends of the sock extended 8 feet upslope at a 45 degree angle to prevent bypass flow.

2. Diameters designed for use shall be 12" – 32" except that 8" diameter socks may be used for residential lots to control areas less than 0.25 acres.

3. The flat dimension of the sock shall be at least 1.5 times the nominal diameter.

4. The **Maximum Slope Length** (in feet) above a compost filter sock shall not exceed the following limits:

Dia. (in.)	Slope %						
	2	5	10	20	25	33	50
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50
* Length in feet							



5. The compost infill shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content. When using compost filter socks adjacent to surface water, the compost should have a low nutrient value.**

6. The compost filter sock fabric material shall meet the

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

7. Compost filter socks shall be anchored in earth with 2" x 2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock.

8. All specific construction details and material specifications shall appear on the erosion and sediment control constructions drawings when compost filter socks are included in the plan.

Maintenance

1. Traffic shall not be permitted to cross filter socks.

2. Accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

3. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired in the manner required by the manufacturer or replaced within 24 hours of inspection notification.

4. Biodegradable filter socks shall be replaced after 6 months; photodegradable filter socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.

5. Upon stabilization of the area contributory to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut and the compost spread as an additional mulch to act as a soil supplement.

Table 5.1 - Compost Sock Fabric Minimum Specifications Table

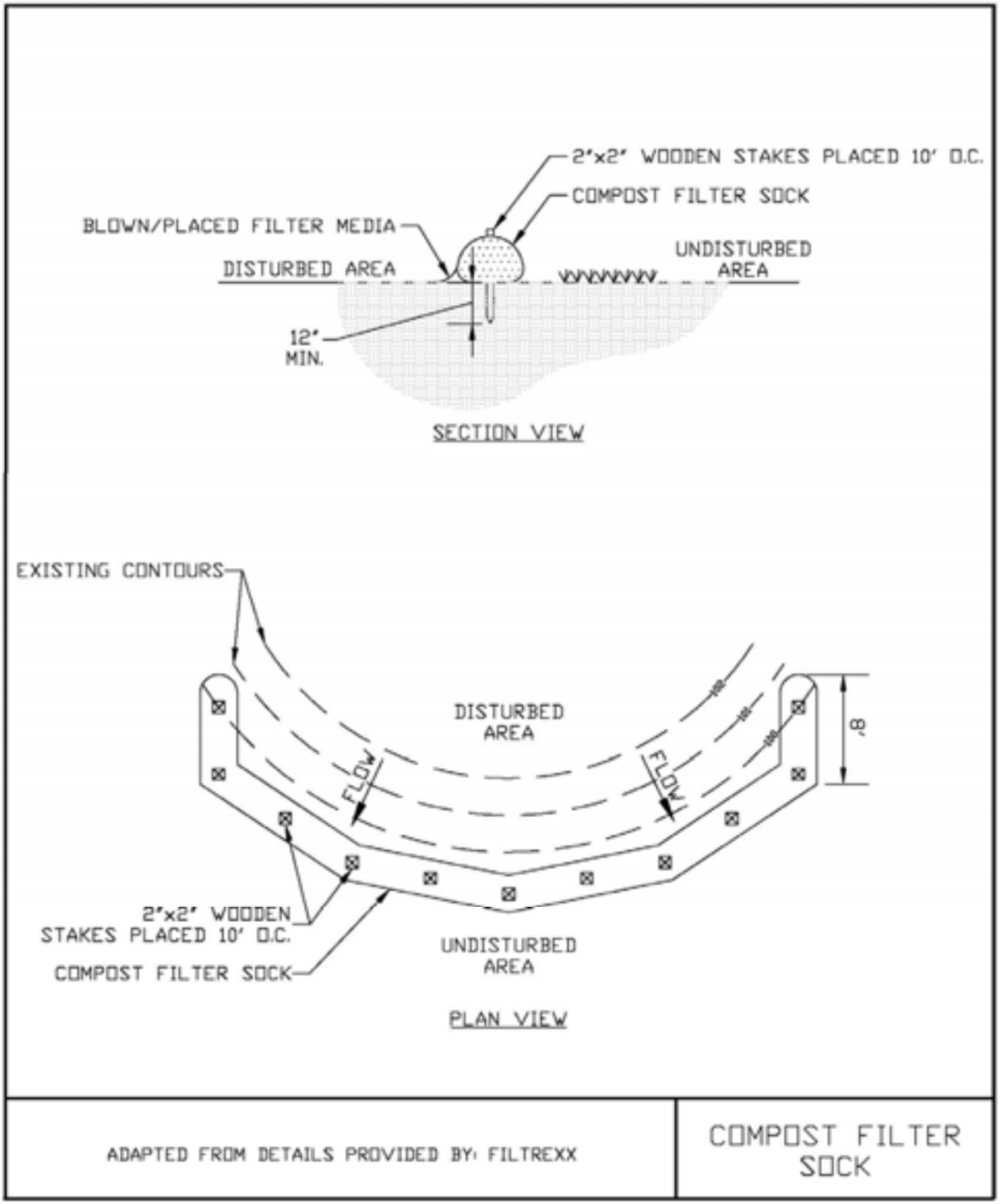
Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years

Table 5.2 - Compost Standards Table

Organic matter content	25% - 100% (dry weight)
Organic portion	Fibrous and elongated
pH	6.0 – 8.0
Moisture content	30% - 60%
Particle size	100% passing a 1" screen and 10 - 50% passing a 3/8" screen
Soluble salt concentration	5.0 dS/m (mmhos/cm) maximum

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Figure 5.2
Compost Filter Sock



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STANDARD AND SPECIFICATIONS FOR FIBER ROLL



Definition & Scope

A fiber roll is a coir (coconut fiber), straw, or excelsior roll encased in netting of jute, nylon, or burlap to dissipate energy along streambanks, channels, and bodies of water and to reduce sheet flow on slopes.

Conditions Where Practice Applies

Fiber rolls are used where the water surface levels are relatively constant. Artificially controlled streams for hydropower are not good candidates for this technique. The rolls provide a good medium for the introduction of herbaceous vegetation. Planting in the fiber roll is appropriate where the roll will remain continuously wet.

Design Criteria

1. The roll is placed in a shallow trench dug below baseflow or in a 4 inch trench on the slope contour and anchored by 2" x 2", 3-foot long posts driven on each side of the roll (see Figure 4.8).

2. The roll is contained by a 9-gauge non-galvanized wire placed over the roll from post to post. Braided nylon rope (1/8" thick) may be used.

3. The anchor posts shall be spaced laterally 4 feet on center on both sides of the roll and driven down to the top of the roll.

4. Soil is placed behind the roll and planted with suitable herbaceous or woody vegetation. If the roll will be continuously saturated, wetland plants may be planted into voids created in the upper surface of the roll.

5. Where water levels may fall below the bottom edge of the roll, a brush layer of willow should be installed so as to lay across the top edge of the roll.

6. Where fiber rolls are used to reduce sheet flow on slopes they should be at least 12" in diameter and spaced according to the straw bale dike standard for sediment control.

Maintenance

Due to the susceptibility of plant materials to the physical constraints of the site, climate conditions, and animal populations, it is necessary to inspect installations frequently. This is especially important during the first year or two of establishment. Plant materials missing or damaged should be replaced as soon as possible. Sloughs or breaks in drainage pattern should be reestablished for the site as quickly as possible to maintain stability.



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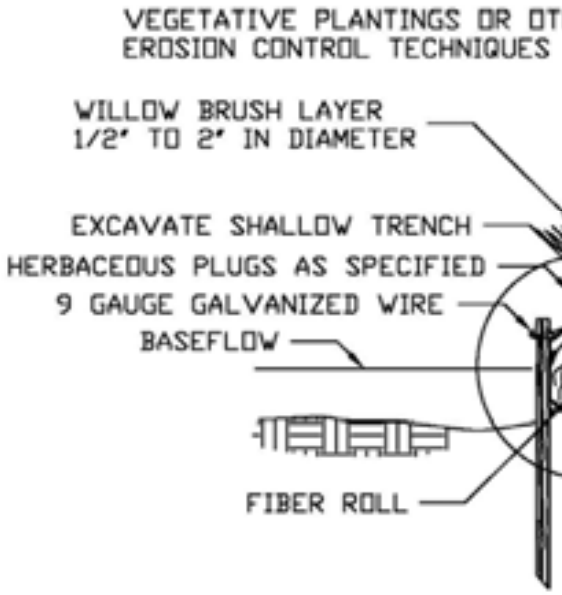
Figure 4.8
Fiber Roll



CONSTRUCTION SPECIFICATIONS

1. EXCAVATE A SHALLOW TRENCH SLIGHTLY BELOW BASEFLOW OR A 4" TRENCH ON SLOPE CONTOURS.
2. PLACE THE ROLL IN THE TRENCH AND ANCHOR WITH 2" x 2" POSTS PLACED ON BOTH SIDES OF THE ROLL AND SPACED LATERALLY ON 2' TO 4' CENTERS. TRIM THE TOP OF THE POSTS EVEN WITH THE EDGE OF THE ROLL, IF NECESSARY.
3. NOTCH THE POSTS AND TIE TOGETHER, ACROSS THE ROLL, WITH 9 GAUGE GALVANIZED WIRE OR 1/8" DIAMETER BRAIDED NYLON ROPE..
4. PLACE SOIL EXCAVATED FROM THE TRENCH BEHIND THE ROLL AND HAND TAMP. PLANT WITH SUITABLE HERBACEOUS OR WOODY VEGETATION AS SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS. VEGETATION SHALL BE PLACED IMMEDIATELY ADJACENT TO THE ROLL TO PROMOTE ROOT GROWTH INTO THE FIBER. HERBACEOUS VEGETATION, IF SPECIFIED, SHALL BE PLANTED INTO THE FIBER ROLL.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

FIBER ROLL

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR CONCRETE TRUCK WASHOUT



Definition & Scope

A temporary excavated or above ground lined constructed pit where concrete truck mixers and equipment can be washed after their loads have been discharged, to prevent highly alkaline runoff from entering storm drainage systems or leaching into soil.

Conditions Where Practice Applies

Washout facilities shall be provided for every project where concrete will be poured or otherwise formed on the site. This facility will receive highly alkaline wash water from the cleaning of chutes, mixers, hoppers, vibrators, placing equipment, trowels, and screeds. Under no circumstances will wash water from these operations be allowed to infiltrate into the soil or enter surface waters.

Design Criteria

Capacity: The washout facility should be sized to contain solids, wash water, and rainfall and sized to allow for the evaporation of the wash water and rainfall. Wash water shall be estimated at 7 gallons per chute and 50 gallons per hopper of the concrete pump truck and/or discharging drum. The minimum size shall be 8 feet by 8 feet at the bottom and 2 feet deep. If excavated, the side slopes shall be 2 horizontal to 1 vertical.

Location: Locate the facility a minimum of 100 feet from drainage swales, storm drain inlets, wetlands, streams and other surface waters. Prevent surface water from entering the structure except for the access road. Provide appropriate access with a gravel access road sloped down to the structure. Signs shall be placed to direct drivers to the facility after their load is discharged.

Liner: All washout facilities will be lined to prevent leaching of liquids into the ground. The liner shall be plastic sheeting with a minimum thickness of 10 mils with no holes or tears, and anchored beyond the top of the pit with an earthen berm, sand bags, stone, or other structural appurtenance except at the access point.

If pre-fabricated washouts are used they must ensure the capture and containment of the concrete wash and be sized based on the expected frequency of concrete pours. They shall be sited as noted in the location criteria.

Maintenance

- All concrete washout facilities shall be inspected daily. Damaged or leaking facilities shall be deactivated and repaired or replaced immediately. Excess rainwater that has accumulated over hardened concrete should be pumped to a stabilized area, such as a grass filter strip.
- Accumulated hardened material shall be removed when 75% of the storage capacity of the structure is filled. Any excess wash water shall be pumped into a containment vessel and properly disposed of off site.
- Dispose of the hardened material off-site in a construction/demolition landfill. On-site disposal may be allowed if this has been approved and accepted as part of the projects SWPPP. In that case, the material should be recycled as specified, or buried and covered with a minimum of 2 feet of clean compacted earthfill that is permanently stabilized to prevent erosion.
- The plastic liner shall be replaced with each cleaning of the washout facility.
- Inspect the project site frequently to ensure that no concrete discharges are taking place in non-designated areas.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR CHECK DAM



Definition & Scope

Small barriers or dams constructed of stone, bagged sand or gravel, or other durable materials across a drainageway to reduce erosion in a drainage channel by reducing the velocity of flow in the channel.

Conditions Where Practice Applies

This practice is used as a **temporary** and, in some cases, a **permanent** measure to limit erosion by reducing velocities in open channels that are degrading or subject to erosion or where permanent stabilization is impractical due to short period of usefulness and time constraints of construction.

Design Criteria

Drainage Area: Maximum drainage area above the check dam shall not exceed two (2) acres.

Height: Not greater than 2 feet. Center shall be maintained 9 inches lower than abutments at natural ground elevation.

Side Slopes: Shall be 2:1 or flatter.

Spacing: The check dams shall be spaced as necessary in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Therefore: $$S = \frac{h}{s}$$

Where: S = spacing interval (ft.)
h = height of check dam (ft.)
s = channel slope (ft./ft.)

Example:

For a channel with a 4% slope and 2 ft. high stone check dams, they are spaced as follows: $$S = \frac{2\ \text{ft}}{0.04\ \frac{\text{ft}}{\text{ft}}} = 50\ \text{ft}$$

For stone check dams: Use a well graded stone matrix 2 to 9 inches in size (NYS – DOT Light Stone Fill meets these requirements).

The overflow of the check dams will be stabilized to resist erosion that might be caused by the check dam. See Figure 3.1 on page 3.3 for details.

Check dams should be anchored in the channel by a cutoff trench 1.5 ft. wide and 0.5 ft. deep and lined with filter fabric to prevent soil migration.

For filter sock or fiber roll check dams: The check dams will be anchored by staking the dam to the earth contact surface. The dam will extend to the top of the bank. The check dam will have a splash apron of NYS DOT #2 crushed stone extending a minimum 3 feet downstream from the dam and 1 foot up the sides of the channel. The compost and materials for a filter sock check dam shall meet the requirements shown in the standard for Compost Filter Sock on page 5.7.

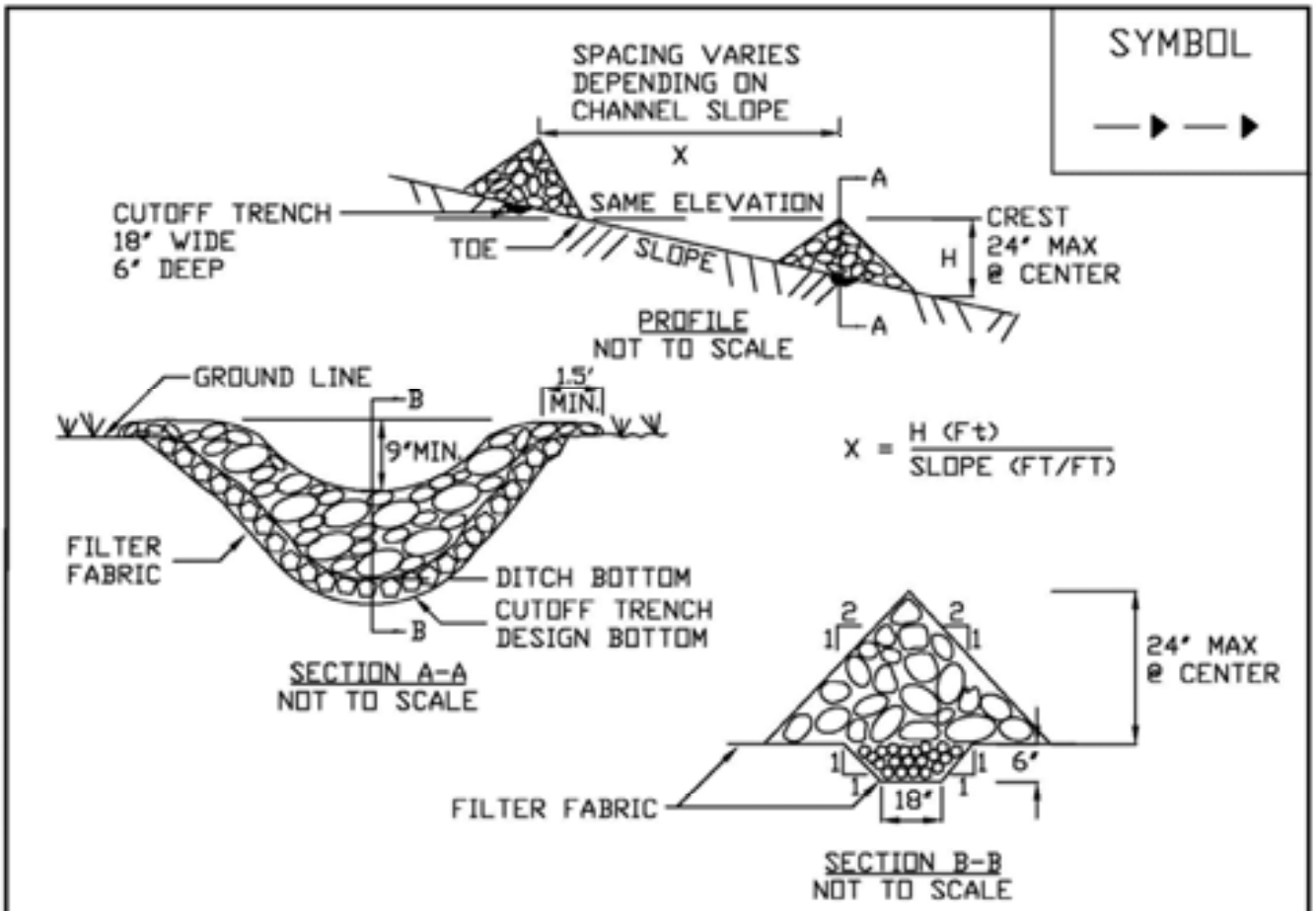
Maintenance

The check dams should be inspected after each runoff event. Correct all damage immediately. If significant erosion has occurred between structures, a liner of stone or other suitable material should be installed in that portion of the channel or additional check dams added.

Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Figure 3.1
Stone Check Dam Detail



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE CHECK DAM

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR DEWATERING SUMP PIT



Discharge of turbid water pumped from the standpipe should be to a sediment trap, sediment basin, filter bag or stabilized area, such as a filter strip. If water from the sump pit will be pumped directly to a storm drain system, filter cloth with an equivalent sieve size between 40-80 should be wrapped around the standpipe to ensure clean water discharge. It is recommended that ¼ to ½ inch hardware cloth be wrapped around and secured to the standpipe prior to attaching the filter cloth. This will increase the rate of water seepage into the standpipe.

Definition & Scope

A **temporary** pit which is constructed using pipe and stone for pumping excessive water from excavations to a suitable discharge area.



Conditions Where Practice Applies

Sump pits are constructed when water collects during the excavation phase of construction. This practice is particularly useful in urban areas during excavation for building foundations. It may also be necessary during construction activities that encounter high ground water tables in floodplain locations.

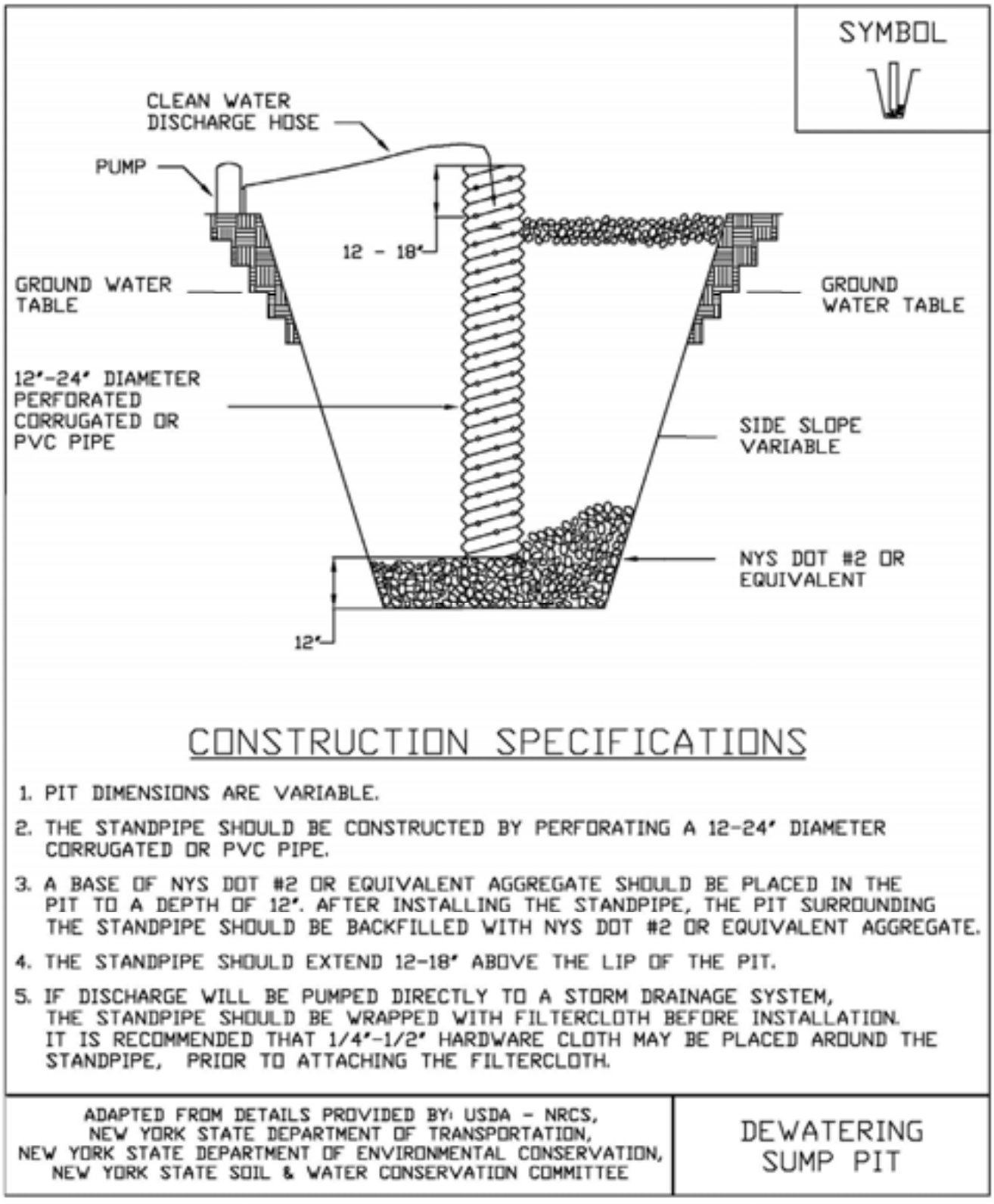
Design Criteria

The number of sump pits and their locations shall be determined by the contractor/engineer. A design is not required, but construction should conform to the general criteria outlined on Figure 3.3 on page 3.8.

A perforated vertical standpipe is placed in the center of the pit and surrounded with a stone screening material to collect filtered water. Water is then pumped from the center of the pipe to a suitable discharge area.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Figure 3.3
Dewatering Sump Pit Detail



CONSTRUCTION SPECIFICATIONS

1. PIT DIMENSIONS ARE VARIABLE.
2. THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12-24" DIAMETER CORRUGATED OR PVC PIPE.
3. A BASE OF NYS DOT #2 OR EQUIVALENT AGGREGATE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD BE BACKFILLED WITH NYS DOT #2 OR EQUIVALENT AGGREGATE.
4. THE STANDPIPE SHOULD EXTEND 12-18" ABOVE THE LIP OF THE PIT.
5. IF DISCHARGE WILL BE PUMPED DIRECTLY TO A STORM DRAINAGE SYSTEM, THE STANDPIPE SHOULD BE WRAPPED WITH FILTERCLOTH BEFORE INSTALLATION. IT IS RECOMMENDED THAT 1/4"-1/2" HARDWARE CLOTH MAY BE PLACED AROUND THE STANDPIPE, PRIOR TO ATTACHING THE FILTERCLOTH.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

DEWATERING
SUMP PIT

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR DUST CONTROL



Definition & Scope

The control of dust resulting from land-disturbing activities, to prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

Conditions Where Practice Applies

On construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing where off-site damage may occur if dust is not controlled.

Design Criteria

Construction operations should be scheduled to minimize the amount of area disturbed at one time. Buffer areas of vegetation should be left where practical. Temporary or permanent stabilization measures shall be installed. No specific design criteria is given; see construction specifications below for common methods of dust control.

Water quality must be considered when materials are selected for dust control. Where there is a potential for the material to wash off to a stream, ingredient information must be provided to the NYSDEC.

No polymer application shall take place without written approval from the NYSDEC.

Construction Specifications

A. **Non-driving Areas** – These areas use products and materials applied or placed on soil surfaces to prevent airborne migration of soil particles.

Vegetative Cover – For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control (see Section 3).

Mulch (including gravel mulch) – Mulch offers a fast effective means of controlling dust. This can also include rolled erosion control blankets.

Spray adhesives – These are products generally composed of polymers in a liquid or solid form that are mixed with water to form an emulsion that is sprayed on the soil surface with typical hydroseeding equipment. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. In no case should the application of these adhesives be made on wet soils or if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators and others working with the material.

B. **Driving Areas** – These areas utilize water, polymer emulsions, and barriers to prevent dust movement from the traffic surface into the air.

Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access route to provide short term limited dust control.

Polymer Additives – These polymers are mixed with water and applied to the driving surface by a water truck with a gravity feed drip bar, spray bar or automated distributor truck. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations. Incorporation of the emulsion into the soil will be done to the appropriate depth based on expected traffic. Compaction after incorporation will be by vibratory roller to a minimum of 95%. The prepared surface shall be moist and no application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators working with the material.

Barriers – Woven geo-textiles can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads. Stone can also be used for construction roads for effective dust control.

Windbreak – A silt fence or similar barrier can control air currents at intervals equal to ten times the barrier height. Preserve existing wind barrier vegetation as much as practical.

Maintenance

Maintain dust control measures through dry weather periods until all disturbed areas are stabilized.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR GRASSED WATERWAY



Definition & Scope

A natural or **permanent** man-made channel of parabolic or trapezoidal cross-section that is below adjacent ground level and is stabilized by suitable vegetation. The flow channel is normally wide and shallow and conveys the runoff down the slope without causing damage by erosion.

Conditions Where Practice Applies

Grass waterways are used where added vegetative protection is needed to control erosion resulting from concentrated runoff.

Design Criteria

Capacity

The minimum capacity shall be that required to confine the peak rate of runoff expected from a 10-year 24 hour frequency rainfall event or a higher frequency corresponding to the hazard involved. This requirement for confinement may be waived on slopes of less than one (1) percent where out-of-bank flow will not cause erosion or property damage.

Peak rates of runoff values used in determining the capacity requirements shall be computed by appropriate methods. Where there is base flow, it shall be handled by a stone center, subsurface drain, or other suitable means since sustained wetness usually prevents adequate vegetative cover. The cross-sectional area of the stone center or subsurface drain size to be provided shall be determined by using a flow rate of 0.1 cfs/acre or by actual measurement of the maximum base flow.

Velocity

Please see Table 3.1, Diversion Maximum Permissible Design Velocities on page 3.10, for seed, soil, and velocity variables.

Cross Section

The design water surface elevation of a grassed waterway receiving water from diversions or other tributary channels shall be equal to or less than the design water surface elevation in the diversion or other tributary channels.

The top width of parabolic waterways shall not exceed 30 feet and the bottom width of trapezoidal waterways shall not exceed 15 feet unless multiple or divided waterways, stone center, or other means are provided to control meandering of low flows.

Structural Measures

In cases where grade or erosion problems exist, special control measures may be needed such as lined waterways (see page 3.27), or grade stabilization measures (see page 3.21). Where needed, these measures will be supported by adequate design computations. For typical cross sections of waterways with riprap sections or stone centers, refer to Figure 3.8 on page 3.24.

The design procedures for parabolic and trapezoidal channels are available in the NRCS Engineering Field Handbook. Figure 3.9 on page 3.25 also provides a design chart for parabolic waterway.

Outlets

Each waterway shall have a stable outlet. The outlet may be another waterway, a stabilized open channel, grade stabilization structure, etc. In all cases, the outlet must discharge in such a manner as not to cause erosion. Outlets shall be constructed and stabilized prior to the operation of the waterway.

Stabilization

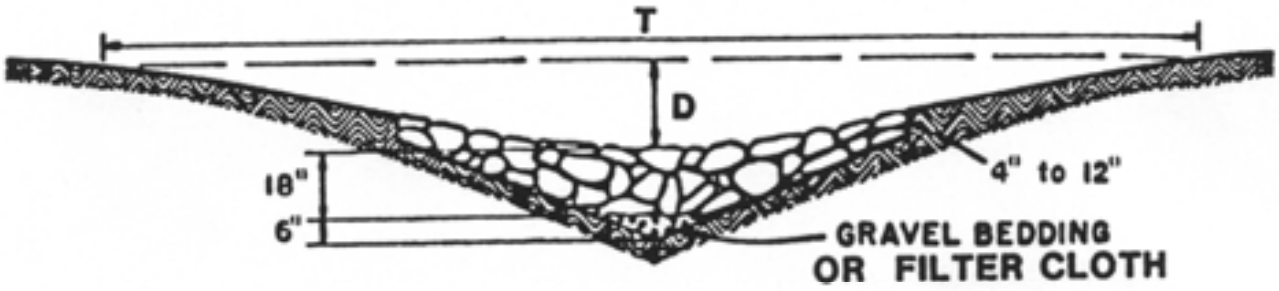
Waterways shall be stabilized in accordance with the appropriate vegetative stabilization standard and specifications, and will be dependent on such factors as slope, soil class, etc. See standard for Vegetating Waterways on Page 4.78.

Construction Specifications

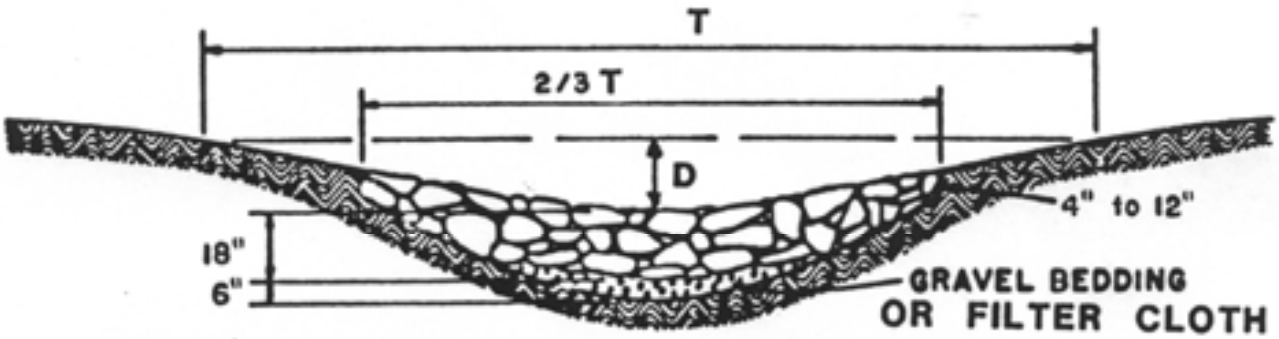
See Figure 3.10 on page 3.26 for details.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Figure 3.8
Typical Waterway Cross Sections Details



Waterway with stone center drain. "V" section shaped by motor grader.



Waterway with stone center drain.
Rounded section shaped by bulldozer.

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Figure 3.9
Parabolic Waterway Design Chart (USDA - NRCS)

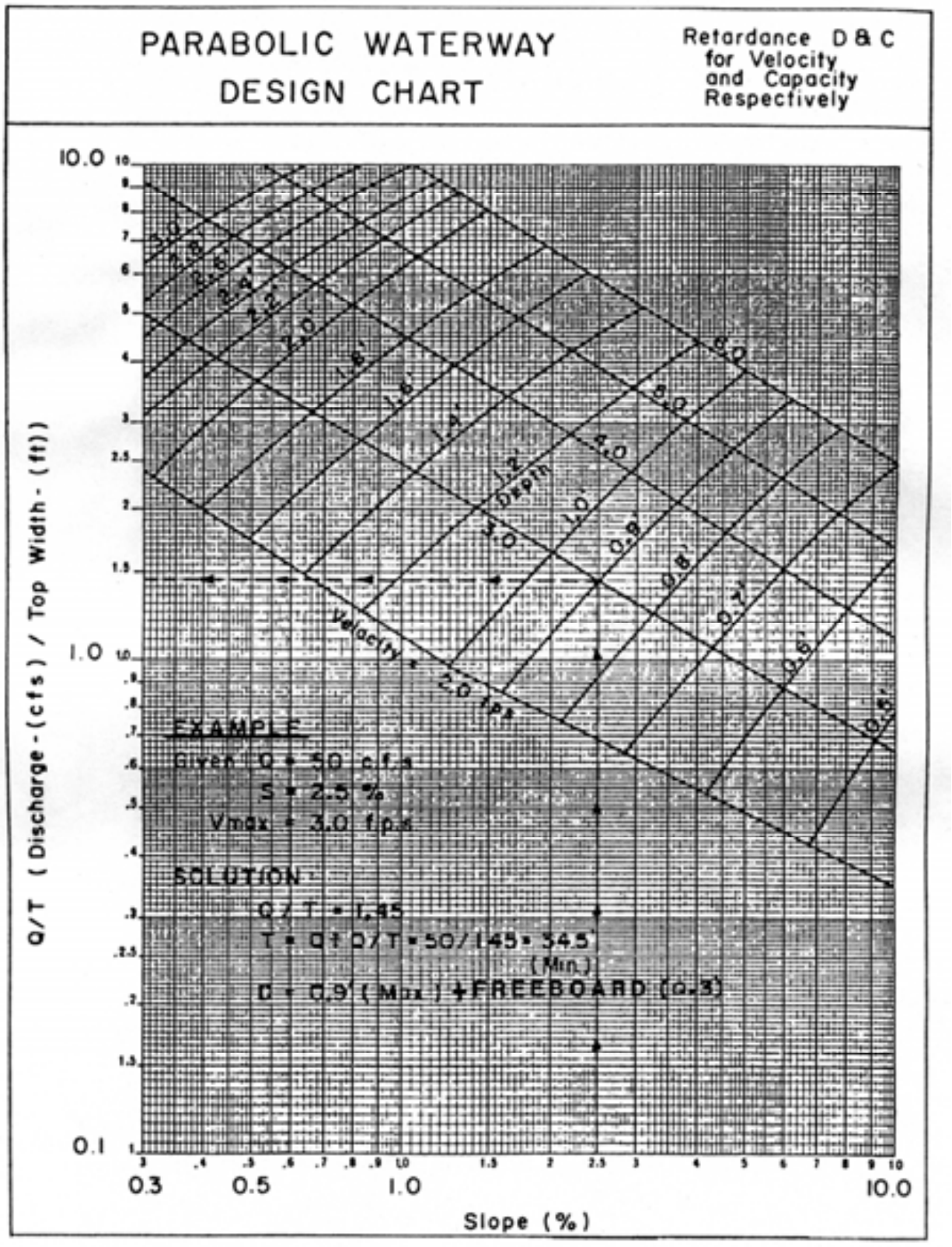

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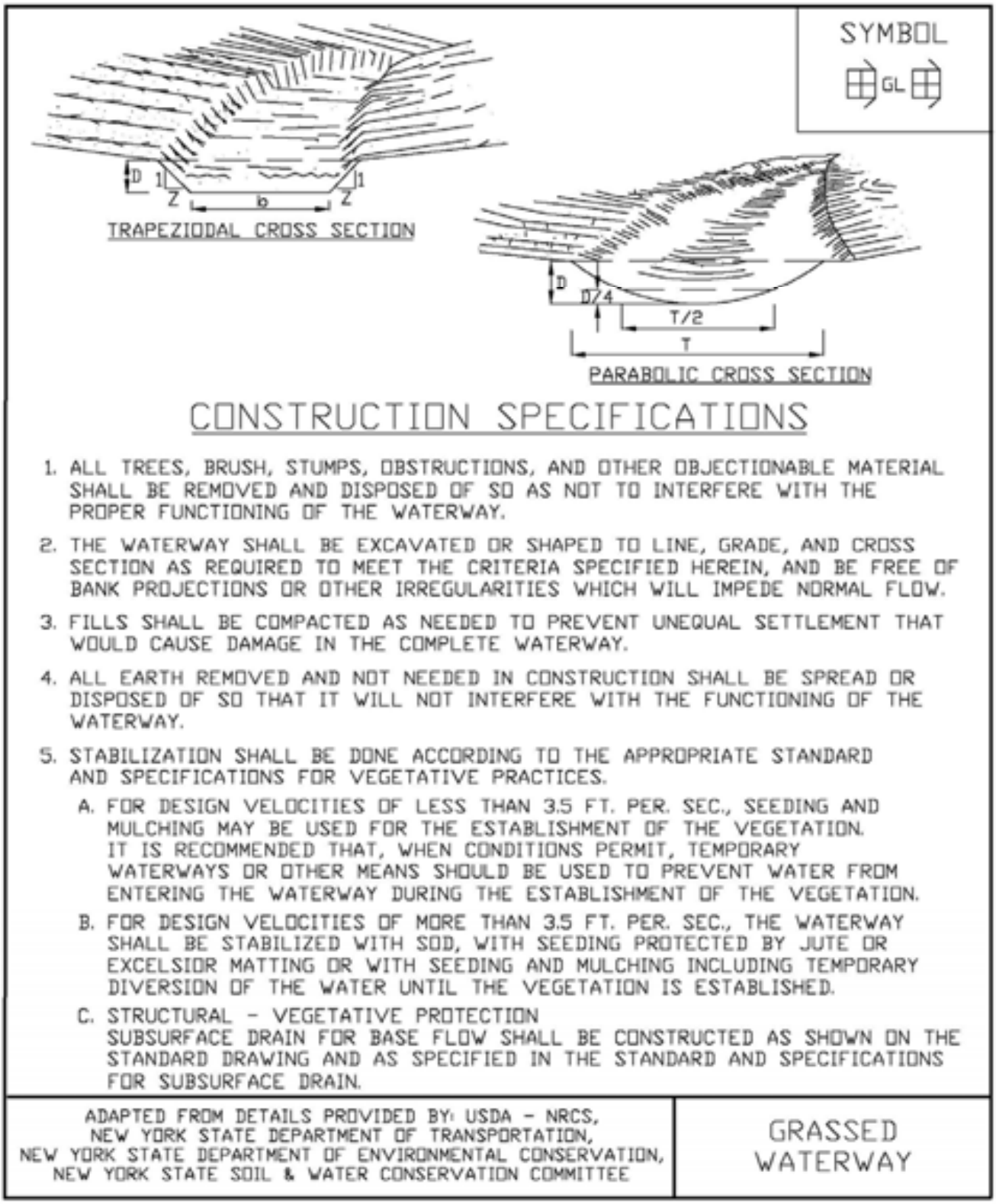
Figure 3.10
Grassed Waterway Detail



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR STORM DRAIN INLET PROTECTION



Definition & Scope

A **temporary** barrier with low permeability, installed around inlets in the form of a fence, berm or excavation around an opening, detaining water and thereby reducing the sediment content of sediment laden water by settling thus preventing heavily sediment laden water from entering a storm drain system.

Conditions Where Practice Applies

This practice shall be used where the drainage area to an inlet is disturbed, it is not possible to temporarily divert the storm drain outfall into a trapping device, and watertight blocking of inlets is not advisable. **It is not to be used in place of sediment trapping devices.** This practice shall be used with an upstream buffer strip if placed at a storm drain inlet on a paved surface. It may be used in conjunction with storm drain diversion to help prevent siltation of pipes installed with low slope angle.

Types of Storm Drain Inlet Practices

There are five (5) specific types of storm drain inlet protection practices that vary according to their function, location, drainage area, and availability of materials:

I. Excavated Drop Inlet Protection
II. Fabric Drop Inlet Protection
III. Stone & Block Drop Inlet Protection
IV. Paved Surface Inlet Protection
V. Manufactured Insert Inlet Protection

Design Criteria

Drainage Area – The drainage area for storm drain inlets shall not exceed one acre. Erosion control/temporary stabilization measures must be implemented on the disturbed drainage area tributary to the inlet. The crest elevations of these practices shall provide storage and minimize bypass flow.

Type I – Excavated Drop Inlet Protection

This practice is generally used during initial overlot grading after the storm drain trunk line is installed.

Limit the drainage area to the inlet device to 1 acre. Excavated side slopes shall be no steeper than 2:1. The minimum depth shall be 1 foot and the maximum depth 2 feet as measured from the crest of the inlet structure. Shape the excavated basin to fit conditions with the longest dimension oriented toward the longest inflow area to provide maximum trap efficiency. The capacity of the excavated basin should be established to contain 900 cubic feet per acre of disturbed area. Weep holes, protected by fabric and stone, should be provided for draining the temporary pool.

Inspect and clean the excavated basin after every storm. Sediment should be removed when 50 percent of the storage volume is achieved This material should be incorporated into the site in a stabilized manner.

Type II – Fabric Drop Inlet Protection



This practice is generally used during final elevation grading phases after the storm drain system is completed.

Limit the drainage area to 1 acre per inlet device. Land area slope immediately surrounding this device should not exceed 1 percent. The maximum height of the fabric above the inlet crest shall not exceed 1.5 feet unless reinforced.

The top of the barrier should be maintained to allow overflow to drop into the drop inlet and not bypass the inlet to

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

unprotected lower areas. Support stakes for fabric shall be a minimum of 3 feet long, spaced a maximum 3 feet apart. They should be driven close to the inlet so any overflow drops into the inlet and not on the unprotected soil. Improved performance and sediment storage volume can be obtained by excavating the area.

Inspect the fabric barrier after each rain event and make repairs as needed. Remove sediment from the pool area as necessary with care not to undercut or damage the filter fabric. Upon stabilization of the drainage area, remove all materials and unstable sediment and dispose of properly. Bring the adjacent area of the drop inlet to grade, smooth and compact and stabilize in the appropriate manner to the site.

Type III – Stone and Block Drop Inlet Protection

This practice is generally used during the initial and intermediate overlot grading of a construction site.

Limit the drainage area to 1 acre at the drop inlet. The stone barrier should have a minimum height of 1 foot and a maximum height of 2 feet. Do not use mortar. The height should be limited to prevent excess ponding and bypass flow.

Recess the first course of blocks at least 2 inches below the crest opening of the storm drain for lateral support. Subsequent courses can be supported laterally if needed by placing a 2x4 inch wood stud through the block openings perpendicular to the course. The bottom row should have a few blocks oriented so flow can drain through the block to dewater the basin area.

The stone should be placed just below the top of the blocks on slopes of 2:1 or flatter. Place hardware cloth of wire mesh with ½ inch openings over all block openings to hold stone in place.

As an optional design, the concrete blocks may be omitted and the entire structure constructed of stone, ringing the outlet (“doughnut”). The stone should be kept at a 3:1 slope toward the inlet to keep it from being washed into the inlet. A level area 1 foot wide and four inches below the crest will further prevent wash. Stone on the slope toward the inlet should be at least 3 inches in size for stability and 1 inch or smaller away from the inlet to control flow rate. The elevation of the top of the stone crest must be maintained 6 inches lower than the ground elevation down slope from the inlet to ensure that all storm flows pass over the stone into the storm drain and not past the structure. Temporary diking should be used as necessary to prevent bypass flow.

The barrier should be inspected after each rain event and repairs made where needed. Remove sediment as necessary to provide for accurate storage volume for subsequent rains. Upon stabilization of contributing drainage area, remove all materials and any unstable soil and dispose of properly.

Bring the disturbed area to proper grade, smooth, compact and stabilize in a manner appropriate to the site.

Type IV – Paved Surface Inlet Protection



This practice is generally used after pavement construction has been done while final grading and soil stabilization is occurring. These practices should be used with upstream buffer strips in linear construction applications, and with temporary surface stabilization for overlot areas, to reduce the sediment load at the practice. This practice includes sand bags, compost filter socks, geo-tubes filled with ballast, and manufactured surface barriers. Pea gravel can also be used in conjunction with these practices to improve performance. When the inlet is not at a low point, and is offset from the pavement or gutter line, protection should be selected and installed so that flows are not diverted around the inlet.



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

The drainage area should be limited to 1 acre at the drain inlet. All practices will be placed at the inlet perimeter or beyond to maximize the flow capacity of the inlet. Practices shall be weighted, braced, tied, or otherwise anchored to prevent movement or shifting of location on paved surfaces. Traffic safety shall be integrated with the use of this practice. All practices should be marked with traffic safety cones as appropriate. Structure height shall not cause flooding or by-pass flow that would cause additional erosion.

The structure should be inspected after every storm event. Any sediment should be removed and disposed of on the site. Any broken or damaged components should be replaced. Check all materials for proper anchorage and secure as necessary.

Type V - Manufactured Insert Inlet Protection



The drainage area shall be limited to 1 acre at the drain inlet. All inserts will be installed and anchored in accordance with the manufacturers recommendations and design details. The fabric portion of the structure will equal or exceed the performance standard for the silt fence fabric. The inserts will be installed to preserve a minimum of 50 percent of the open, unobstructed design flow area of the storm drain inlet opening to maintain capacity for storm events.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Figure 5.31
Excavated Drop Inlet Protection

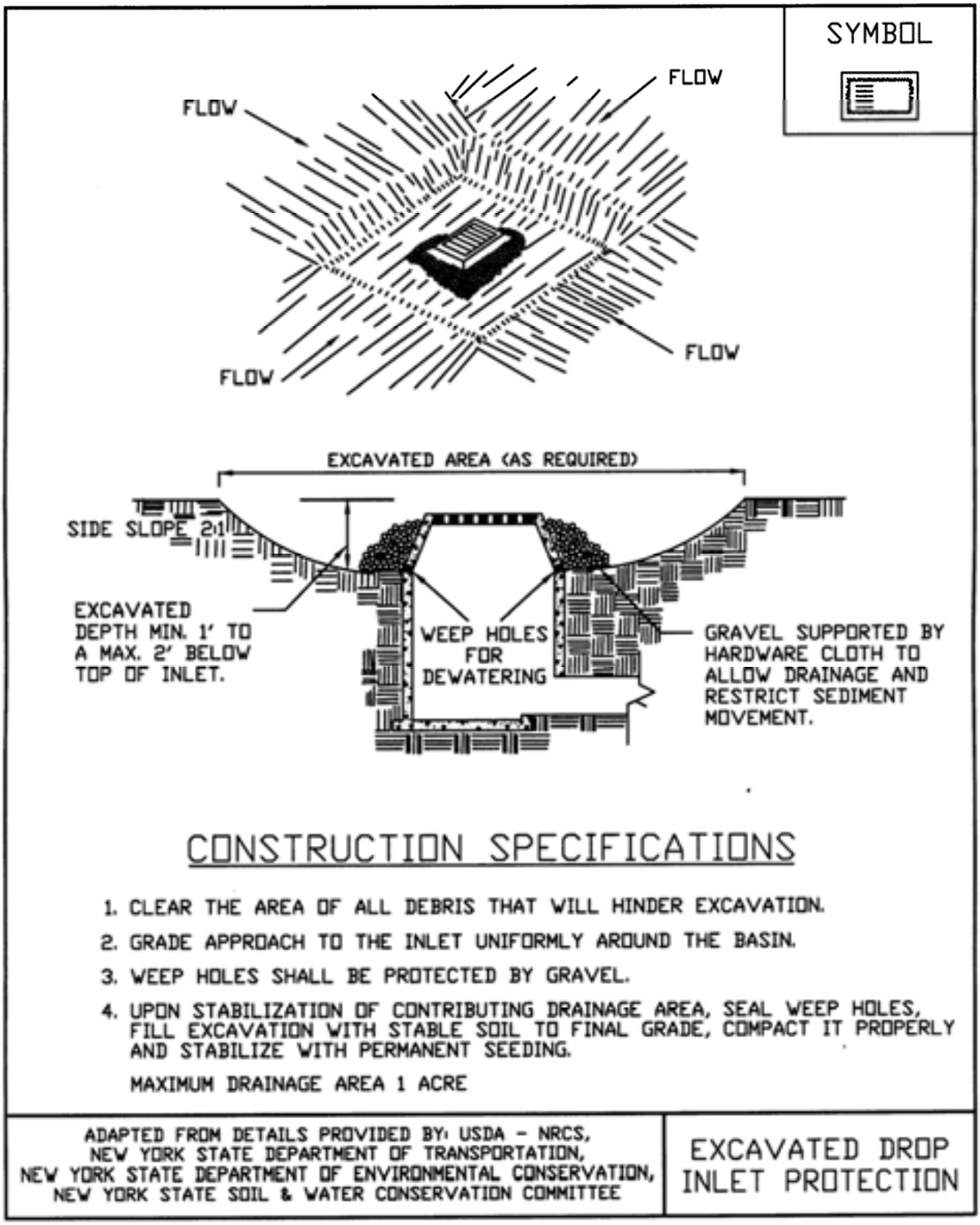


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Figure 5.32
Fabric Drop Inlet Protection

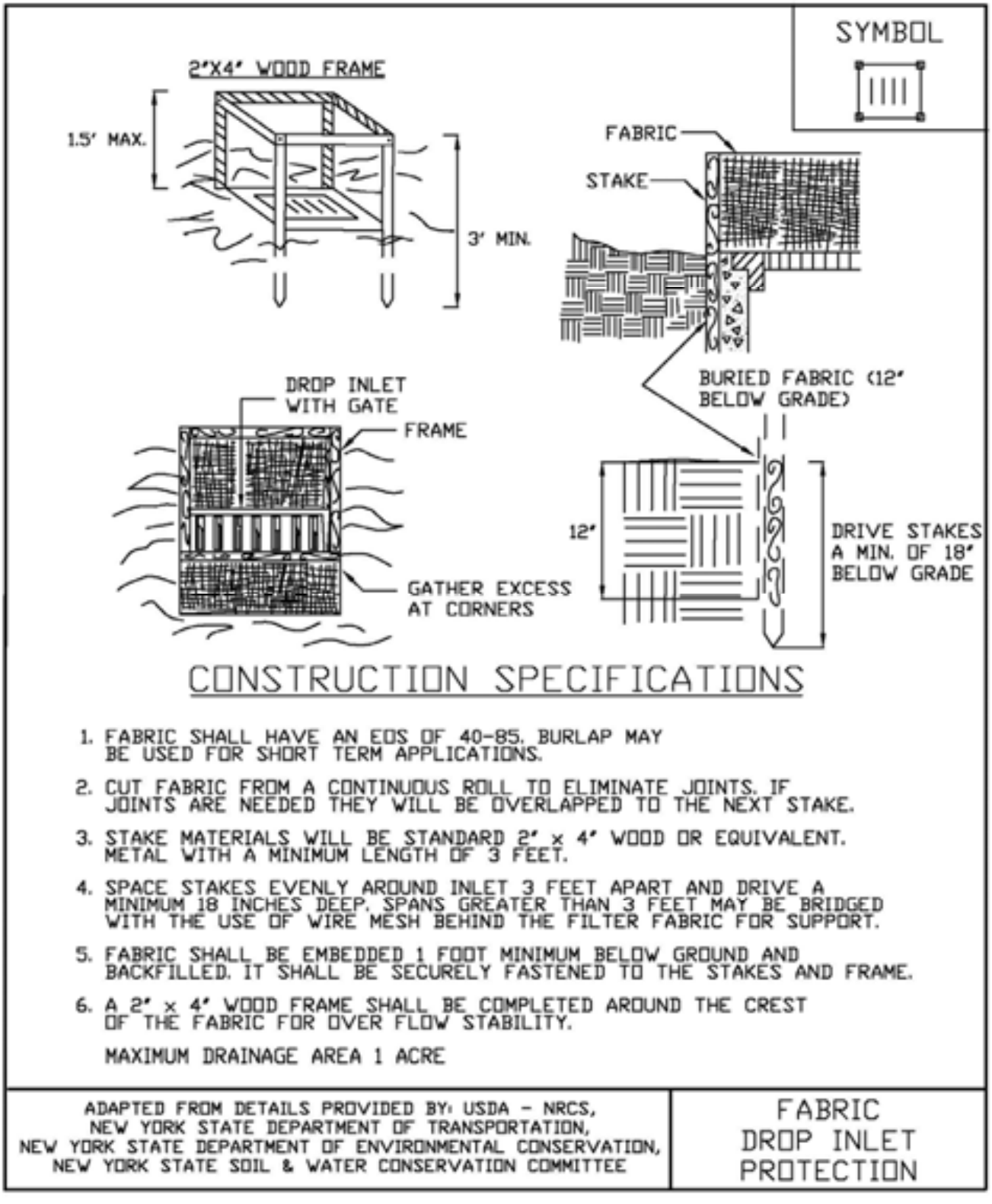

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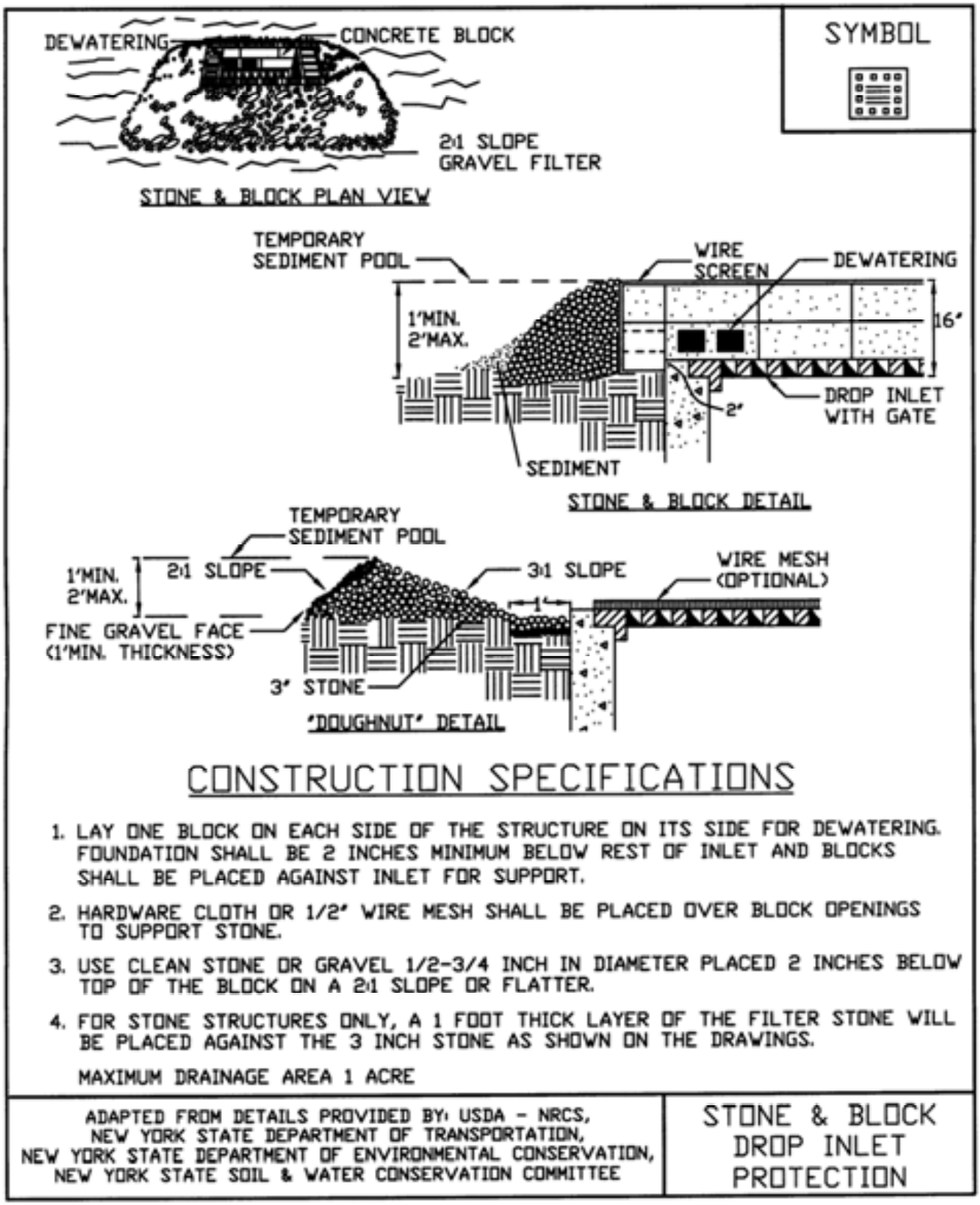
Figure 5.33
Stone & Block Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE & BLOCK DROP INLET PROTECTION

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR LANDGRADING



Definition & Scope

Permanent reshaping of the existing land surface by grading in accordance with an engineering topographic plan and specification to provide for erosion control and vegetative establishment on disturbed, reshaped areas.

Design Criteria

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surrounding to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measures for drainage and water removal, and vegetative treatment, etc.

Many municipalities and counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they shall be followed.

The plan must show existing and proposed contours of the area(s) to be graded. The plan shall also include practices for erosion control, slope stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slope benches (include grade and cross section), grade stabilization structures, retaining walls, and surface and subsurface drains. The plan shall also include phasing of these practices. The following shall be incorporated into the plan:

1. Provisions shall be made to safely convey surface runoff to storm drains, protected outlets, or to stable water courses to ensure that surface runoff will not damage slopes or other graded areas; see standards and specifications for Grassed Waterway, Diversion, or Grade Stabilization Structure.

2. Cut and fill slopes that are to be stabilized with grasses shall not be steeper than 2:1. When slopes exceed 2:1, special design and stabilization consideration are required and shall be adequately shown on the plans. (Note: Where the slope is to be mowed, the slope should be no steeper than 3:1, although 4:1 is preferred because of safety factors related to mowing steep slopes.)

3. Reverse slope benches or diversion shall be provided whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slope it shall be increased to 30 feet and for 4:1 to 40 feet. Benches shall be located to divide the slope face as equally as possible and shall convey the water to a stable outlet. Soils, seeps, rock outcrops, etc., shall also be taken into consideration when designing benches.

   A. Benches shall be a minimum of six feet wide to provide for ease of maintenance.

   B. Benches shall be designed with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Bench gradient to the outlet shall be between 2 percent and 3 percent, unless accompanied by appropriate design and computations.

   C. The flow length within a bench shall not exceed 800 feet unless accompanied by appropriate design and computations; see Standard and Specifications for Diversion on page 3.9

4. Surface water shall be diverted from the face of all cut and/or fill slopes by the use of diversions, ditches and swales or conveyed downslope by the use of a designed structure, except where:

   A. The face of the slope is or shall be stabilized and the face of all graded slopes shall be protected from surface runoff until they are stabilized.

   B. The face of the slope shall not be subject to any concentrated flows of surface water such as from natural drainage ways, graded ditches, downspouts, etc.

   C. The face of the slope will be protected by anchored stabilization matting, sod, gravel, riprap, or other stabilization method.

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5. Cut slopes occurring in ripable rock shall be serrated as shown in Figure 4.9 on page 4.26. The serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps cut at nominal two-foot intervals with nominal three-foot horizontal shelves. These steps will vary depending on the slope ratio or the cut slope. The nominal slope line is 1 ½: 1. These steps will weather and act to hold moisture, lime, fertilizer, and seed thus producing a much quicker and longer-lived vegetative cover and better slope stabilization. Overland flow shall be diverted from the top of all serrated cut slopes and carried to a suitable outlet.

6. Subsurface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.

7. Slopes shall not be created so close to property lines as to endanger adjoining properties without adequately protecting such properties against sedimentation, erosion, slippage, settlement, subsidence, or other related damages.

8. Fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tampers or over eight (8) inches in diameter where compacted by rollers or other equipment. Frozen material shall not be placed in the fill nor shall the fill material be placed on a frozen foundation.

9. Stockpiles, borrow areas, and spoil shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.

10. All disturbed areas shall be stabilized structurally or vegetatively in compliance with the Permanent Construction Area Planting Standard on page 4.42.

Construction Specifications

See Figures 4.9 and 4.10 for details.

1. All graded or disturbed areas, including slopes, shall be protected during clearing and construction in accordance with the erosion and sediment control plan until they are adequately stabilized.

2. All erosion and sediment control practices and measures shall be constructed, applied and maintained in accordance with the erosion and sediment control plan and these standards.

3. Topsoil required for the establishment of vegetation shall be stockpiled in amount necessary to complete finished grading of all exposed areas.

4. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, or other objectionable material.

5. Areas that are to be topsoiled shall be scarified to a minimum depth of four inches prior to placement of topsoil.

6. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence, or other related problems. Fill intended to support buildings, structures, and conduits, etc., shall be compacted in accordance with local requirements or codes.

7. All fill shall be placed and compacted in layers not to exceed 9 inches in thickness.

8. Except for approved landfills or nonstructural fills, fill material shall be free of frozen particles, brush, roots, sod, or other foreign objectionable materials that would interfere with, or prevent, construction of satisfactory fills.

9. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills.

10. Fill shall not be placed on saturated or frozen surfaces.

11. All benches shall be kept free of sediment during all phases of development.

12. Seeps or springs encountered during construction shall be handled in accordance with the Standard and Specification for Subsurface Drain on page 3.48 or other approved methods.

13. All graded areas shall be permanently stabilized immediately following finished grading.

14. Stockpiles, borrow areas, and spoil areas shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.



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Figure 4.9
Typical Section of Serrated Cut Slope

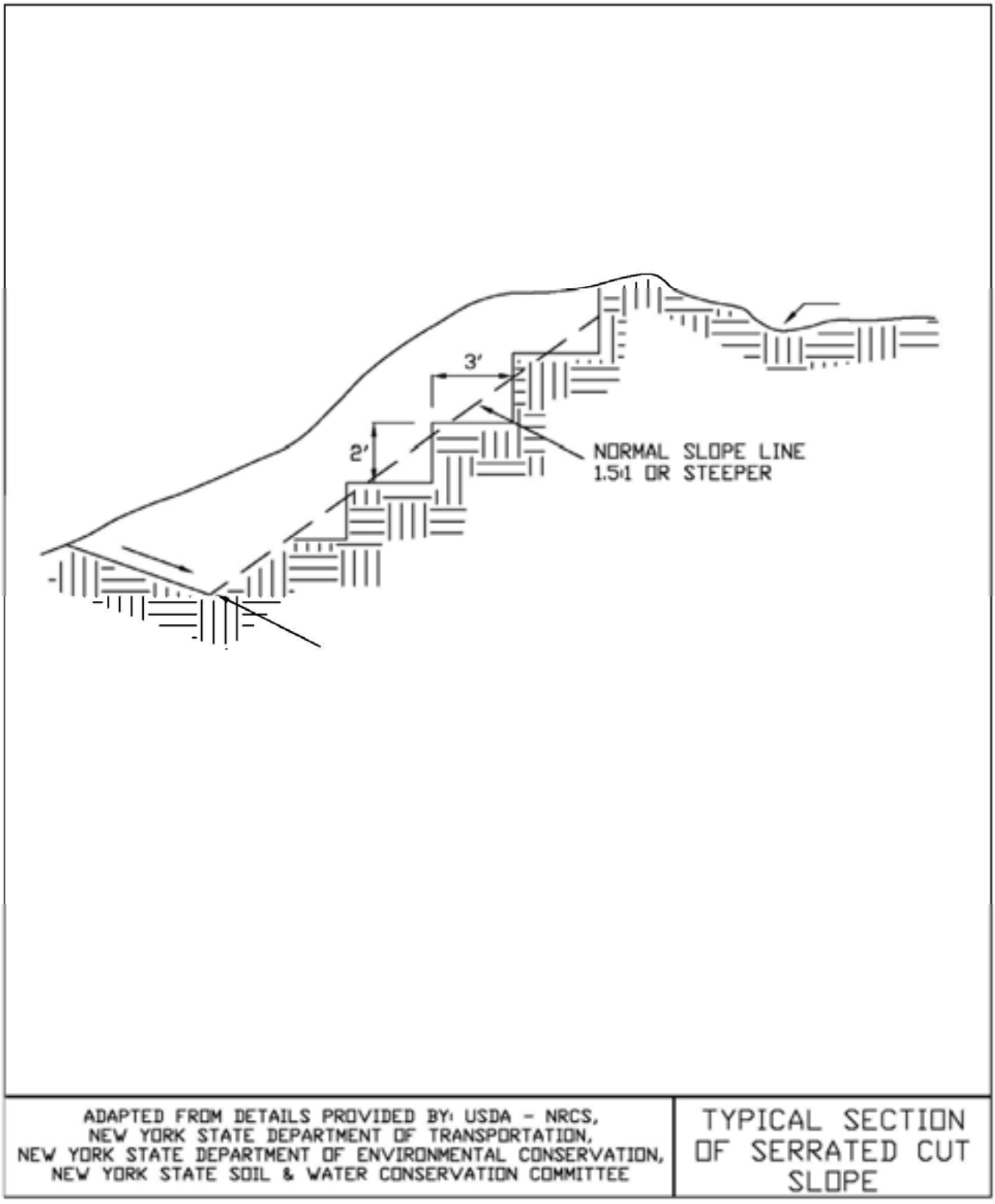

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Figure 4.10
Landgrading

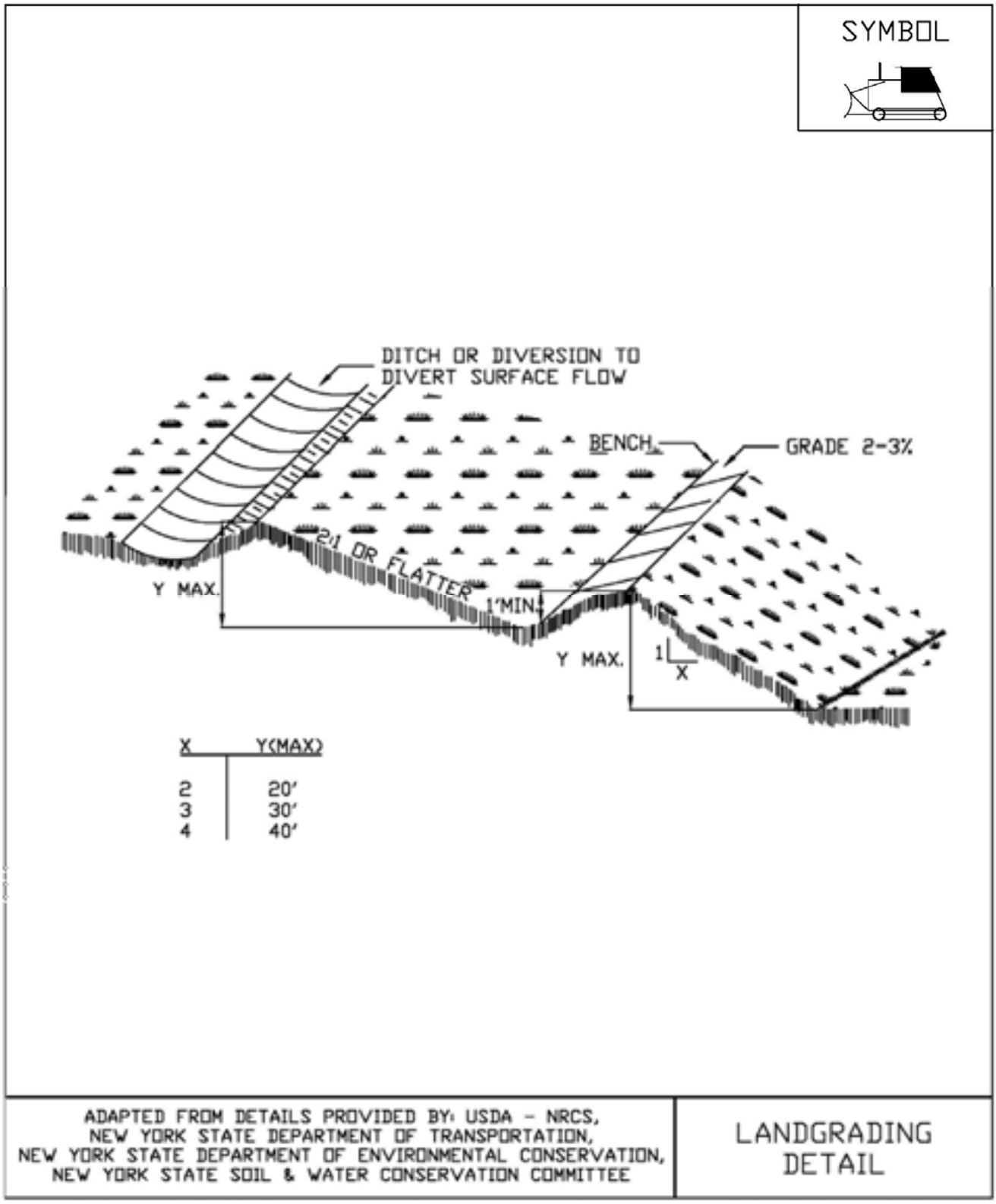

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Figure 4.11
Landgrading - Construction Specifications

CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

LANDGRADING SPECIFICATIONS

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STANDARD AND SPECIFICATIONS FOR SURFACE ROUGHENING



Definition & Scope

Roughening a bare soil surface whether through creating horizontal grooves across a slope, stair-stepping, or tracking with construction equipment to aid the establishment of vegetative cover from seed, to reduce runoff velocity and increase infiltration, and to reduce erosion and provide for trapping of sediment.

Conditions Where Practice Applies

All construction slopes require surface roughening to facilitate stabilization with vegetation, particularly slopes steeper than 3:1.

Design Criteria

There are many different methods to achieve a roughened soil surface on a slope. No specific design criteria is required. However, the selection of the appropriate method depends on the type of slope. Methods include tracking, grooving, and stair-stepping. Steepness, mowing requirements, and/or a cut or fill slope operation are all factors considered in choosing a roughening method.

Construction Specifications

1. Cut Slope, No mowing.

   A. Stair-step grade or groove cut slopes with a gradient steeper than 3:1 (Figure 4.18).

   B. Use stair-step grading on any erodible material soft enough to be ripped with a bulldozer. Slopes of soft rock with some soil are particularly suited to stair-step grading.

   C. Make the vertical cut distance less than the horizontal distance, and slightly slope the horizontal position of the "step" to the vertical wall.

   D. Do not make vertical cuts more than 2 feet in soft materials or 3 feet in rocky materials.

Grooving uses machinery to create a series of ridges and depressions that run perpendicular to the slope following the contour. Groove using any appropriate implement that can be safely operated on the slope, such as disks, tillers, spring harrows, or the teeth of a front-end loader bucket. Do not make the grooves less than 3 inches deep or more than 15 inches apart.

2. Fill Slope, No mowing

   A. Place fill to create slopes with a gradient no steeper than 2:1 in lifts 9 inches or less and properly compacted. Ensure the face of the slope consists of loose, uncompacted fill 4 to 6 inches deep. Use grooving as described above to roughen the slope, if necessary.

   B. Do not back blade or scrape the final slope face.

3. Cuts/Fills, Mowed Maintenance

   A. Make mowed slopes no steeper than 3:1.

   B. Roughen these areas to shallow grooves by normal tilling, disking, harrowing, or use of cultipacker-seeder. Make the final pass of such tillage equipment on the contour.

   C. Make grooves at least 1 inch deep and a maximum of 10 inches apart.

   D. Excessive roughness is undesirable where mowing is planned.

Tracking should be used primarily in sandy soils to avoid undue compaction of the soil surface. Tracking is generally not as effective as the other roughening methods described. (It has been used as a method to track down mulch.) Operate tracked machinery up and down the slope to leave horizontal depressions in the soil. Do not back-blade during the final grading operation.

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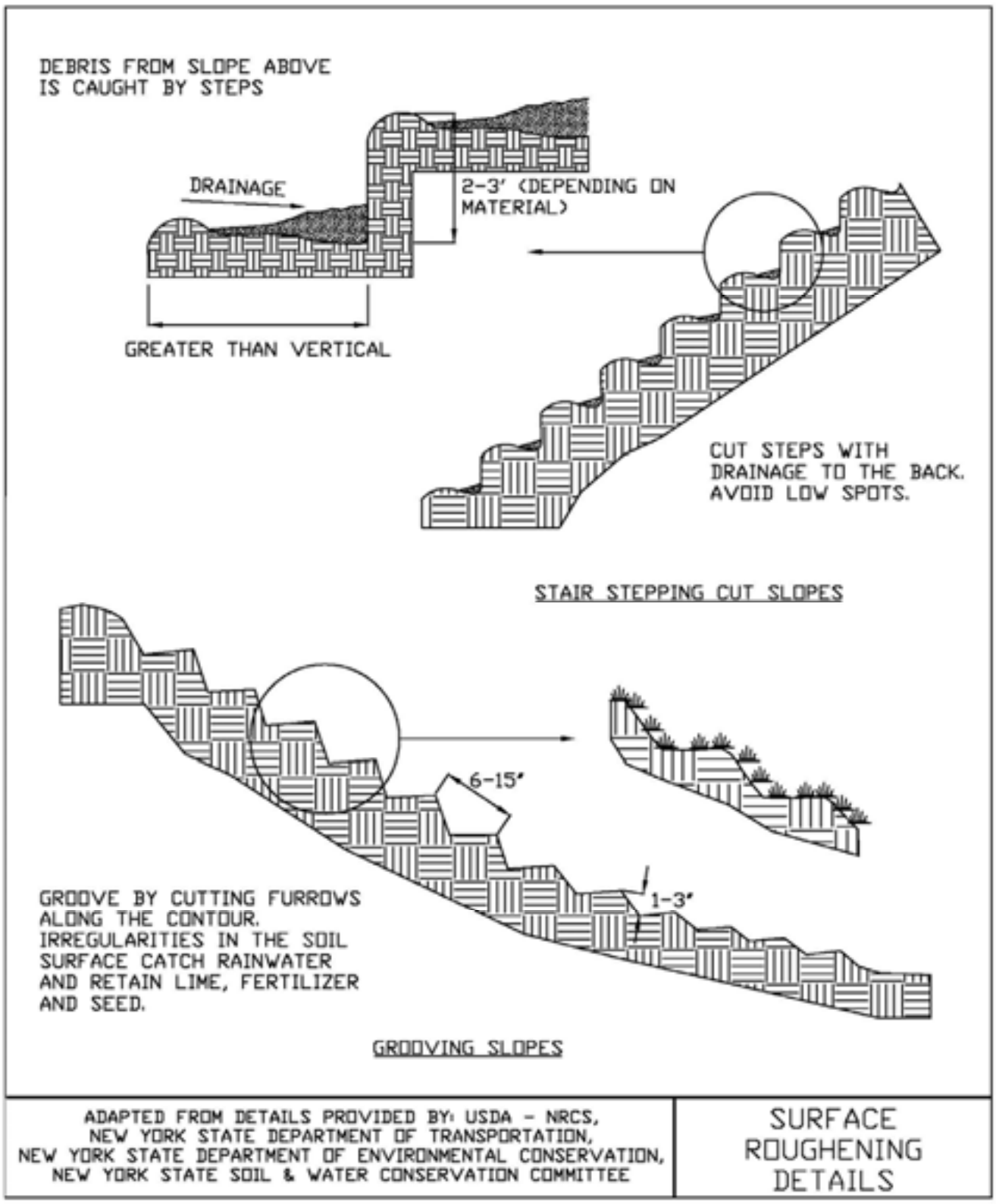
Figure 4.18
Surface Roughening



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STANDARD AND SPECIFICATIONS FOR SOIL RESTORATION



Definition & Scope

The decompaction of areas of a development site or construction project where soils have been disturbed to recover the original properties and porosity of the soil; thus providing a sustainable growth medium for vegetation, reduction of runoff and filtering of pollutants from stormwater runoff.

Conditions Where Practice Applies

Soil restoration is to be applied to areas whose heavy construction traffic is done and final stabilization is to begin. This is generally applied in the cleanup, site restoration, and landscaping phase of construction followed by the permanent establishment of an appropriate ground cover to maintain the soil structure. Soil restoration measures should be applied over and adjacent to any runoff reduction practices to achieve design performance.



Design Criteria

1. Soil restoration areas will be designated on the plan views of areas to be disturbed.
2. Soil restoration will be completed in accordance with Table 4.6 on page 4.53.

Specification for Full Soil Restoration

During periods of relatively low to moderate subsoil moisture, the disturbed subsoils are returned to rough grade and the following Soil Restoration steps applied:

1. Apply 3 inches of compost over subsoil. The compost shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table, except for "Particle Size" 100% will pass the 1/2" sieve. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content.**



2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor mounted disc, or tiller, to mix and circulate air and compost into the subsoil.
3. Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site.
4. Apply topsoil to a depth of 6 inches.
5. Vegetate as required by the seeding plan. Use appropriate ground cover with deep roots to maintain the soil structure.
6. Topsoil may be manufactured as a mixture or a mineral component and organic material such as compost.

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At the end of the project an inspector should be able to push a 3/8" metal bar 12 inches into the soil just with body weight. This should not be performed within the drip line of any existing trees or over utility installations that are within 24 inches of the surface.

Maintenance

Keep the site free of vehicular and foot traffic or other weight loads. Consider pedestrian footpaths.

Table 4.6
Soil Restoration Requirements

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only - no change in grade	HSG A&B	HSG C&D	Protect area from any ongoing construction activities.
	Apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A&B	HSG C&D	
	Aerate* and apply 6 inches of topsoil	Apply full Soil Restoration**	
Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls)	Apply full Soil Restoration (decompaction and compost enhancement)		
Areas where Runoff Reduction and/or Infiltration practices are applied	Restoration not required, but may be applied to enhance the reduction specified for appropriate practices.		Keep construction equipment from crossing these areas. To protect newly installed practice from any ongoing construction activities construct a single phase operation fence area
Redevelopment projects	Soil Restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.		

* Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.
** Per "Deep Ripping and De-compaction, DEC 2008".

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STANDARD AND SPECIFICATIONS FOR TOPSOILING



Definition & Scope

Spreading a specified quality and quantity of topsoil materials on graded or constructed subsoil areas to provide acceptable plant cover growing conditions, thereby reducing erosion; to reduce irrigation water needs; and to reduce the need for nitrogen fertilizer application.

Conditions Where Practice Applies

Topsoil is applied to subsoils that are droughty (low available moisture for plants), stony, slowly permeable, salty or extremely acid. It is also used to backfill around shrub and tree transplants. This standard does not apply to wetland soils.

Design Criteria

1. Preserve existing topsoil in place where possible, thereby reducing the need for added topsoil.
2. Conserve by stockpiling topsoil and friable fine textured subsoils that must be stripped from the excavated site and applied after final grading where vegetation will be established. Topsoil stockpiles must be stabilized. Stockpile surfaces can be stabilized by vegetation, geotextile or plastic covers. This can be aided by orientating the stockpile lengthwise into prevailing winds.
3. Refer to USDA Natural Resource Conservation Service soil surveys or soil interpretation record sheets for further soil texture information for selecting appropriate design topsoil depths.

Site Preparation

1. As needed, install erosion and sediment control practices such as diversions, channels, sediment traps, and stabilizing measures, or maintain if already installed.
2. Complete rough grading and final grade, allowing for depth of topsoil to be added.
3. Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent. Areas that have been overly compacted shall be decompacted in accordance with the Soil Restoration Standard.
4. Remove refuse, woody plant parts, stones over 3 inches in diameter, and other litter.

Topsoil Materials

1. Topsoil shall have at least 6 percent by weight of fine textured stable organic material, and no greater than 20 percent. Muck soil shall not be considered topsoil.
2. Topsoil shall have not less than 20 percent fine textured material (passing the NO. 200 sieve) and not more than 15 percent clay.
3. Topsoil treated with soil sterilants or herbicides shall be so identified to the purchaser.
4. Topsoil shall be relatively free of stones over 1 1/2 inches in diameter, trash, noxious weeds such as nut sedge and quackgrass, and will have less than 10 percent gravel.
5. Topsoil containing soluble salts greater than 500 parts per million shall not be used.
6. Topsoil may be manufactured as a mixture of a mineral component and organic material such as compost.

Application and Grading

1. Topsoil shall be distributed to a uniform depth over the area. It shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water puddles.
2. Topsoil placed and graded on slopes steeper than 5 percent shall be promptly fertilized, seeded, mulched, and stabilized by “tracking” with suitable equipment.
3. Apply topsoil in the amounts shown in Table 4.7 below:

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Table 4.7 - Topsoil Application Depth		
Site Conditions	**Intended Use**	**Minimum Topsoil Depth**
1. Deep sand or loamy sand	Mowed lawn	6 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	1 in.
2. Deep sandy loam	Mowed lawn	5 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	none
3. Six inches or more: silt loam, clay loam, loam, or silt	Mowed lawn	4 in.
	Tall legumes, unmowed	1 in.
	Tall grass, unmowed	1 in.

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STANDARD AND SPECIFICATIONS FOR MULCHING



Definition and Scope

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch can also be used alone for temporary stabilization in non-growing months. Use of stone as a mulch could be more permanent and should not be limited to non-growing months.

Conditions Where Practice Applies

On soils subject to erosion and on new seedings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

Criteria

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Hay mulch shall not be used in wetlands or in areas of permanent seeding. Clean straw mulch is preferred alternative in wetland application. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/ acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.



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Table 4.2
Guide to Mulch Materials, Rates, and Uses

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7”	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2”	9 cu. yds.	405 cu. yds.	3”	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/yd. 60-90 lbs./roll	48” x 50 yds. or 48” x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	4’ x 112.5’ or 8’ x 112.5’.	—	—	Use without additional mulch. Excellent for seeding establishment. Anchor as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

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Table 4.3
Mulch Anchoring Guide

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45^0 Fahrenheit are required.

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STANDARD AND SPECIFICATIONS FOR TREES, SHRUBS, AND VINES



Definition & Scope

Establishing trees, shrubs, and vines or selectively reducing stand density and trimming woody plants to protect the soil and plant resources, improve an area for recreation and increase the attractiveness and usefulness of areas.

Conditions Where Practice Applies

On any area planned for recreation or landscape use such as yard areas, leisure areas, picnic areas, and park lands providing outdoor recreational opportunities.

Criteria and Specifications

1. Planting nursery stock

   A. Select species to serve the intended purpose. See Appendix G, Table G.1**,** "Trees Suitable for Landscape and Conservation Plantings in New York." Where planting of trees is to be done in recreation areas, use those species resistant to compaction listed in Table G.2, "Susceptibility of Tree Species to Compaction" whenever possible.

   B. Plant Materials

   1) Plants shall conform to the species, variety, size, number, and conditions as stated in a conservation plan or on a plant list shown on landscape drawings. "American Standard for Nursery Stock," by American Association of Nurserymen, shall be used to develop the plant list for landscape drawings and to check quality of plant materials.

   2) Durable, legible labels with the scientific and common name and cultivar shall be securely attached to plants, bundles of seedlings, containers, and/or flats.

   C. Plant Protection

   Prior to delivery, the trunk, branches, and foliage of the plants shall be sprayed with non-toxic antidesiccant, applied according to the manufacturer's recommendations. This does not apply to state nursery seedlings.

   D. Planting Time

   Deciduous trees and shrubs: April 1 to June 1 and October 15 to December 15. Evergreen trees and shrubs: April 1 to June 1 and September 1 to November 15.

   E. Spacing

   Plant all trees and shrubs well back from buildings to allow for mature crown size. The following are guides for planning:

Large Trees	50-60 feet apart
Small Trees	20-30 feet apart
Columnar Species	6-8 feet apart
Hedges	1-4 feet apart
Shrubs	For clumps, plan spacing so mature shrubs will be touching or overlapping by only 1 or 2 feet

   F. Site Preparation

   1) Individual sites for planting seedlings can be prepared by scalping the sod away from a four foot square area where the seedling is to be planted.

   2) All planting beds shall be cultivated to a depth of 8 inches, or chemically treated for weed control. Remove objectionable objects that will interfere with maintenance of site.

   G. Planting

   1) Plants shall be located as shown on plans and/or drawings and, where necessary, located on the site by stakes, flags or other means.

   2) Prior to planting, remove galvanized wire basket securing root ball, untie and roll down burlap covering from around the stem.

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3) The plants shall be set upright in holes as illustrated in Figure G.1 in Appendix G.

4) All plants shall be thoroughly watered on the same day of planting. Plants that have settled shall be reset to grade.

H. Wrapping

Immediately after planting, wrap deciduous tree trunks from the bottom to the first limb with a 4 inch wide bituminous impregnated, insect resistant tape or paper manufactured for that purpose. Tie with jute (bag strings) at top and bottom. The wrap should be removed per nursery recommendations.

I. Mulching

Mulch the disturbed area around individual trees and shrubs with a 2-3" layer of wood chips. Pull wood chips 1 inch away from the base of shrubs to avoid fungus development.

J. Pruning

After planting, prune to remove injured twigs and branches. The natural shape of the plant should not be changed.

K. Cleanup and Maintenance

1) After all work is complete, all excess soil, peat moss, debris, etc., shall be removed from the site.

2) Water plants two weeks after planting. For two years, water plants every two weeks during dry periods, which exceed three weeks without a good soaking rain, or water as needed in accordance with local conditions. Shrubs may require 5 to 10 gallons and trees, 20 to 30 gallons for each watering.

3) Remove trunk wrap per nursery recommendation.

2. Transplanting "Wild" Stock

Successful transplanting of wild stock will require heavy equipment and considerable labor as a large weight of soil must be moved with the roots.

A. Select trees and shrubs with good form and full crowns.

B. Transplant only when plants are dormant and soil is moist. Wrap soil ball with burlap to prevent soil from separating from roots.

C. Table 4.8 shows minimum diameter and approximate weight of soil ball that must be moved with each size plant.

D. Plant and maintain as described above for nursery stock.

PRUNING AND THINNING

Use	Cleared Width Each Side of Trail Tread (ft.)	Cleared Height (ft.)
TRAILS		
Hiking	1	8
Bicycle	2	10
Motorbike	2	10
Horse	2	12
X-Country Ski	Total: 3-12	12[1]
Snowmobile	Total: 6-12	12[1]
PICNIC & CAMPING AREAS		
Campfire/Grill	10 ft. diam.	15

[1] Includes allowance for snow depth and snow load on branches

1. Pruning

A. Remove trees, limbs, and limb stubs to the above widths and heights specified for the intended use.

B. Remove dead, diseased, or dying limbs that may fall.

C. Do not remove more than one-third of the live crown of a tree in a year.

D. Cut limbs flush to the branch bark ridge.

E. Use the 3 or 4 cut pruning method on all branches over 2 inches in diameter: First cut about one-third the way through the underside of the limb (about 6-12 inches from the tree trunk). Then (approximately an inch further out) make a second cut through the limb from the upper side. When the branch is removed, there is no splintering of the main tree trunk. Remove the stub. If the branch is larger than 5-6 inches in diameter, use the four cut system. Cuts 1 and 2 remain the same and cut 3 should be from the underside of the limb, on the outside of the branch collar. Cut 4 should be from the top and in alignment with the 3rd cut. Cut 3 should be 1/4 to 1/3 the way through the limb. This will prevent the bark from peeling down the trunk. Do not paint the cut surface.

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2. Thinning

   A. Remove dead, diseased, dying, poorly anchored, or ice damaged trees that pose a hazard to recreationists or that interfere with intended use.

   B. To maintain grass cover in a wooded area, thin according to formula Dx3 (average diameter of the trunk of overstory trees, in inches, times three—the answer is the spacing between trees to be left, in feet). For example, for trees with average diameter of 6 inches, spacing after thinning should leave trees 18 feet apart on average. Crown cover after thinning should be about 50 percent.

   C. Selectively thin as needed to favor those trees that are most "resistant" to compaction around their roots. See Table G.2**,** "Susceptibility of Tree Species to Compaction" in Appendix G. If the soil on the site is naturally well drained, those species in the "intermediate" group may also be favored.

Table 4.8
Size and Weight of Earth Ball Required to Transplant Wild Stock

Shade Trees (Maple, Ash, Oak, Birch, etc.)			Small Trees & Shrubs (Crabapple, Thornapple, Viburnum, Dogwood, etc.)		
Caliper[1] (Inches)	Minimum Diameter Ball (Inches)	Weight of Ball (lbs.)	Up to 6 ft. Height — 6 ft. and Caliper[1]	Minimum Diameter Ball (Inches)	Weight of Ball (lbs.)
1/2	14	88	2	12	55
3/4	16	130	3	14	88
1	18	186	4	16	130
1-1/4	20	227	5	18	186
1-1/2	22	302	3/4	18	186
1-3/4	24	390	1	20	227
2	28	621	1-1/2	22	302
3	32	836	1-3/4	24	390
3-1/2	38	1,400	2	28	621
4	42	1,887	2-1/2	32	836
			3	38	1,400

[1]Caliper is a diameter measurement of trees at a height of 6 inches above the ground.

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STANDARD AND SPECIFICATIONS FOR VEGETATING WATERWAYS



Definition & Scope

Waterways are a **permanently** constructed conveyance channel, shaped or graded. They are vegetated for the safe transport of excess surface water from construction sites and urban areas without damage from erosion.

Conditions Where Practice Applies

This standard applies to vegetating waterways and similar water carrying structures.

Supplemental measures may be required with this practice. These may include: subsurface drainage to permit the growth of suitable vegetation and to eliminate wet spots; a section stabilized with asphalt, stone, or other suitable means; or additional storm drains to handle snowmelt or storm runoff.

Retardance factors for determining waterway dimensions are shown in Table 3.1 on page 3.10 and "Maximum Permissible Velocities for Selected Grass and Legume Mixtures" (See Table 4.10 on page 4.79).

Design Criteria

Waterways or outlets shall be protected against erosion by vegetative means as soon after construction as practical. Vegetation must be well established before diversions or other channels are outletted into them. Consideration should be given to the use of turf reinforcement mats, excelsior matting, other rolled erosion control products, or sodding of channels to provide erosion protection as soon after construction as possible. It is strongly recommended that the center line of the waterway be protected with one of the above materials to avoid center gullies and to protect seedlings from erosion before establishment.

1. Liming, fertilizing, and seedbed preparation.

   A. Lime to pH 6.5.

   B. **The soil should be tested to determine the amounts of amendments needed.** If the soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 1.0 lbs/1,000 sq. ft. of N, P_2O_5, and K_2O.

   C. Lime and fertilizer shall be mixed thoroughly into the seedbed during preparation.

   D. Channels, except for paved section, shall have at least 4 inches of topsoil.

   E. Remove stones and other obstructions that will hinder maintenance.

2. Timing of Seeding.

   A. Early spring and late August are best.

   B. Temporary cover to protect from erosion is recommended during periods when seedings may fail.

3. Seed Mixtures:

Mixtures	Rate per Acre (lbs)	Rate per 1,000 sq. ft. (lbs)
A. White clover or ladino clover[1]	8	0.20
Smooth bromegrass	20	0.45
Creeping red fescue[2]	2	0.05
Total	30	0.70
OR		
B. Smooth bromegass[3]	25	0.60
Creeping red fescue	20	0.50
Perennial ryegrass	10	0.20
Total	55	1.30

[1] Inoculate with appropriate inoculum immediately prior to seeding. Ladino or birdsfoot trefoil may be substituted for common white clover and seeded at the same rate.

[2] Perennial ryegrass may be substituted for the creeping red fescue but increase seeding rate to 5 lbs/acre (0.1 lb/1,000 sq. ft).

[3] Use this mixture in areas which are mowed frequently. Common white clover may be added if desired and seeded at 8 lbs/acre (0.2 lb/1,000 sq. ft.)

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4. Seeding

Select the appropriate seed mixture and apply uniformly over the area. Rolling or cultipacking across the waterway is desirable.

Waterway centers or crucial areas may be sodded. Refer to the standard and specification for Stabilization with Sod. Be sure sod is securely anchored using staples or stakes.

5. Mulching

All seeded areas will be mulched. Channels more than 300 feet long, and/or where the slope is 5 percent or more, must have the mulch securely anchored. Refer to the standard and specifications for Mulching for details.

6. Maintenance

Fertilize, lime, and mow as needed to maintain dense protective vegetative cover.

Waterways shall not be used for roadways.

If rills develop in the centerline of a waterway, prompt attention is required to avoid the formation of gullies. Either stone and/or compacted soil fill with excelsior or filter fabric as necessary may be used during the establishment phase. See Figure 4.25, Rill Maintenance Measures. Spacing between rill maintenance barriers shall not exceed 100 feet.

Table 4.10
Maximum Permissible Velocities for Selected Seed Mixtures

Cover	Slope Range [2] (%)	Permissible Velocity [1]	
		Erosion-resistant Soils (ft. per sec.) K=0.10 - 0.35 [3]	Easily Eroded Soils (ft. per sec.) K=0.36 - 0.80
Smooth Bromegrass Hard Fescue	0-5 5-10 Over 10	7 6 5	5 4 3
Grass Mixtures	[2] 0-5 5-10	5 4	4 3
White/Red Clover Alfalfa Red Fescue	[4] 0-5	3.5	2.5

[1] Use velocities exceeding 5 feet per second only where good covers and proper maintenance can be obtained.
[2] Do not use on slopes steeper than 10 percent except for vegetated side slopes in combination with a stone, concrete, or highly resistant vegetative center section.
[3] K is the soil erodibility factor used in the Revised Universal Soil Loss Equation. Visit Appendix A or consult the appropriate USDA-NRCS technical guide for K values for New York State soils.
[4] Do not use on slopes steeper than 5 percent except for vegetated side slopes in combination with a stone, concrete, or highly resistant vegetative center section.
[5] Annuals - use on mild slopes or as temporary protection until permanent covers are established.
[6] Use on slopes steeper than 5 percent is not recommended.

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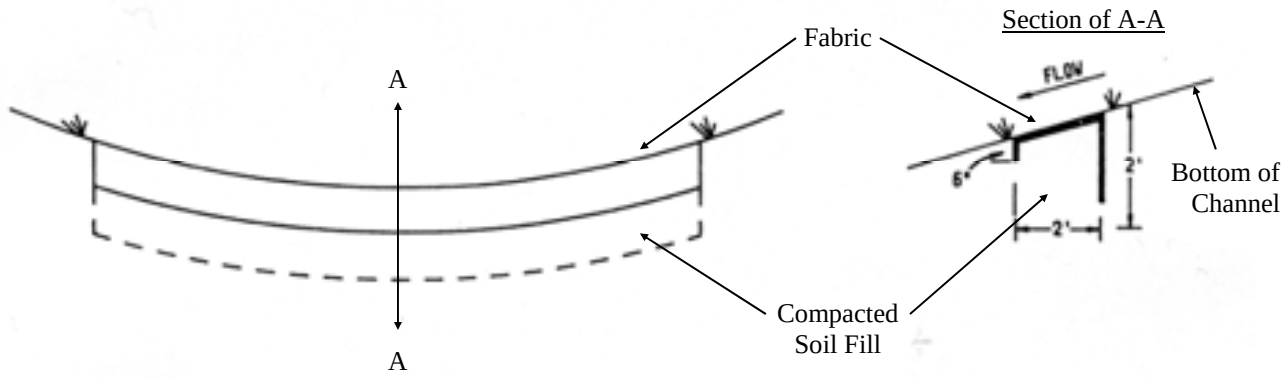
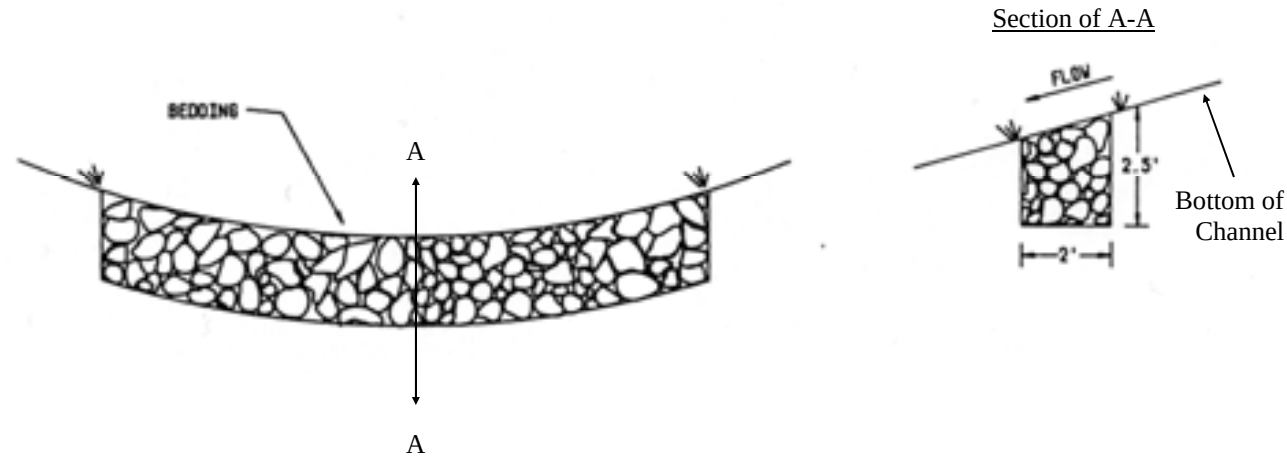
Figure 4.25
Rill Maintenance Measures

Filter Fabric



Stone



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STANDARD AND SPECIFICATIONS FOR ROCK OUTLET PROTECTION



Definition & Scope

A **permanent** section of rock protection placed at the outlet end of the culverts, conduits, or channels to reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving downstream reach.

Conditions Where Practice Applies

This practice applies where discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach. This applies to:

1. Culvert outlets of all types.
2. Pipe conduits from all sediment basins, dry storm water ponds, and permanent type ponds.
3. New channels constructed as outlets for culverts and conduits.

Design Criteria

The design of rock outlet protection depends entirely on the location. Pipe outlet at the top of cuts or on slopes steeper than 10 percent, cannot be protected by rock aprons or riprap sections due to re-concentration of flows and high velocities encountered after the flow leaves the apron.

Many counties and state agencies have regulations and design procedures already established for dimensions, type and size of materials, and locations where outlet protection is required. Where these requirements exist, they shall be followed.

Tailwater Depth

The depth of tailwater immediately below the pipe outlet must be determined for the design capacity of the pipe. If the tailwater depth is less than half the diameter of the outlet pipe, and the receiving stream is wide enough to accept divergence of the flow, it shall be classified as a Minimum Tailwater Condition; see Figure 3.16 on page 3.42 as an example. If the tailwater depth is greater than half the pipe diameter and the receiving stream will continue to confine the flow, it shall be classified as a Maximum Tailwater Condition; see Figure 3.17 on page 3.43 as an example. Pipes which outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition; see Figure 3.16 on page 3.42 as an example.

Apron Size

The apron length and width shall be determined from the curves according to the tailwater conditions:

Minimum Tailwater – Use Figure 3.16 on page 3.42
Maximum Tailwater – Use Figure 3.17 on page 3.43

If the pipe discharges directly into a well defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank, whichever is less.

The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe, or conform to pipe end section if used.

Bottom Grade

The outlet protection apron shall be constructed with no slope along its length. There shall be no overfall at the end of the apron. The elevation of the downstream end of the apron shall be equal to the elevation of the receiving channel or adjacent ground.

Alignment

The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

Materials

The outlet protection may be done using rock riprap, grouted riprap, or gabions. Outlets constructed on the bank of a stream or wetland shall not use grouted rip-rap, gabions or concrete.

Riprap shall be composed of a well-graded mixture of rock size so that 50 percent of the pieces, by weight, shall be larger than the d_{50} size determined by using the charts. A

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well-graded mixture, as used herein, is defined as a mixture composed primarily of larger rock sizes, but with a sufficient mixture of other sizes to fill the smaller voids between the rocks. The diameter of the largest rock size in such a mixture shall be 1.5 times the d_{50} size.

Thickness

The minimum thickness of the riprap layer shall be 1.5 times the maximum rock diameter for d_{50} of 15 inches or less; and 1.2 times the maximum rock size for d_{50} greater than 15 inches. The following chart lists some examples:

D_{50} (inches)	d_{max} (inches)	Minimum Blanket Thickness (inches)
4	6	9
6	9	14
9	14	20
12	18	27
15	22	32
18	27	32
21	32	38
24	36	43

Rock Quality

Rock for riprap shall consist of field rock or rough unhewn quarry rock. The rock shall be hard and angular and of a quality that will not disintegrate on exposure to water or weathering. The specific gravity of the individual rocks shall be at least 2.5.

Filter

A filter is a layer of material placed between the riprap and the underlying soil surface to prevent soil movement into and through the riprap. Riprap shall have a filter placed under it in all cases.

A filter can be of two general forms: a gravel layer or a plastic filter cloth. The plastic filter cloth can be woven or non-woven monofilament yarns, and shall meet these base requirements: thickness 20-60 mils, grab strength 90-120 lbs; and shall conform to ASTM D-1777 and ASTM D-1682.

Gravel filter blanket, when used, shall be designed by comparing particle sizes of the overlying material and the base material. Design criteria are available in Standard and Specification for Anchored Slope and Channel Stabilization on page 4.7.

Gabions

Gabions shall be made of hexagonal triple twist mesh with heavily galvanized steel wire. The maximum linear dimension of the mesh opening shall not exceed 4 ½ inches and the area of the mesh opening shall not exceed 10 square inches.

Gabions shall be fabricated in such a manner that the sides, ends, and lid can be assembled at the construction site into a rectangular basket of the specified sizes. Gabions shall be of single unit construction and shall be installed according to manufacturer's recommendations.

The area on which the gabion is to be installed shall be graded as shown on the drawings. Foundation conditions shall be the same as for placing rock riprap, and filter cloth shall be placed under all gabions. Where necessary, key, or tie, the structure into the bank to prevent undermining of the main gabion structure.

Maintenance

Once a riprap outlet has been installed, the maintenance needs are very low. It should be inspected after high flows for evidence of scour beneath the riprap or for dislodged rocks. Repairs should be made immediately.

Design Procedure

1. Investigate the downstream channel to assure that nonerosive velocities can be maintained.

2. Determine the tailwater condition at the outlet to establish which curve to use.

3. Use the appropriate chart with the design discharge to determine the riprap size and apron length required. It is noted that references to pipe diameters in the charts are based on full flow. For other than full pipe flow, the parameters of depth of flow and velocity must be used to adjust the design discharges.

4. Calculate apron width at the downstream end if a flare section is to be employed.

Design Examples are demonstrated in Appendix B.

Construction Specifications

1. The subgrade for the filter, riprap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grad-

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ing limits when installed respectively in the riprap or filter.

3. Filter cloth shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps, whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.

4. Rock for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The rock for riprap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogenous with the smaller rocks and spalls filling the voids between the larger rocks. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

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Figure 3.16
Outlet Protection Design—Minimum Tailwater Condition Chart (Design of Outlet Protection from a Round Pipe Flowing Full, Minimum Tailwater Condition: $T_w < 0.5D_o$) (USDA - NRCS)

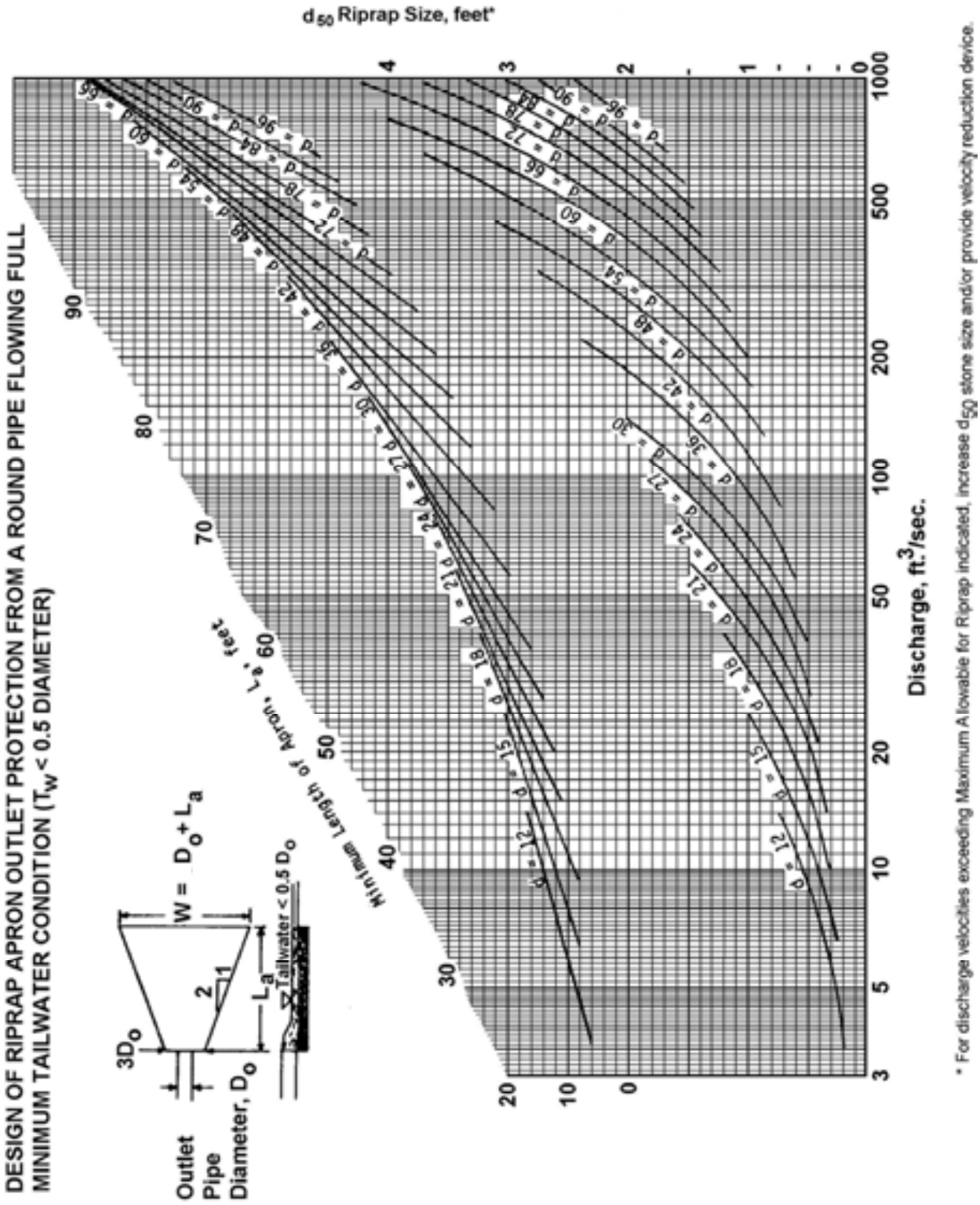

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Figure 3.17
Outlet Protection Design—Maximum Tailwater Condition Chart (Design of Outlet Protection from a Round Pipe Flowing Full, Maximum Tailwater Condition: $T_w \geq 0.5D_o$) (USDA - NRCS)

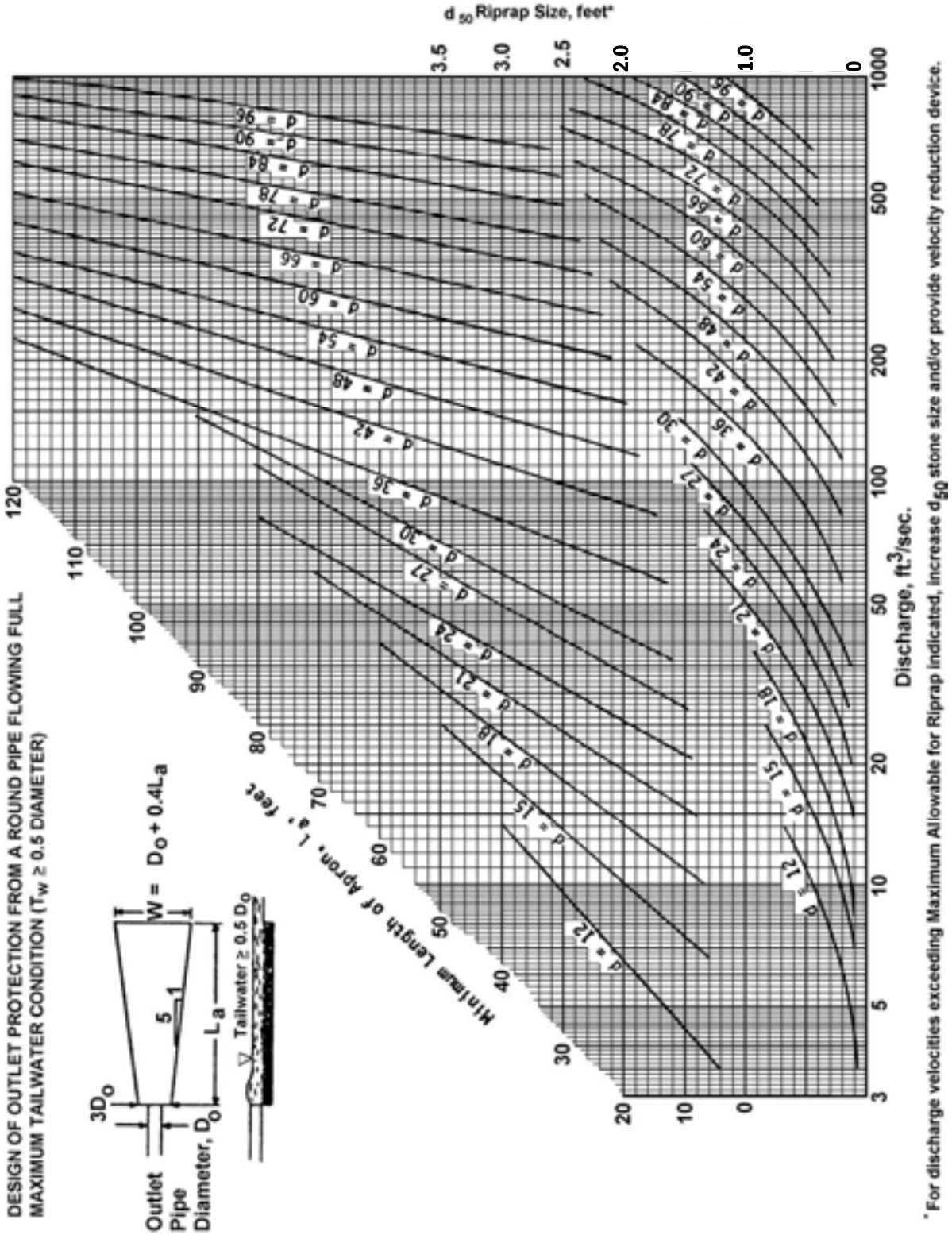

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Figure 3.18
Riprap Outlet Protection Detail (1)

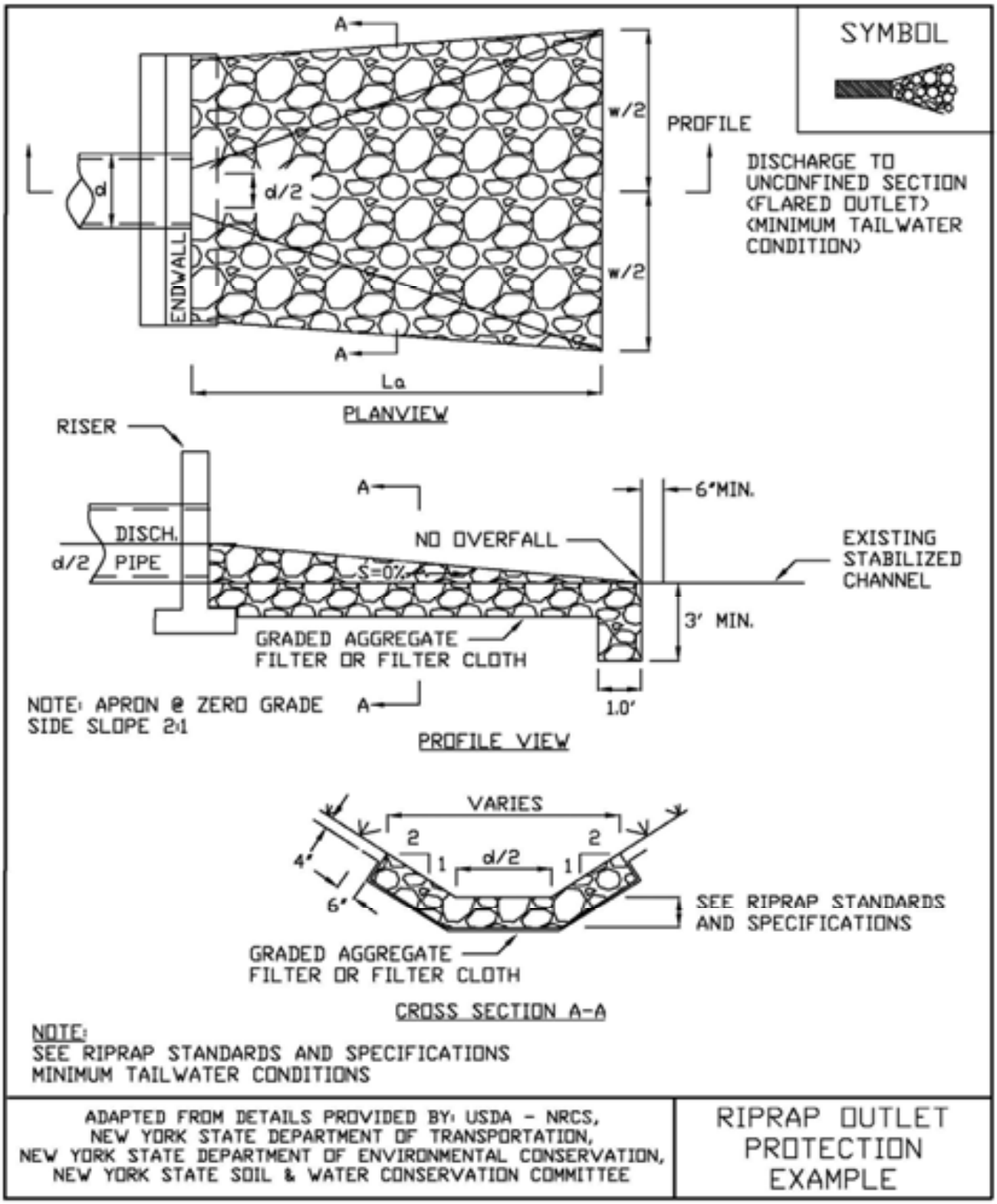

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Figure 3.19
Riprap Outlet Protection Detail (2)

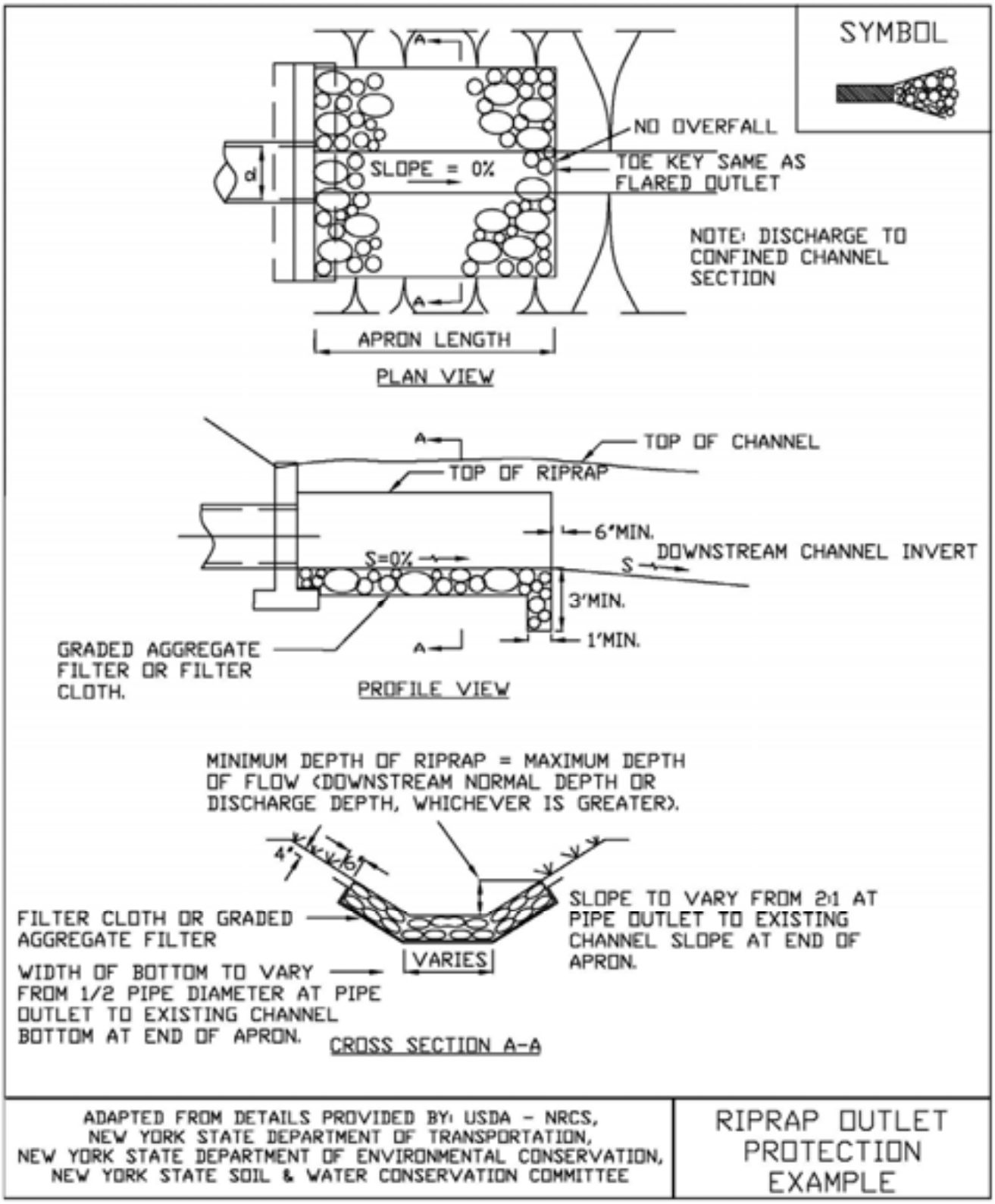

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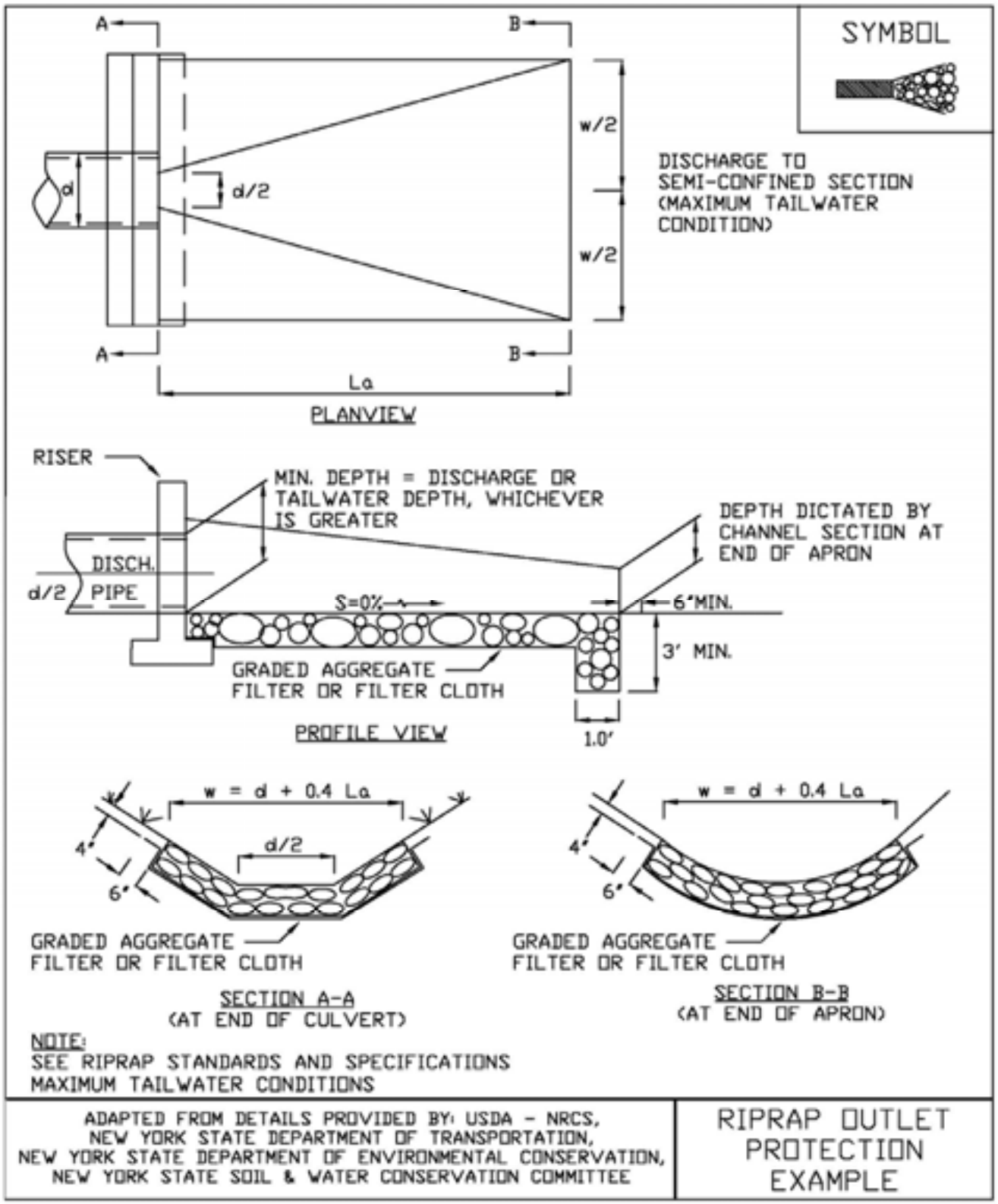
Figure 3.20
Riprap Outlet Protection Detail (3)



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR SITE POLLUTION PREVENTION





Definition & Scope

A collection of management practices intended to control non-sediment pollutants associated with construction activities to prevent the generation of pollutants due to improper handling, storage, and spills and prevent the movement of toxic substances from the site into surface waters.

Conditions Where Practice Applies

On all construction sites where the earth disturbance exceeds 5,000 square feet, and involves the use of fertilizers, pesticides, petroleum based chemicals, fuels and lubricants, as well as sealers, paints, cleared woody vegetation, garbage, and sanitary wastes.

Design Criteria

The variety of pollutants on a particular site and the severity of their impacts depend on factors such as the nature of the construction activity, the physical characteristics of the construction site, and the proximity of water bodies and conveyances to the pollutant source.

1. All state and federal regulations shall be followed for the storage, handling, application, usage, and disposal of pesticides, fertilizers, and petroleum products.

2. Vehicle and construction equipment staging and maintenance areas will be located away from all drainage ways with their parking areas graded so the runoff from these areas is collected, contained and treated prior to discharge from the site.

3. Provide sanitary facilities for on-site personnel.

4. Store, cover, and isolate construction materials including topsoil, and chemicals, to prevent runoff of pollutants and contamination of groundwater and surface waters.

5. Develop and implement a spill prevention and control plan. The plan should include NYSDEC's spill reporting and initial notification requirements.

6. Provide adequate disposal for solid waste including woody debris, stumps, and other construction waste and include these methods and directions in the construction details on the site construction drawings. Fill, woody debris, stumps and construction waste shall not be placed in regulated wetlands, streams or other surface waters.

7. Distribute or post informational material regarding proper handling, spill response, spill kit location, and emergency actions to be taken, to all construction personnel.

8. Refueling equipment shall be located at least 100 feet from all wetlands, streams and other surface waters.



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STANDARD AND SPECIFICATIONS FOR WINTER STABILIZATION



Definition & Scope

A temporary site specific, enhanced erosion and sediment control plan to manage runoff and sediment at the site during construction activities in the winter months to protect off-site water resources.

Conditions Where Practice Applies

This standard applies to all construction activities involved with ongoing land disturbance and exposure between November 15th to the following April 1st.

Design Criteria

1. Prepare a snow management plan with adequate storage for snow and control of melt water, requiring cleared snow to be stored in a manner not affecting ongoing construction activities.

2. Enlarge and stabilize access points to provide for snow management and stockpiling. Snow management activities must not destroy or degrade installed erosion and sediment control practices.

3. A minimum 25 foot buffer shall be maintained from all perimeter controls such as silt fence. Mark silt fence with tall stakes that are visible above the snow pack.

4. Edges of disturbed areas that drain to a waterbody within 100 feet will have 2 rows of silt fence, 5 feet apart, installed on the contour.

5. Drainage structures must be kept open and free of snow and ice dams. All debris, ice dams, or debris from plowing operations, that restrict the flow of runoff and meltwater, shall be removed.

6. Sediment barriers must be installed at all appropriate perimeter and sensitive locations. Silt fence and other practices requiring earth disturbance must be installed before the ground freezes.

7. Soil stockpiles must be protected by the use of established vegetation, anchored straw mulch, rolled stabilization matting, or other durable covering. A barrier must be installed at least 15 feet from the toe of the stockpile to prevent soil migration and to capture loose soil.

8. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures should be initiated by the end of the next business day and completed within three (3) days. Rolled erosion control blankets must be used on all slopes 3 horizontal to 1 vertical or steeper.

9. If straw mulch alone is used for temporary stabilization, it shall be applied at double the standard rate of 2 tons per acre, making the application rate 4 tons per acre. Other manufactured mulches should be applied at double the manufacturer's recommended rate.

10. To ensure adequate stabilization of disturbed soil in advance of a melt event, areas of disturbed soil should be stabilized at the end of each work day unless:

    a. work will resume within 24 hours in the same area and no precipitation is forecast or;

    b. the work is in disturbed areas that collect and retain runoff, such as open utility trenches, foundation excavations, or water management areas.

11. Use stone paths to stabilize access perimeters of buildings under construction and areas where construction vehicle traffic is anticipated. Stone paths should be a minimum 10 feet in width but wider as necessary to accommodate equipment.

Maintenance

The site shall be inspected frequently to ensure that the erosion and sediment control plan is performing its winter stabilization function. If the site will not have earth disturbing activities ongoing during the "winter season", **all** bare exposed soil must be stabilized by established vegetation, straw or other acceptable mulch, matting, rock, or other approved material such as rolled erosion control products. Seeding of areas with mulch cover is preferred but seeding alone is not acceptable for proper stabilization.

Compliance inspections must be performed and reports filed properly in accordance with the SWPPP for all sites under a winter shutdown.

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Appendix H
Inspection Forms, Checklists and Maintenance Guidelines

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____

Permit No. _____**Date of Authorization**_____

Name of Operator _____

Prime Contractor _____

a. Preamble to Site Assessment and Inspections -The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified professional[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request. The Operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis (Monthly Summary Report).

The operator shall also prepare a written summary of compliance with this general permit at a minimum frequency of every three months (Operator's Compliance Response Form), while coverage exists. The summary should address the status of achieving each component of the SWPPP.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 "Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).

2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

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b. Operators Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law. "

Name (please print):_____

Title _____**Date:**_____

Address: _____

Phone: _____ **Email:**_____

Signature:_____

c. Qualified Professional's Credentials & Certification

" I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (please print):_____

Title _____**Date:**_____

Address: _____

Phone: _____ **Email:**_____

Signature:_____

d. Pre-construction Site Assessment Checklist (NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

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Pre-construction Site Assessment Checklist (continued)

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?

[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.

[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.

[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.

[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.

[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.

[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.

[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.

[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals

[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.

[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.

[ ] [ ] [ ] The plan is contained in the SWPPP on page _____

[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

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II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:
Inspection Forms will be filled out during the entire construction phase of the project.
Required Elements:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

(6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Time of inspection:**	
Contractor:		**Weather conditions:**	
Inspector (Print name):		**Temperature:**	
Permit ID No.		**Wind:**	
		Soil Conditions:	

SUGGESTED E&SC REMEDIAL WORK BASED ON CURRENT INSPECTION:

MOIFICATIONS TO THE SWPP BASED ON CURRENT INSPECTION:

Modification and reason:

Refer to attached site plan sketch for summary of observed site conditions (page 2).
Refer to attached inspection checklist (pages 3 to 6) for items inspected.

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

SITE SKETCH

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

INSPECTION CHECKLIST

Maintaining Water quality

Yes	No	N/A	
☐	☐	☐	Is there an increase in turbidity causing a substantial visible? Contrast to natural conditions?
☐	☐	☐	Is there residue from oil and floating substances, visible oil film, oil globules or grease
☐	☐	☐	Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site conditions

Yes	No	N/A	
☐	☐	☐	Is construction site litter and debris appropriately managed?
☐	☐	☐	Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained.
☐	☐	☐	Is all disturbance within the limits of the approved plans? (i.e. no construction impacts to the adjacent property)?
☐	☐	☐	Is dust adequately controlled?

2. Temporary Stream crossing

Yes	No	N/A	
☐	☐	☐	Maximum diameter pipes necessary to span creek without dredging are installed.
☐	☐	☐	Installed non-woven geotextile fabric beneath approaches.
☐	☐	☐	Is fill composed of aggregate (no earth or soil)?
☐	☐	☐	Rock on approaches is clean enough to remove mud from vehicles and prevent sediment from entering stream during high flow.

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

Runoff Control practices

1. Excavation Dewatering

Yes	No	N/A	
☐	☐	☐	Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
☐	☐	☐	Clean water from upstream pool is being pumped to the downstream pool.
☐	☐	☐	Sediment laden water from work area is being discharged to a silt-trapping device.
☐	☐	☐	Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader

Yes	No	N/A	
☐	☐	☐	Installed per plan.
☐	☐	☐	Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
☐	☐	☐	Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes	No	N/A	
☐	☐	☐	Installed per plan with minimum side slopes @ 2H:1V or flatter.
☐	☐	☐	Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
☐	☐	☐	Sediment-laden runoff directed to sediment trapping structure.

4. Stone check Dam

Yes	No	N/A	
☐	☐	☐	Is channel stable? (flow is not eroding soil underneath or around the structure).
☐	☐	☐	Check is in good condition (rocks in place and no permanent pools behind the structure).
☐	☐	☐	Has accumulated sediment been removed?

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

5. Rock Outlet protection

Yes	No	N/A	
☐	☐	☐	Installed per plan
☐	☐	☐	Installed concurrently with pipe installation.

Soil stabilization

1. Topsoil and Spoil Stockpiles.

Yes	No	N/A	
☐	☐	☐	Stockpiles are stabilized with vegetation and/or mulch.
☐	☐	☐	Sediment control is installed at the toe of the slope.

2. Revegetation

Yes	No	N/A	
☐	☐	☐	Temporary seedings and mulch have been applied to idle areas.
☐	☐	☐	Four (4) inches minimum of topsoil has been applied under permanent seedings.

Sediment Control

1. Stabilize Construction Entrance.

Yes	No	N/A	
☐	☐	☐	Stone is clean enough to effectively remove mud from vehicles.
☐	☐	☐	Installed per standards and specifications?
☐	☐	☐	Does all traffic use the stabilized entrance to enter and leave site?
☐	☐	☐	Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence.

Yes	No	N/A	
☐	☐	☐	Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
☐	☐	☐	Joints constructed by wrapping the two ends together for continuous support.
☐	☐	☐	Fabric buried six (6) inches minimum.
☐	☐	☐	Posts are stable, fabric is tight and without rips or frayed areas. Sediment accumulation is __%__ of capacity.

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or Excavated Practices).

Yes	No	N/A	
☐	☐	☐	Installed concrete blocks lengthwise so open ends face outward, not upward.
☐	☐	☐	Place wire screen between No.3 crushed stone and concrete blocks.
☐	☐	☐	Drainage area is one (1) acre or less.
☐	☐	☐	Excavated area is 900 cubic feet.
☐	☐	☐	Excavated side slopes should be 2:1.
☐	☐	☐	2’ x 4’ frame is constructed and structurally sound.
☐	☐	☐	Posts 3-foot maximum spacing between posts.
☐	☐	☐	Fabric is embedded 1 to 1.5 feet below ground and secured to frame/post with staples at max 8-inch spacing.
☐	☐	☐	Posts are stable, fabric is tight and without rips or frayed areas. Sediment accumulation __%of design capacity.

4. Temporary Sediment Trap

Yes	No	N/A	
☐	☐	☐	Outlet structure is constructed per the approved plan or drawing.
☐	☐	☐	Geotextile fabric has been placed beneath rock fill. Sediment Accumulation is _____% of design capacity.

5. Temporary Sediment Basin

Yes	No	N/A	
☐	☐	☐	Basin and outlet structure constructed per the approved plan.
☐	☐	☐	Basin side slopes are stabilized with seed/mulch.
☐	☐	☐	Drainage structure flushed and basin restored upon removal of Sediment basin facility. Sediment accumulation __% of design capacity.

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STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

Project:		**Date:**	
Job No.:		**Client:**	

Additional Field Observations/Comments:

Qualified Professional Verification:
"I acknowledge that, to the best of my knowledge, all information provided within this inspection report is accurate and complete".

Qualified Professional (print name): _____

(signature): _____

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

STORMWATER POLLUTION PREVENTION
CONSTRUCTION DURATION INSPECTIONS

PHOTOGRAPHS OF SITE E&S DEFICIENCIES:

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Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Contributing areas clean of debris		
2. Check Dams or Energy Dissipators (Annual, After Major Storms)		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
3. Vegetation (Monthly)		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
4. Dewatering (Monthly)		
Dewaters between storms		

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MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Sediment deposition (Annual)		
Clean of sediment		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repairs		
No evidence of erosion		

Comments:

Actions to be Taken:

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H.2 Bioretention

Planting Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through adsorption and microbial activity within the soil profile. Therefore, the soils must balance soil chemistry and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should by less than 25% by volume. Soils should fall within the SM, or ML classifications of the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds. Placement of the planting soil should be in lifts of 12 to 18", loosely compacted (tamped lightly with a dozer or backhoe bucket). The specific characteristics are presented in Table H.2.

Table H.2 Planting Soil Characteristics

Parameter	Value
PH range	5.2 to 7.00
Organic matter	1.5 to 4.0%
Magnesium	35 lbs. per acre, minimum
Phosphorus (P_2O_5)	75 lbs. per acre, minimum
Potassium (K_2O)	85 lbs. per acre, minimum
Soluble salts	≤ 500 ppm
Clay	10 to 25%
Silt	30 to 55%
Sand	35 to 60%

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Mulch Layer

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoid surface sealing which reduces permeability. Mulch helps prevent erosion, and provides a micro-environment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double, shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

Planting Plan Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an ecosystem consisting of an upland-oriented community dominated by trees, but having a distinct community, or sub-canopy, of understory trees, shrubs and herbaceous materials. The intent is to establish a diverse, dense plant cover to treat stormwater runoff and withstand urban stresses from insect and disease infestations, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure H.1). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports a slightly drier group of plants, but still tolerates fluctuating water levels. The outer edge is the highest elevation and generally supports plants adapted to dryer conditions. When using Table A.5 to identify species, use the following guideline:

Lowest Zone: Zones 2-3

Middle Zone: Zones 3-4

Outer Zone: Zones 5-6

The layout of plant material should be flexible, but should follow the general principals described in Table H.3. The objective is to have a system which resembles a random and natural plant layout, while maintaining optimal conditions for plant establishment and growth.

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Figure H.1 Planting Zones for Bioretention Facilities

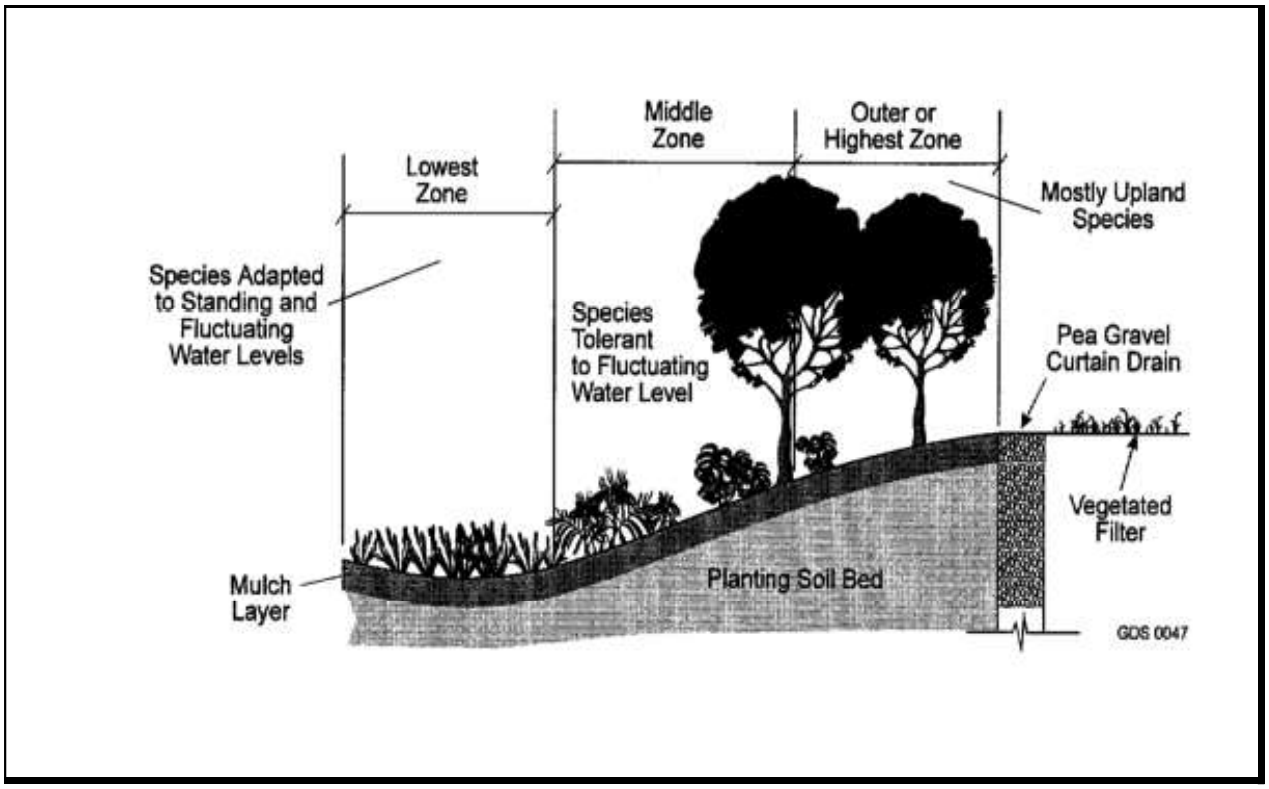

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Table H.3 Planting Plan Design Considerations
Native plant species should be specified over exotic or foreign species.
Appropriate vegetation should be selected based on the zone of hydric tolerance (see Figure H.1).
Species layout should generally be random and natural.
A canopy should be established with an understory of shrubs and herbaceous materials.
Woody vegetation should not be specified in the vicinity of inflow locations.
Trees should be planted primarily along the perimeter of the bioretention area.
Urban stressors (e.g., wind, sun, exposure, insect and disease infestation, drought) should be considered when laying out the planting plan.
Noxious weeds should not be specified.
Aesthetics and visual characteristics should be a prime consideration.
Traffic and safety issues must be considered.
Existing and proposed utilities must be identified and considered.

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Plant Material Guidance

Plant materials should conform to the American Standard Nursery Stock, published by the American Association of Nurserymen, and should be selected from certified, reputable nurseries. Planting specifications should be prepared by the designer and should include a sequence of construction, a description of the contractor's responsibilities, a planting schedule and installation specifications, initial maintenance, and a warranty period and expectations of plant survival. Table H.4 presents some typical issues for planting specifications.

Table H.4 Planting Specification Issues for Bioretention Areas	
Specification Element	**Elements**
Sequence of Construction	Describe site preparation activities, soil amendments, etc.; address erosion and sediment control procedures; specify step-by-step procedure for plant installation through site clean-up.
Contractor's Responsibilities	Specify the contractors responsibilities, such as watering, care of plant material during transport, timeliness of installation, repairs due to vandalism, etc.
Planting Schedule and Specifications	Specify the materials to be installed, the type of materials (e.g., B&B, bare root, containerized); time of year of installations, sequence of installation of types of plants; fertilization, stabilization seeding, if required; watering and general care.
Maintenance	Specify inspection periods; mulching frequency (annual mulching is most common); removal and replacement of dead and diseased vegetation; treatment of diseased trees; watering schedule after initial installation (once per day for 14 days is common); repair and replacement of staking and wires.
Warranty	Specify the warranty period, the required survival rate, and expected condition of plant species at the end of the warranty period.

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Trees and Shrubs						
American Elm *(Ulmus americana)*	4,5,6	Dec. Tree	yes	Irregular-seasonal saturation	High. Food (seeds,browsing), cover, nesting for birds & mammals	Susceptible to diesease (short-lived). Sun to full shade, tolerates drought and wind/ice damage.
Arrowwood Viburrium *(Viburrium dentatum)*	3,4	Dec. Shrub	yes	yes	High. Songbirds and mammals	Grows best in sun to partial shade
Bald Cypress *(Taxodium distichum)*	3,4	Dec. Tree	yes	yes	Little food value, but good perching site for waterfowl	Forested Coastal Plain. North of normal range. Tolerates drought.
Bayberry *(Myrica pensylvanica)*	4,5,6	Dec. Shrub	yes	yes	High. Nesting, food, cover. Berries last into winter	Coastal Plain only. Roots fix N_2 Tolerates slightly acidic soils.
Black Ash *(Fraxinus nigra)*	3,4,5	Dec. Tree	yes	Irregular-seasonal saturation	High. Food (seeds, sap), cover, nesting for birds & mammals. Fruit persists in winter	Rapid growth. Requires full sun. Susceptible to wind/ice damage & disease. Tolerates drought and infrequent flooding by salt water.
Black Cherry *(Prunus serotina)*	5,6	Dec. Tree	yes	no	High. Food	Moist soils or wet bottomland areas
Blackgum or Sourgum *(Nyssa sylvatica)*	4,5,6	Dec. Tree	yes	yes	High. Songbirds, egrets, herons, raccoons, owls	Can be difficult to transplant. Prefers sun to partial shade
Black Willow *(Salix nigra)*	3,4,5	Dec. Tree	yes	yes	High. Browsing and cavity nesters.	Rapid growth, stabilizes stream-banks. Full sun
Buttonbush *(Cepahlanthus occidentalis)*	2,3,4,5	Dec. Shrub	yes	yes	High. Ducks and shorebirds. Seeds, nectar and nesting.	Full sun to partial shade. Will grow in dry areas.
Common Spice Bush *(Lindera benzoin)*	3,4,5	Dec. Shrub	yes	yes	Very high. Songbirds	Shade and rich soils. Tolerates acidic soils. Good understory species

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
Eastern Cottonwood *(Populus deltoides)*	4,5	Dec. Tree	yes	yes	Moderate. Cover, food.	Shallow rooted, subject to windthrow. Invasive roots. Rapid growth.
Eastern Hemlock *(Tsuga canadensis)*	5,6	Conif. Tree	yes	yes	Moderate. Mostly cover and some food	Tolerates all sun/shade conditions. Tolerates acidic soil.
Eastern Red Cedar *(Juniperus virginiana)*	4,5,6	Conif. Tree	yes	no	High. Fruit for birds. Some cover.	Full sun to partial shade. Common in wetlands, shrub bogs and edge of stream
Elderberry *(Sambucus canadensis)*	3,4,5,6	Dec. Shrub	yes	yes	Extremely high. Food and cover, birds and mammals.	Full sun to partial shade.
Green Ash, Red Ash *(Fraxinus pennsylvania)*	4,5	Dec. Tree	yes	yes	Moderate. Songbirds.	Rapid growing streambank stabilizer. Full sun to partial shade.
Hackenberry *(Celtis occidentalis)*	5,6	Dec. Tree	yes	some	High. Food and cover	Full sun to partial shade.
Larch, Tamarack *(Larix latricina)*	3,4	Conif. Tree	no	yes	Low. Nest tree and seeds.	Rapid initial growth. Full sun, acidic boggy soil.
Pin Oak *(Quercus palustris)*	3,4,5,6	Dec. Tree	yes	yes	High. Tolerates acidic soil	Gypsy moth target. Prefers well drained, sandy soils.
Red Choke Berry *(Pyrus arbutifolia)*	3,4,5	Dec. Shrub	no	yes	Moderate. Songbirds.	Bank stabilizer. Partial sun.
Red Maple *(Acer rubrum)*	3,4,5,6	Dec. Tree	yes	yes	High seeds and browse. Tolerates acidic soil.	Rapid growth.
River Birch *(Betula nigra)*	3,4,5	Dec. Tree	yes	yes	Low. Good for cavity nesters.	Bank erosion control. Full sun.
Shadowbush, Serviceberry *(Amelanchier*	4,5,6	Dec. Shrub	yes	yes	High. Nesting, cover, food. Birds and	Prefers partial shade. Common in forested

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
canadensis)					mammals.	wetlands and upland woods.
Silky Dogwood *(Cornus amomium)*	3,4,5	Dec. Shrub	yes	yes	High. Songbirds, mammals.	Shade and drought tolerant. Good bank stabilizer.
Slippery Elm *(Ulnus rubra)*	3,4,5	Dec. Tree	rare	yes	High. Food (seeds, buds) for birds & mammals (browse). Nesting	Rapid growth, no salinity tolerance. Tolerant to shade and drought.
Smooth Alder *(Alnus serrulata)*	3,4,5	Dec. Tree	no	yes	High. Food, cover.	Rapid growth. Stabilizes streambanks.
Speckled Alder *(Alnus rugosa)*	3,4	Dec. Shrub	yes	yes	High. Cover, browse for deer, seeds for bird.	
Swamp White Oak *(Quercus bicolor)*	3,4,5	Dec. Tree	yes	yes	High. Mast	Full sun to partial shade. Good bottomland tree.
Swamp Rose *(Rosa Palustrus)*	3,4	Dec. Shrub		Irregular, seasonal, or regularly saturated	High. Food (hips) for birds including turkey, ruffed grouse and mammals. Fox cover.	Prefers full sun. Easy to establish. Low salt tolerance.
Sweetgum *(Liquidambar styraciflua)*	4,5,6	Dec. Tree	yes	yes	Moderate. Songbirds	Tolerates acid or clay soils. Sun to partial shade.
Sycamore *(Platanus occidentalis)*	4,5,6,	Dec. Tree	yes	yes	Low. Food, cavities for nesting.	Rapid growth. Common in floodplains and alluvial woodlands.
Tulip Tree *(Liriodendron tulipifera)*	5,6	Dec. Tree	yes	no	Moderate. Seeds and nest sites	Full sun to partial shade. Well drained soils. Rapid growth.
Tupelo *(Nyssa sylvatica vari biflora)*	3,4,5	Dec. Tree	yes	yes	High. Seeds and nest sites	Ornamental

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
White Ash *(Fraxinus americana)*	5,6	Dec. Tree	yes	no	High. Food	All sunlight conditions. Well drained soils.
Winterberry *(Ilex verticillata)*	3,4,5	Dec. Shrub	yes	yes	High. Cover and fruit for birds. Holds berries into winter.	Full sun to partial shade. Seasonally flooded areas.
Witch Hazel *(Hamamelis virginiana)*	4,5	Dec. Shrub	yes	no	Low. Food for squirrels, deer, and ruffed grouse.	Prefers shade. Ornamental.
Herbaceous Plants						
Arrow arum *(Peltandra virginica)*	2,3	Emergent	yes	up to 1 ft.	High. Berries are eaten by wood ducks.	Full sun to partial shade.
Arrowhead, Duck Potato *(Saggitaria latifolia)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Tubers and seeds eaten by ducks.	Aggressive colonizer.
Big Bluestem (*Andropogon gerardi*)	4,5	Perimeter	yes	Irregular or seasonal inundation.	High. Seeds for songbirds. Food for deer	Requires full sun.
Birdfoot deervetch (*Lotus Corniculatus*)	4,5,6	Perimeter	yes	Infrequent inundation	High. Food for birds.	Full sun. Nitrogen fixer.
Blue Flag Iris *(Iris versicolor)*	2,3	Emergent	yes	Regular or permanently, up to ½ ft or saturated	Moderate. Food muskrat and wildfowl. Cover, marshbirds	Slow growth. Full sun to partial shade. Tolerates clay. Fresh to moderately brackish water.
Blue Joint (*Calamagrotis canadensis*)	2,3,4	Emergent	yes	Regular or permanent inundation up to 0.5 ft.	Moderate. Food for game birds and moose.	Tolerates partial shade
Broomsedge *(Andropogon virginicus)*	2,3	Perimeter	yes	up to 3 in.	High. Songbirds and browsers. Winter food and cover.	Tolerant of fluctuation water levels & partial shade.
Bushy Beardgrass *(Andropogon glomeratus)*	2,3	Emergent	yes	up to 1 ft.		Requires full sun.
Cardinal flower (*Lobelia cardinalis*)	4,5,6	Perimeter	yes	Some. Tolerates saturation up to 100% of season.	High. Nectar for hummingbird, oriole, butterflies.	Tolerates partial shade

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Cattail *(Typha sp.)*	2,3	Emergent	yes	up to 1 ft.	Low. Except as cover	Aggressive. May eliminate other species. Volunteer. High pollutant treatment
Coontail *(Ceratophyllum demersum)*	1	Submergent	no	yes	Low food value. Good habitat and shelter for fish and invertebrates.	Free floating SAV. Shade tolerant. Rapid growth.
Common Three-Square *(Scirpus pungens)*	2	Emergent	yes	up to 6 in.	High. Seeds, cover. Waterfowl and fish.	High metal removal.
Duckweed *(Lemma sp.)*	1,2	Submergent/ Emergent	yes	yes	High. Food for waterfowl and fish.	High metal removal.
Fowl mannagrass (*Glyceria striata*)	4,5	Perimeter	yes	Irregular or seasonal inundation	High. Food for waterfowl, muskrat, and deer.	Partial to full shade.
Hardstem Bulrush *(Scirpus acutus)*	2	Emergent	yes	up to 3 ft.	High. Cover, food (achenes, rhizomes) ducks, geese, muskrat, fish. Nesting for bluegill and bass.	Quick to establish, fresh to brackish. Good for sediment stabilization and erosion control.
Giant Burreed *(Sparganium eurycarpum)*	2,3	Emergent	rare	Regular to permanently inundated. up to 1 ft.	High. Food (seeds, plant) waterfowl, beaver & other mammals. Cover for marshbirds, waterfowl.	Rapid spreading . Tolerates partial sun. Good for shoreline stabilization.. Salinity <0.5 ppt
Lizard's Tail *(Saururus cernuus)*	2	Emergent	yes	up to 1 ft.	Low, except wood ducks.	Rapid growth. Shade tolerant
Long-leaved Pond Weed *(Potamogeton nodosus)*	1,2	Rooted submerged aquatic	yes	up to 1-6 ft. depending on turbidity	High. Food (seeds, roots) waterfowl, aquatic fur-bearers, deer, moose. Habitat for fish	Rapid spread. Salinity <0.5 ppt. Flowers float on surface, Aug.-Sept.

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Marsh Hibiscus *(Hibiscus moscheutos)*	2,3	Emergent	yes	up to 3 in.	Low. Nectar.	Full sun. Can tolerate periodic dryness.
Pickerelweed *(Pontederia cordata)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Ducks. Nectar for butterflies.	Full sun to partial shade.
Pond Weed, Sago *(Potamogeton pectinatus*	1	Submergent	yes	yes	Extremely high. Waterfowl, marsh and shorebirds.	Removes heavy metals.
Redtop (*Agrostis alba*)	3,4,5	Perimeter	yes	Up to 25% of season	Moderate. Rabbits and some birds.	Quickly established but not highly competitive.
Rice Cutgrass *(Leersia oryzoides)*	2,3	Emergent	yes	up to 3 in.	High. Food and cover.	Full sun although tolerant of shade. Shoreline stabilization.
Sedges *(Carex spp.)*	2,3	Emergent	yes	up to 3 in.	High waterfowl, songbirds.	Many wetland and upland species.
Tufted Hairgrass (*Deschampsia caespitosa*)	3,4,5	Perimeter	yes	Regular to irregular inundation.	High.	Full sun. May become invasive.
Soft-stem Bulrush *(Scirpus validus)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Good cover and food.	Full sun. Aggressive colonizer. High pollutant removal.
Smartweed *(Polygonum spp.)*	2,3,4	Emergent	yes	up to 1 ft.	High. Waterfowl, songbirds. Seeds and cover.	Fast colonizer. Avoid weedy aliens such as *P. perfoliatum.*
Soft Rush *(Juncus effusus)*	2,3,4	Emergent	yes	up to 3 in.	Moderate.	Tolerates wet or dry conditions.
Spatterdock *(Nuphar luteum)*	2	Emergent	yes	up to 3 ft.	Moderate for food but high for cover.	Fast colonizer. Tolerant of fluctuating water levels.
Switchgrass *(Panicum virgatum)*	2,3,4,5,6	Perimeter	yes	up to 3 in.	High. Seeds, cover for waterfowl, songbirds.	Tolerates wet/dry conditions.

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Sweet Flag *(Acorus calamus)*	2,3	Herbaceous	yes	up to 3 in.	Low.	Tolerant of dry periods. Not a rapid colonizer. Tolerates acidic conditions.
Waterweed *(Elodea canadensis)*	1	Submergent	yes	yes	Low.	Good water oxygenator. High nutrient, copper, manganese and chromium removal.
Wild Celery *(Valisneria americana)*	1	Submergent	yes	yes	High. Food for waterfowl. Habitat for fish and invertebrates.	Tolerant of murkey water and high nutrient loads.
Wild Rice *(Zizania aquatica)*	2	Emergent	yes	up to 1 ft.	High. Food for birds.	Prefers full sun
Wool Grass *(Scirpus cyperinus)*	2,3	Emergent	yes	Irregularly to seasonally indundated	Moderate. Cover, Food.	Requires full sun. Can tolerate acidic soils, drought. Colonizes disturbed areas, moderate growth.

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Bioretention Operation, Maintenance and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		

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MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

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Comments:

Actions to be Taken:

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Appendix I
Environmental Assessment Form

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: 321 Commerce, LLC (Self-Storage)		
Project Location (describe, and attach a general location map): 321 Commerce Drive, Amherst, NY 14228		
Brief Description of Proposed Action (include purpose or need): New industrial development (approx. 164 self-storage unit rentals) on 1.78 +/- acre parcel located on the south side of Commerce Drive zoned RD, Research and Development. Four single story, slab on grade, buildings will be constructed sized to accommodate 10'x10' and 10'x15' units. Stormwater management controls are to be installed and will be SPDES compliant including a Bio-retention area and Dry Swale.		
Name of Applicant/Sponsor: 321 Commerce, LLC	Telephone: (716) 807-2388 E-Mail: BogartLandscape@yahoo.com	
Address: 6885 Campbell Blvd		
City/PO: North Tonawanda	State: New York	Zip Code: 14120
Project Contact (if not same as sponsor; give name and title/role): Advanced Design Group (Kristin L. Savard, PE - Owner/President)	Telephone: (716) 754-2256 E-Mail: kristin.savard@adgengineers.com	
Address: 761 Cayuga Street		
City/PO: Lewiston	State: New York	Zip Code: 14092
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

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B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Amherst Town Board Site Plan and SEQR Approval	Jan 2022
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Amherst Planning Board Site Plan and SEQR (Recommending Body)	Jan 2022
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☐Yes ☑No		
e. County agencies ☑Yes ☐No	Erie County Planning Site Plan and SEQR (Recommending body)	Jan 2022
f. Regional agencies ☐Yes ☑No		
g. State agencies ☐Yes ☑No		
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐Yes ☑No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

NYS Heritage Areas:West Erie Canal Corridor

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

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C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Classified as RD - Research and Development

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home Central School District, New York

b. What police or other public protection forces serve the project site?
Amherst Town Police Department

c. Which fire protection and emergency medical services serve the project site?
Ellicott Creek Fire Company

d. What parks serve the project site?
Ellicott Creek Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? New industrial development - Self-storage rental units

b. a. Total acreage of the site of the proposed action? 1.78 +/- acres
b. Total acreage to be physically disturbed? 1.78+/- acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 1.78 +/- acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 12 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

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f. Does the project include new residential uses? ☐ Yes ☑ No

1.f

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	_____	_____	_____	_____
At completion of all phases	_____	_____	_____	_____

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No

If Yes,

i. Total number of structures 4

ii. Dimensions (in feet) of largest proposed structure: 9 height; 20 width; and 260 length

iii. Approximate extent of building space to be heated or cooled: 0 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No

If Yes:

i .What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

_____

_____

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No

If yes, describe. _____

_____

v. What is the total area to be dredged or excavated? _____acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan: _____

_____

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☑ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

_____

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ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

_____

_____

_____

_____

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☐No

If Yes, describe: _____

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☐No

If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____

_____

- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

_____

c. Will the proposed action use, or create a new demand for water? ☐Yes ☑No

If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐Yes ☐No

If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No
- Do existing lines serve the project site? ☐Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No

If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

_____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐Yes ☑No

If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

_____

_____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐Yes ☐No

If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No

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1.f

- Do existing sewer lines serve the project site? ☐Yes ☐
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 1.17 acres (impervious surface)

_____ Square feet or 1.78 acres (parcel size)

ii. Describe types of new point sources. Pavement drive and four storage buildings, two 5,200 sq. ft. and two 4,500 sq. ft.

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Stormwater runoff will be directed through vegetated swales, pipes, dry swales, and bio-retention areas to the existing stormwater manhole on the west side of the property and out to Ellicott Creek.

- If to surface waters, identify receiving water bodies or wetlands: Ellicott Creek
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☑No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

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1.f

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

_____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 07:00 AM to 07:00 PM
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: 07:00 AM to 07:00 PM
- Saturday: 07:00 AM to 07:00 PM
- Sunday: 07:00 AM to 07:00 PM
- Holidays: 07:00 AM to 07:00 PM

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m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Heavy equipment operations, deliveries of material, construction traffic, and select components of construction will produce noise that will exceed the existing ambient noise levels (only during construction hours).

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☑ Yes ☐ No

Describe: Land clearing will occur as part of the project. Proper buffer zones will be maintained.

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Wall Packs, between proposed storage buildings, 10 feet high, directed at ground 45 degrees from buildings, 55 feet to KOM Automation, Inc.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☑ Yes ☐ No

Describe: Land clearing will occur as part of the project. Proper buffer zones will be maintained.

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

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s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☑ Industrial ☑ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☑ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

There is both industrial and commercial near the project site as it is zoned research and development. Ellicott Creek is to the south of the project area

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0.0	1.17	+1.17
• Forested	0.0	0.0	0.0
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	1.78	0.61	-1.17
• Agricultural (includes active orchards, field, greenhouse etc.)	0.0	0.0	0.0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.0	0.0	0.0
• Wetlands (freshwater or tidal)	0.0	0.0	0.0
• Non-vegetated (bare rock, earth or fill)	0.0	0.0	0.0
• Other Describe: _____			

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c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No
If Yes,
i. Identify Facilities:
_____
_____

e. Does the project site contain an existing dam? ☐ Yes ☑ No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:
_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No
If Yes:
i. Has the facility been formally closed? ☐ Yes ☐ No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
_____
_____
iii. Describe any development constraints due to the prior solid waste activities: _____
_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:
_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☑ No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:_____
_____
_____
iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☑ No
If yes, provide DEC ID number(s): _____
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):
_____
_____

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v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? > 6.5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:

Cosad Loamy Fine Sand	66 %
Getzville Silt Loam	34 %
	%

d. What is the average depth to the water table on the project site? Average: 0.75 feet

e. Drainage status of project site soils:

☐	Well Drained:	% of site
☐	Moderately Well Drained:	% of site
☑	Poorly Drained	100 % of site

f. Approximate proportion of proposed action site with slopes:

☑	0-10%:	100 % of site
☐	10-15%:	% of site
☐	15% or greater:	% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☑ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name Ellicott Creek Classification fourth order
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

1.f

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m. Identify the predominant wildlife species that occupy or use the project site:
Woodland Wildlife

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation): _____
ii. Source(s) of description or evaluation: _____
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☑ No

If Yes:
i. Species and listing (endangered or threatened): _____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑ Yes ☐ No

If Yes:
i. Species and listing:
Spiny Softshell

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No
If yes, give a brief description of how the proposed action may affect that use: _____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No
If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No
i. If Yes: acreage(s) on project site? _____
ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No
If Yes:
i. CEA name: _____
ii. Basis for designation: _____
iii. Designating agency and date: _____

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1.f

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: Ellicott Creek Park

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): Park

iii. Distance between project and resource: 0.19 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name 321 Commerce, LLC Date 1/21/2022

Signature [signature] Title owner

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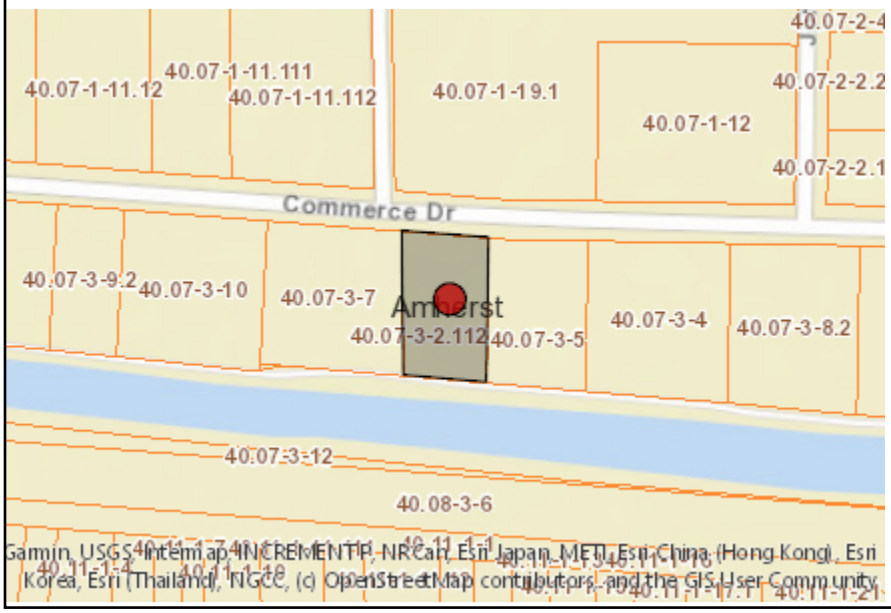
EAF Mapper Summary Report

Tuesday, August 3, 2021 2:21 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No

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E.2.p. [Rare Plants or Animals]	Yes
E.2.p. [Rare Plants or Animals - Name]	Spiny Softshell
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

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Appendix J
NYS Stormwater Management Design Manual Appendix H

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H.1 Ponds and Wetlands

For areas that are to be planted within a stormwater pond, it is necessary to determine what type of hydrologic zones will be created within the pond. The following six zones describe the different conditions encountered in stormwater management facilities. Every facility does not necessarily reflect all of these zones. The hydrologic zones designate the degree of tolerance the plant exhibits to differing degrees of inundation by water.

Table H.5 at the end of this appendix designates appropriate zones for each plant. There may be other zones listed outside of these brackets. The plant materials may occur within these zones, but are not typically found in them. Plants suited for specific hydrologic conditions may perish when those conditions change, exposing the soil, and therefore, increasing the chance for erosion.

Each zone has its own set of plant selection criteria based on the hydrology of the zone, the stormwater functions required of the plant and the desired landscape effect. The hydrologic zones are as follows:

Table H.1 Hydrologic Zones

Zone #	Zone Description	Hydrologic Conditions
Zone 1	Deep Water Pool	1-6 feet deep Permanent Pool
Zone 2	Shallow Water Bench	6 inches to 1 foot deep
Zone 3	Shoreline Fringe	Regularly inundated
Zone 4	Riparian Fringe	Periodically inundated
Zone 5	Floodplain Terrace	Infrequently inundated
Zone 6	Upland Slopes	Seldom or never inundated

Zone 1: Deep Water Area ***(1- 6 Feet)***

Ponds and wetlands both have deep pool areas that comprise Zone 1. These pools range from one to six feet in depth, and are best colonized by submergent plants, if at all.

This pondscaping zone has not been routinely planted for several reasons. First, the availability of plant materials that can survive and grow in this zone is limited, and it is also feared that plants could clog the stormwater facility outlet structure. In many cases, these plants will gradually become established through natural recolonization (e.g., transport of plant fragments from other ponds via the feet and legs of waterfowl). If submerged plant material becomes more commercially available and clogging concerns are addressed, this area can be planted. The function of the planting is to reduce resedimentation and improve oxidation while creating a greater aquatic habitat.

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- Plant material must be able to withstand constant inundation of water of one foot or greater in depth.
- Plants may be submerged partially or entirely.
- Plants should be able to enhance pollutant uptake.
- Plants may provide food and cover for waterfowl, desirable insects, and other aquatic life.

Zone 2: Shallow Water Bench ***(Normal Pool To 1 Foot)***

Zone 2 includes all areas that are inundated below the normal pool to a depth of one foot, and is the primary area where emergent plants will grow in a stormwater wetlands. Zone 2 also coincides with the aquatic bench found in stormwater ponds. This zone offers ideal conditions for the growth of many emergent wetland species. These areas may be located at the edge of the pond or on low mounds of earth located below the surface of the water within the pond. When planted, Zone 2 can be an important habitat for many aquatic and nonaquatic animals, creating a diverse food chain. This food chain includes predators, allowing a natural regulation of mosquito populations, thereby reducing the need for insecticidal applications.

- Plant material must be able to withstand constant inundation of water to depths between six inches and one foot deep.
- Plants will be partially submerged.
- Plants should be able to enhance pollutant uptake.
- Plants may provide food and cover for waterfowl, desirable insects and other aquatic life.

Plants will stabilize the bottom of the pond, as well as the edge of the pond, absorbing wave impacts and reducing erosion, when water level fluctuates. Plant also slow water velocities and increase sediment deposition rates. Plants can reduce resuspension of sediments caused by the wind. Plants can also soften the engineered contours of the pond, and can conceal drawdowns during dry weather.

Zone 3: Shoreline Fringe ***(Regularly Inundated)***

Zone 3 encompasses the shoreline of a pond or wetland, and extends vertically about one foot in elevation from the normal pool. This zone includes the safety bench of a pond, and may also be periodically inundated if storm events are subject to extended detention. This zone occurs in a wet pond or shallow marsh and can be the most difficult to establish since plants must be able to withstand inundation of water during storms, when wind might blow water into the area, or the occasional drought during the summer. In order to stabilize the soil in this zone, Zone 3 must have a vigorous cover.

- Plants should stabilize the shoreline to minimize erosion caused by wave and wind action or water fluctuation.
- Plant material must be able to withstand occasional inundation of water. Plants will be partially submerged at this time.
- Plant material should, whenever possible, shade the shoreline, especially the southern exposure. This will help to reduce the water temperature.

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- Plants should be able to enhance pollutant uptake.
- Plants may provide food and cover for waterfowl, songbirds, and wildlife. Plants could also be selected and located to control overpopulation of waterfowl.
- Plants should be located to reduce human access, where there are potential hazards, but should not block the maintenance access.
- Plants should have very low maintenance requirements, since they may be difficult or impossible to reach.
- Plants should be resistant to disease and other problems which require chemical applications (since chemical application is not advised in stormwater ponds).

Zone 4: Riparian Fringe ***(Periodically Inundated)***

Zone 4 extends from one to four feet in elevation above the normal pool. Plants in this zone are subject to periodic inundation after storms, and may experience saturated or partly saturated soil conditions. Nearly all of the temporary ED area is included within this zone.

- Plants must be able to withstand periodic inundation of water after storms, as well as occasional drought during the warm summer months.
- Plants should stabilize the ground from erosion caused by run-off.
- Plants should shade the low flow channel to reduce the pool warming whenever possible.
- Plants should be able to enhance pollutant uptake.
- Plant material should have very low maintenance, since they may be difficult or impossible to access.
- Plants may provide food and cover for waterfowl, songbirds and wildlife. Plants may also be selected and located to control overpopulation of waterfowl.
- Plants should be located to reduce pedestrian access to the deeper pools.

Zone 5: Floodplain Terrace ***(Infrequently Inundated)***

Zone 5 is periodically inundated by flood waters that quickly recedes in a day or less. Operationally, Zone 5 extends from the maximum two year or Cpv water surface elevation up to the 10 or 100 year maximum water surface elevation. Key landscaping objectives for Zone 5 are to stabilize the steep slopes characteristic of this zone, and establish a low maintenance, natural vegetation.

- Plant material should be able to withstand occasional but brief inundation during storms, although typical moisture conditions may be moist, slightly wet, or even swing entirely to drought conditions during the dry weather periods.
- Plants should stabilize the basin slopes from erosion.
- Ground cover should be very low maintenance, since they may be difficult to access on steep slopes or if frequency of mowing is limited. A dense tree cover may help reduce maintenance and discourage resident geese.
- Plants may provide food and cover for waterfowl, songbirds, and wildlife.

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- Placement of plant material in Zone 5 is often critical, as it often creates a visual focal point and provides structure and shade for a greater variety of plants.

Zone 6: Upland Slopes *(Seldom or Never Inundated)*

The last zone extends above the maximum 100 year water surface elevation, and often includes the outer buffer of a pond or wetland. Unlike other zones, this upland area may have sidewalks, bike paths, retaining walls, and maintenance access roads. Care should be taken to locate plants so they will not overgrow these routes or create hiding places that might make the area unsafe.

- Plant material is capable of surviving the particular conditions of the site. Thus, it is not necessary to select plant material that will tolerate any inundation. Rather, plant selections should be made based on soil condition, light, and function within the landscape.
- Ground covers should emphasize infrequent mowing to reduce the cost of maintaining this landscape.
- Placement of plants in Zone 6 is important since they are often used to create a visual focal point, frame a desirable view, screen undesirable views, serve as a buffer, or provide shade to allow a greater variety of plant materials. Particular attention should be paid to seasonal color and texture of these plantings.

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H.2 Bioretention

Planting Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through adsorption and microbial activity within the soil profile. Therefore, the soils must balance soil chemistry and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should by less than 25% by volume. Soils should fall within the SM, or ML classifications of the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds. Placement of the planting soil should be in lifts of 12 to 18", loosely compacted (tamped lightly with a dozer or backhoe bucket). The specific characteristics are presented in Table H.2.

Table H.2 Planting Soil Characteristics

Parameter	Value
PH range	5.2 to 7.00
Organic matter	1.5 to 4.0%
Magnesium	35 lbs. per acre, minimum
Phosphorus (P_2O_5)	75 lbs. per acre, minimum
Potassium (K_2O)	85 lbs. per acre, minimum
Soluble salts	≤ 500 ppm
Clay	10 to 25%
Silt	30 to 55%
Sand	35 to 60%

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Mulch Layer

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoid surface sealing which reduces permeability. Mulch helps prevent erosion, and provides a micro-environment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double, shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

Planting Plan Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an ecosystem consisting of an upland-oriented community dominated by trees, but having a distinct community, or sub-canopy, of understory trees, shrubs and herbaceous materials. The intent is to establish a diverse, dense plant cover to treat stormwater runoff and withstand urban stresses from insect and disease infestations, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure H.1). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports a slightly drier group of plants, but still tolerates fluctuating water levels. The outer edge is the highest elevation and generally supports plants adapted to dryer conditions. When using Table A.5 to identify species, use the following guideline:

Lowest Zone: Zones 2-3

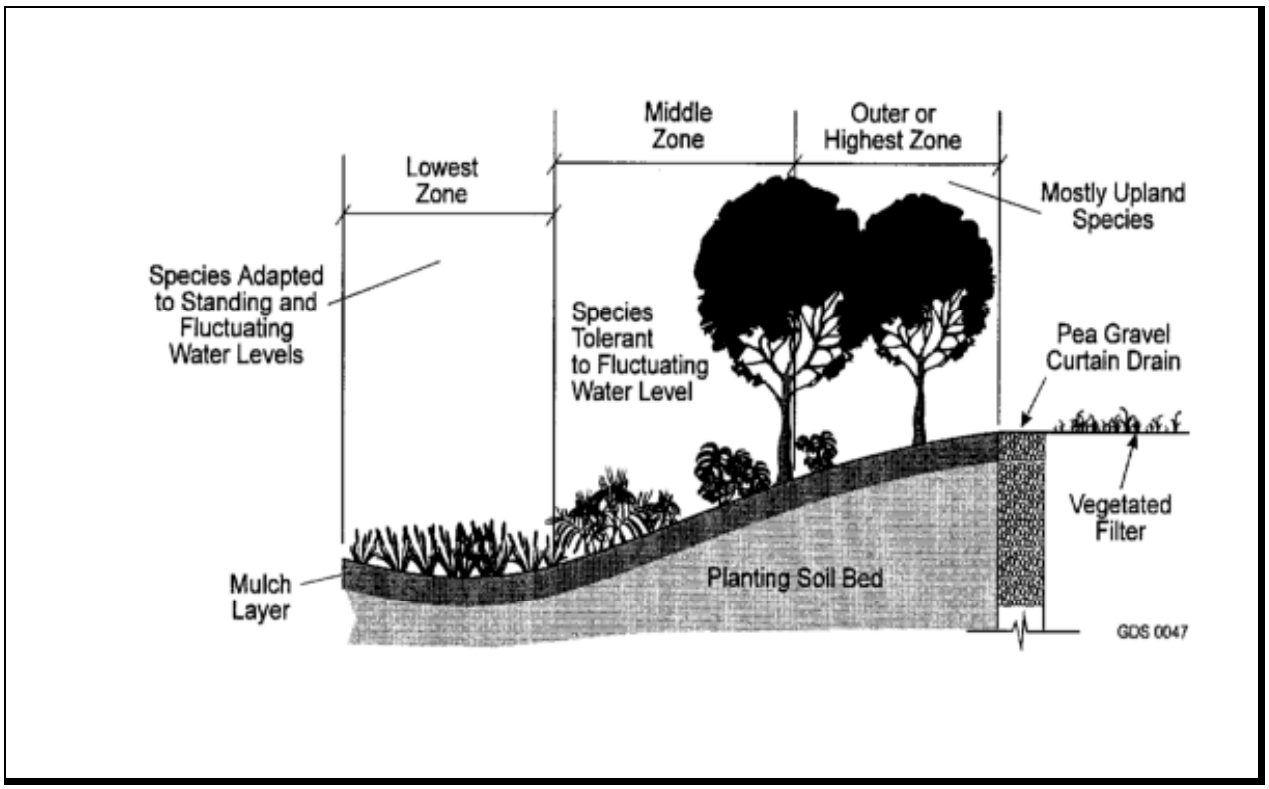
Middle Zone: Zones 3-4

Outer Zone: Zones 5-6

The layout of plant material should be flexible, but should follow the general principals described in Table H.3. The objective is to have a system which resembles a random and natural plant layout, while maintaining optimal conditions for plant establishment and growth.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Figure H.1 Planting Zones for Bioretention Facilities



Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Table H.3 Planting Plan Design Considerations
Native plant species should be specified over exotic or foreign species.
Appropriate vegetation should be selected based on the zone of hydric tolerance (see Figure H.1).
Species layout should generally be random and natural.
A canopy should be established with an understory of shrubs and herbaceous materials.
Woody vegetation should not be specified in the vicinity of inflow locations.
Trees should be planted primarily along the perimeter of the bioretention area.
Urban stressors (e.g., wind, sun, exposure, insect and disease infestation, drought) should be considered when laying out the planting plan.
Noxious weeds should not be specified.
Aesthetics and visual characteristics should be a prime consideration.
Traffic and safety issues must be considered.
Existing and proposed utilities must be identified and considered.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Plant Material Guidance

Plant materials should conform to the American Standard Nursery Stock, published by the American Association of Nurserymen, and should be selected from certified, reputable nurseries. Planting specifications should be prepared by the designer and should include a sequence of construction, a description of the contractor's responsibilities, a planting schedule and installation specifications, initial maintenance, and a warranty period and expectations of plant survival. Table H.4 presents some typical issues for planting specifications.

Table H.4 Planting Specification Issues for Bioretention Areas	
Specification Element	**Elements**
Sequence of Construction	Describe site preparation activities, soil amendments, etc.; address erosion and sediment control procedures; specify step-by-step procedure for plant installation through site clean-up.
Contractor's Responsibilities	Specify the contractors responsibilities, such as watering, care of plant material during transport, timeliness of installation, repairs due to vandalism, etc.
Planting Schedule and Specifications	Specify the materials to be installed, the type of materials (e.g., B&B, bare root, containerized); time of year of installations, sequence of installation of types of plants; fertilization, stabilization seeding, if required; watering and general care.
Maintenance	Specify inspection periods; mulching frequency (annual mulching is most common); removal and replacement of dead and diseased vegetation; treatment of diseased trees; watering schedule after initial installation (once per day for 14 days is common); repair and replacement of staking and wires.
Warranty	Specify the warranty period, the required survival rate, and expected condition of plant species at the end of the warranty period.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
Trees and Shrubs						
American Elm *(Ulmus americana)*	4,5,6	Dec. Tree	yes	Irregular-seasonal saturation	High. Food (seeds,browsing), cover, nesting for birds & mammals	Susceptible to diesease (short-lived). Sun to full shade, tolerates drought and wind/ice damage.
Arrowwood Viburrium *(Viburrium dentatum)*	3,4	Dec. Shrub	yes	yes	High. Songbirds and mammals	Grows best in sun to partial shade
Bald Cypress *(Taxodium distichum)*	3,4	Dec. Tree	yes	yes	Little food value, but good perching site for waterfowl	Forested Coastal Plain. North of normal range. Tolerates drought.
Bayberry *(Myrica pensylvanica)*	4,5,6	Dec. Shrub	yes	yes	High. Nesting, food, cover. Berries last into winter	Coastal Plain only. Roots fix N_2 Tolerates slightly acidic soils.
Black Ash *(Fraxinus nigra)*	3,4,5	Dec. Tree	yes	Irregular-seasonal saturation	High. Food (seeds, sap), cover, nesting for birds & mammals. Fruit persists in winter	Rapid growth. Requires full sun. Susceptible to wind/ice damage & disease. Tolerates drought and infrequent flooding by salt water.
Black Cherry *(Prunus serotina)*	5,6	Dec. Tree	yes	no	High. Food	Moist soils or wet bottomland areas
Blackgum or Sourgum *(Nyssa sylvatica)*	4,5,6	Dec. Tree	yes	yes	High. Songbirds, egrets, herons, raccoons, owls	Can be difficult to transplant. Prefers sun to partial shade
Black Willow *(Salix nigra)*	3,4,5	Dec. Tree	yes	yes	High. Browsing and cavity nesters.	Rapid growth, stabilizes stream-banks. Full sun
Buttonbush *(Cepahlanthus occidentalis)*	2,3,4,5	Dec. Shrub	yes	yes	High. Ducks and shorebirds. Seeds, nectar and nesting.	Full sun to partial shade. Will grow in dry areas.
Common Spice Bush *(Lindera benzoin)*	3,4,5	Dec. Shrub	yes	yes	Very high. Songbirds	Shade and rich soils. Tolerates acidic soils. Good understory species

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
Eastern Cottonwood *(Populus deltoides)*	4,5	Dec. Tree	yes	yes	Moderate. Cover, food.	Shallow rooted, subject to windthrow. Invasive roots. Rapid growth.
Eastern Hemlock *(Tsuga canadensis)*	5,6	Conif. Tree	yes	yes	Moderate. Mostly cover and some food	Tolerates all sun/shade conditions. Tolerates acidic soil.
Eastern Red Cedar *(Juniperus virginiana)*	4,5,6	Conif. Tree	yes	no	High. Fruit for birds. Some cover.	Full sun to partial shade. Common in wetlands, shrub bogs and edge of stream
Elderberry *(Sambucus canadensis)*	3,4,5,6	Dec. Shrub	yes	yes	Extremely high. Food and cover, birds and mammals.	Full sun to partial shade.
Green Ash, Red Ash *(Fraxinus pennsylvania)*	4,5	Dec. Tree	yes	yes	Moderate. Songbirds.	Rapid growing streambank stabilizer. Full sun to partial shade.
Hackenberry *(Celtis occidentalis)*	5,6	Dec. Tree	yes	some	High. Food and cover	Full sun to partial shade.
Larch, Tamarack *(Larix latricina)*	3,4	Conif. Tree	no	yes	Low. Nest tree and seeds.	Rapid initial growth. Full sun, acidic boggy soil.
Pin Oak *(Quercus palustris)*	3,4,5,6	Dec. Tree	yes	yes	High. Tolerates acidic soil	Gypsy moth target. Prefers well drained, sandy soils.
Red Choke Berry *(Pyrus arbutifolia)*	3,4,5	Dec. Shrub	no	yes	Moderate. Songbirds.	Bank stabilizer. Partial sun.
Red Maple *(Acer rubrum)*	3,4,5,6	Dec. Tree	yes	yes	High seeds and browse. Tolerates acidic soil.	Rapid growth.
River Birch *(Betula nigra)*	3,4,5	Dec. Tree	yes	yes	Low. Good for cavity nesters.	Bank erosion control. Full sun.
Shadowbush, Serviceberry *(Amelanchier*	4,5,6	Dec. Shrub	yes	yes	High. Nesting, cover, food. Birds and	Prefers partial shade. Common in forested

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
canadensis)					mammals.	wetlands and upland woods.
Silky Dogwood *(Cornus amomium)*	3,4,5	Dec. Shrub	yes	yes	High. Songbirds, mammals.	Shade and drought tolerant. Good bank stabilizer.
Slippery Elm *(Ulnus rubra)*	3,4,5	Dec. Tree	rare	yes	High. Food (seeds, buds) for birds & mammals (browse). Nesting	Rapid growth, no salinity tolerance. Tolerant to shade and drought.
Smooth Alder *(Alnus serrulata)*	3,4,5	Dec. Tree	no	yes	High. Food, cover.	Rapid growth. Stabilizes streambanks.
Speckled Alder *(Alnus rugosa)*	3,4	Dec. Shrub	yes	yes	High. Cover, browse for deer, seeds for bird.	
Swamp White Oak *(Quercus bicolor)*	3,4,5	Dec. Tree	yes	yes	High. Mast	Full sun to partial shade. Good bottomland tree.
Swamp Rose *(Rosa Palustrus)*	3,4	Dec. Shrub		Irregular, seasonal, or regularly saturated	High. Food (hips) for birds including turkey, ruffed grouse and mammals. Fox cover.	Prefers full sun. Easy to establish. Low salt tolerance.
Sweetgum *(Liquidambar styraciflua)*	4,5,6	Dec. Tree	yes	yes	Moderate. Songbirds	Tolerates acid or clay soils. Sun to partial shade.
Sycamore *(Platanus occidentalis)*	4,5,6,	Dec. Tree	yes	yes	Low. Food, cavities for nesting.	Rapid growth. Common in floodplains and alluvial woodlands.
Tulip Tree *(Liriodendron tulipifera)*	5,6	Dec. Tree	yes	no	Moderate. Seeds and nest sites	Full sun to partial shade. Well drained soils. Rapid growth.
Tupelo *(Nyssa sylvatica vari biflora)*	3,4,5	Dec. Tree	yes	yes	High. Seeds and nest sites	Ornamental

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
White Ash *(Fraxinus americana)*	5,6	Dec. Tree	yes	no	High. Food	All sunlight conditions. Well drained soils.
Winterberry *(Ilex verticillata)*	3,4,5	Dec. Shrub	yes	yes	High. Cover and fruit for birds. Holds berries into winter.	Full sun to partial shade. Seasonally flooded areas.
Witch Hazel *(Hamamelis virginiana)*	4,5	Dec. Shrub	yes	no	Low. Food for squirrels, deer, and ruffed grouse.	Prefers shade. Ornamental.
Herbaceous Plants						
Arrow arum *(Peltandra virginica)*	2,3	Emergent	yes	up to 1 ft.	High. Berries are eaten by wood ducks.	Full sun to partial shade.
Arrowhead, Duck Potato *(Saggitaria latifolia)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Tubers and seeds eaten by ducks.	Aggressive colonizer.
Big Bluestem (*Andropogon gerardi*)	4,5	Perimeter	yes	Irregular or seasonal inundation.	High. Seeds for songbirds. Food for deer	Requires full sun.
Birdfoot deervetch (*Lotus Corniculatus*)	4,5,6	Perimeter	yes	Infrequent inundation	High. Food for birds.	Full sun. Nitrogen fixer.
Blue Flag Iris *(Iris versicolor)*	2,3	Emergent	yes	Regular or permanently, up to ½ ft or saturated	Moderate. Food muskrat and wildfowl. Cover, marshbirds	Slow growth. Full sun to partial shade. Tolerates clay. Fresh to moderately brackish water.
Blue Joint (*Calamagrotis canadensis*)	2,3,4	Emergent	yes	Regular or permanent inundation up to 0.5 ft.	Moderate. Food for game birds and moose.	Tolerates partial shade
Broomsedge *(Andropogon virginicus)*	2,3	Perimeter	yes	up to 3 in.	High. Songbirds and browsers. Winter food and cover.	Tolerant of fluctuation water levels & partial shade.
Bushy Beardgrass *(Andropogon glomeratus)*	2,3	Emergent	yes	up to 1 ft.		Requires full sun.
Cardinal flower (*Lobelia cardinalis*)	4,5,6	Perimeter	yes	Some. Tolerates saturation up to 100% of season.	High. Nectar for hummingbird, oriole, butterflies.	Tolerates partial shade

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Cattail *(Typha sp.)*	2,3	Emergent	yes	up to 1 ft.	Low. Except as cover	Aggressive. May eliminate other species. Volunteer. High pollutant treatment
Coontail *(Ceratophyllum demersum)*	1	Submergent	no	yes	Low food value. Good habitat and shelter for fish and invertebrates.	Free floating SAV. Shade tolerant. Rapid growth.
Common Three-Square *(Scirpus pungens)*	2	Emergent	yes	up to 6 in.	High. Seeds, cover. Waterfowl and fish.	High metal removal.
Duckweed *(Lemma sp.)*	1,2	Submergent/ Emergent	yes	yes	High. Food for waterfowl and fish.	High metal removal.
Fowl mannagrass (*Glyceria striata*)	4,5	Perimeter	yes	Irregular or seasonal inundation	High. Food for waterfowl, muskrat, and deer.	Partial to full shade.
Hardstem Bulrush *(Scirpus acutus)*	2	Emergent	yes	up to 3 ft.	High. Cover, food (achenes, rhizomes) ducks, geese, muskrat, fish. Nesting for bluegill and bass.	Quick to establish, fresh to brackish. Good for sediment stabilization and erosion control.
Giant Burreed *(Sparganium eurycarpum)*	2,3	Emergent	rare	Regular to permanently inundated. up to 1 ft.	High. Food (seeds, plant) waterfowl, beaver & other mammals. Cover for marshbirds, waterfowl.	Rapid spreading . Tolerates partial sun. Good for shoreline stabilization.. Salinity <0.5 ppt
Lizard's Tail *(Saururus cernuus)*	2	Emergent	yes	up to 1 ft.	Low, except wood ducks.	Rapid growth. Shade tolerant
Long-leaved Pond Weed *(Potamogeton nodosus)*	1,2	Rooted submerged aquatic	yes	up to 1-6 ft. depending on turbidity	High. Food (seeds, roots) waterfowl, aquatic fur-bearers, deer, moose. Habitat for fish	Rapid spread. Salinity <0.5 ppt. Flowers float on surface, Aug.-Sept.

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)

Plant Name	Zone	Form	Available	Inundation Tolerance	Wildlife Value	Notes
Marsh Hibiscus *(Hibiscus moscheutos)*	2,3	Emergent	yes	up to 3 in.	Low. Nectar.	Full sun. Can tolerate periodic dryness.
Pickerelweed *(Pontederia cordata)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Ducks. Nectar for butterflies.	Full sun to partial shade.
Pond Weed, Sago *(Potamogeton pectinatus*	1	Submergent	yes	yes	Extremely high. Waterfowl, marsh and shorebirds.	Removes heavy metals.
Redtop (*Agrostis alba*)	3,4,5	Perimeter	yes	Up to 25% of season	Moderate. Rabbits and some birds.	Quickly established but not highly competitive.
Rice Cutgrass *(Leersia oryzoides)*	2,3	Emergent	yes	up to 3 in.	High. Food and cover.	Full sun although tolerant of shade. Shoreline stabilization.
Sedges *(Carex spp.)*	2,3	Emergent	yes	up to 3 in.	High waterfowl, songbirds.	Many wetland and upland species.
Tufted Hairgrass (*Deschampsia caespitosa*)	3,4,5	Perimeter	yes	Regular to irregular inundation.	High.	Full sun. May become invasive.
Soft-stem Bulrush *(Scirpus validus)*	2,3	Emergent	yes	up to 1 ft.	Moderate. Good cover and food.	Full sun. Aggressive colonizer. High pollutant removal.
Smartweed *(Polygonum spp.)*	2,3,4	Emergent	yes	up to 1 ft.	High. Waterfowl, songbirds. Seeds and cover.	Fast colonizer. Avoid weedy aliens such as *P. perfoliatum.*
Soft Rush *(Juncus effusus)*	2,3,4	Emergent	yes	up to 3 in.	Moderate.	Tolerates wet or dry conditions.
Spatterdock *(Nuphar luteum)*	2	Emergent	yes	up to 3 ft.	Moderate for food but high for cover.	Fast colonizer. Tolerant of fluctuating water levels.
Switchgrass *(Panicum virgatum)*	2,3,4,5,6	Perimeter	yes	up to 3 in.	High. Seeds, cover for waterfowl, songbirds.	Tolerates wet/dry conditions.

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Table H.5 Native Plant Guide for Stormwater Management Areas (NY)						
Plant Name	**Zone**	**Form**	**Available**	**Inundation Tolerance**	**Wildlife Value**	**Notes**
Sweet Flag *(Acorus calamus)*	2,3	Herbaceous	yes	up to 3 in.	Low.	Tolerant of dry periods. Not a rapid colonizer. Tolerates acidic conditions.
Waterweed *(Elodea canadensis)*	1	Submergent	yes	yes	Low.	Good water oxygenator. High nutrient, copper, manganese and chromium removal.
Wild Celery *(Valisneria americana)*	1	Submergent	yes	yes	High. Food for waterfowl. Habitat for fish and invertebrates.	Tolerant of murkey water and high nutrient loads.
Wild Rice *(Zizania aquatica)*	2	Emergent	yes	up to 1 ft.	High. Food for birds.	Prefers full sun
Wool Grass *(Scirpus cyperinus)*	2,3	Emergent	yes	Irregularly to seasonally indundated	Moderate. Cover, Food.	Requires full sun. Can tolerate acidic soils, drought. Colonizes disturbed areas, moderate growth.

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Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix K
Project Correspondence

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

ERIE COUNTY CLERK'S OFFICE

County Clerk's Recording Page

Return to:
BOX 145

Party 1:
EWE II LLC

Party 2:
355 PROPERTIES LLC

Book Type: D Book: 11349 Page: 6748
Page Count: 4
Doc Type: DEED
Rec Date: 09/10/2019
Rec Time: 04:34:32 PM
Control #: 2019194899
UserID: Sharon
Trans #: 19149337
Document Sequence Number
TT2019003112

Recording Fees:

RECORDING	$40.00
COE CO $1 RET	$1.00
COE STATE $14.25 GEN	$14.25
COE STATE $4.75 RM	$4.75
RP5217 CNTY $9	$9.00
RP5217 ST-NON RES $241	$241.00
TP584	$10.00

Consideration Amount: 775000.00

BASIC MT	$0.00
SONYMA MT	$0.00
ADDL MT/NFTA	$0.00
SP MT/M-RAIL	$0.00
NY STATE TT	$3,100.00
ROAD FUND TT	$3,875.00

Total: $7,295.00

STATE OF NEW YORK
ERIE COUNTY CLERK'S OFFICE

WARNING – THIS SHEET CONSTITUTES THE CLERK'S ENDORSEMENT REQUIRED BY SECTION 319&316-a (5) OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH. THIS IS NOT A BILL.

Michael P. Kearns
Erie County Clerk

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Box 145

BS/Dw/Cov(Corp.)

BARGAIN & SALE DEED

THIS INDENTURE, made the 9th day of September, 2019,

BETWEEN **EWE II, LLC**, a New York limited liability company having its office at 60 Buttonwood Court, East Amherst, New York 14051, (the **"Grantor"**), and

355 PROPERTIES LLC, a New Jersey limited liability company, having its office at 28 Fox Hill Drive, Tabernacle, New Jersey 08088, (the **"Grantee"**).

WITNESSETH, that the Grantor, in consideration of ONE AND MORE DOLLARS ($1.00 & more), lawful money of the United States, paid by the Grantee, does hereby grant and release unto the Grantee, the successors and assigns of the Grantee forever,

Parcel "A": **ALL THAT TRACT OR PARCEL OF LAND**, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 82, Township 12, Range 7 of the Holland Land Company's Survey, described as follows: Beginning at a point in the southerly boundary line of Commerce Drive (Commerce Drive being 100.0 feet wide) at a distance of 235.54 feet S 86° 36′ 49″ E, measured along the southerly boundary of Commerce Drive from its intersection with the westerly line of Lot No. 82; thence S 86° 36′ 49″ E along the southerly boundary of Commerce Drive, a distance of 36.01 feet, thence N 90° 00′ 00″ E along the southerly boundary of Commerce Drive, a distance of 214.05 feet; thence S 00° 00′ 00″ E, a distance of 376.68 feet to the northerly line of the lands acquired by the New York State Department of Environmental Conservation for the Ellicott Creek Flood Protection Project as shown on Map No. 28, Parcel No. 34 of said project; thence N 85° 39′ 14″ W along the northerly line of said acquired land, a distance of 86.09 feet; thence continuing along the northerly line of said acquired lands, N 86° 20′ 53″ W, a distance of 164.49 feet; thence N 00° 00′ 00″ W, a distance of 361.81 feet to the point of beginning.

Parcel "B": **ALL THAT TRACT OR PARCEL OF LAND**, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 82, Township 12, Range 7 of the Holland Land Company's Survey, described as follows: Beginning at a point in the southerly boundary line of Commerce Drive (Commerce Drive being 100.00 feet wide) at a distance of 235.54 feet S 86° 36′ 49″ E, measured along the southerly boundary of Commerce Drive from its intersection with the westerly line of Lot 82, said point of beginning being the northwesterly corner of the lands conveyed to B.G. Sulzle, Inc., Sulzle Marketing, Inc. and Sulzle Eye Suturing Needles, Inc. by deed recorded in

194899
775,000 2P AmH
Deed-3

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

the Erie County Clerk's Office in liber 9519 of Deeds at page 430; thence S 00° 00′ 00″ E along the westerly line of the said Sulzle, a distance of 361.81 feet to a point in the northerly line of the lands acquired by the New York State Department of Environmental Conservation for the Ellicott Creek Flood Protection Project as shown on Map No. 28, Parcel No. 34 of said project; thence N 86° 20′ 53″ W along the northerly line of said acquired land, a distance of 208.80 feet to its intersection with the easterly line of the lands conveyed to the Town of Amherst Industrial Development Agency by deed recorded in Erie County Clerk's Office in liber 9188 of Deeds at page 576; thence N 01° 52′ 00″ W along the easterly line of said Development Agency, a distance of 361.72 feet to the northeasterly corner thereof; thence S 86° 36′ 49″ E along the southerly boundary line of Commerce Drive a distance of 220.54 feet to the point of beginning.

TOGETHER with the appurtenances and all the estate and rights of the Grantor in and to said premises, and

TOGETHER with the ownership and rights, if any, of the Grantor to land lying in the bed or any street or highway, adjoining said premises to the center line thereof; and

SUBJECT to easements, agreements, rights of way and restrictions of record, if any.

TO HAVE and to hold the premises herein granted unto the Grantee, the successors and assigns of the Grantee forever.

AND the Grantor covenants that it has not done or suffered anything whereby the said premises have been encumbered in any way whatever.

THE Grantor, in compliance with Section 13 of the Lien Law, covenants that the Grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

IN WITNESS WHEREOF, the Grantor has caused these presents to be signed by its duly authorized officer the day and year first above written.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

EWE II, LLC

By: Angela Sue Lamb
Name: Angela Sue Lamb
Title: Sole Member

STATE OF NEW YORK)
) SS:
COUNTY OF ERIE)

On the 9th day of September in the year 2019, before me, the undersigned, personally appeared Angela Sue Lamb, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public

PATRICK THOMAS FITZGERALD
No. 02FI6371635
Notary Public, State of New York
Qualified in Erie County
My Commission Expires 3/5/20 22

Record and Return to:
==========
Colligan Law LLP
Attn: Robert Townsley, Esquire
12 Fountain Plaza, Suite 600
Buffalo, NY 14202
==========

Doc #4161026.1

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

INSTRUCTIONS(RP-5217-PDF-INS): www.orps.state.ny.us

FOR COUNTY USE ONLY

C1. SWIS Code 1,4,2,2,8,9

C2. Date Deed Recorded 9 / 10 / 19 (Month / Day / Year)

C3. Book 1,1,3,4,9 C4. Page 6,7,4,8

New York State Department of **Taxation and Finance**

Office of Real Property Tax Services

RP- 5217-PDF

Real Property Transfer Report (8/10)

PROPERTY INFORMATION

1. Property Location: 321 & 355 (* STREET NUMBER) Commerce Drive (* STREET NAME)

Amherst (* CITY OR TOWN) (VILLAGE) 14228 (* ZIP CODE)

2. Buyer Name: 355 Properties LLC (* LAST NAME/COMPANY) (FIRST NAME)

(LAST NAME/COMPANY) (FIRST NAME)

3. Tax Billing Address: Indicate where future Tax Bills are to be sent if other than buyer address(at bottom of form) (LAST NAME/COMPANY) (FIRST NAME)

(STREET NUMBER AND NAME) (CITY OR TOWN) (STATE) (ZIP CODE)

4. Indicate the number of Assessment Roll parcels transferred on the deed: 2 # of Parcels OR ☐ Part of a Parcel

5. Deed Property Size: (* FRONT FEET) X (* DEPTH) OR 3.88 (*ACRES)

6. Seller Name: EWE II, LLC (* LAST NAME/COMPANY) (FIRST NAME)

(LAST NAME/COMPANY) (FIRST NAME)

*7. Select the description which most accurately describes the use of the property at the time of sale:

F. Commercial

(Only if Part of a Parcel) Check as they apply:

4A. Planning Board with Subdivision Authority Exists ☐

4B. Subdivision Approval was Required for Transfer ☐

4C. Parcel Approved for Subdivision with Map Provided ☐

Check the boxes below as they apply:

8. Ownership Type is Condominium ☐

9. New Construction on a Vacant Land ☐

10A. Property Located within an Agricultural District ☐

10B. Buyer received a disclosure notice indicating that the property is in an Agricultural District ☐

SALE INFORMATION

11. Sale Contract Date: 06/26/2019

* 12. Date of Sale/Transfer: 09/10/19

*13. Full Sale Price: 775,000.00

(Full Sale Price is the total amount paid for the property including personal property. This payment may be in the form of cash, other property or goods, or the assumption of mortgages or other obligations.) *Please round to the nearest whole dollar amount.*

14. Indicate the value of personal property included in the sale: 0.00

15. Check one or more of these conditions as applicable to transfer:

- ☐ A. Sale Between Relatives or Former Relatives
- ☐ B. Sale between Related Companies or Partners in Business.
- ☐ C. One of the Buyers is also a Seller
- ☐ D. Buyer or Seller is Government Agency or Lending Institution
- ☐ E. Deed Type not Warranty or Bargain and Sale (Specify Below)
- ☐ F. Sale of Fractional or Less than Fee Interest (Specify Below)
- ☐ G. Significant Change in Property Between Taxable Status and Sale Dates
- ☐ H. Sale of Business is Included in Sale Price
- ☐ I. Other Unusual Factors Affecting Sale Price (Specify Below)
- ☒ J. None

Comment(s) on Condition:

ASSESSMENT INFORMATION - Data should reflect the latest Final Assessment Roll and Tax Bill

16. Year of Assessment Roll from which information taken(YY): 19

*17. Total Assessed Value: 710,000

*18. Property Class: 449

*19. School District Name: Sweet Home

*20. Tax Map Identifier(s)/Roll Identifier(s) (If more than four, attach sheet with additional identifier(s))

40.07-3-2.112 40.07-3-5

CERTIFICATION

I Certify that all of the items of information entered on this form are true and correct (to the best of my knowledge and belief) and I understand that the making of any willful false statement of material fact herein subject me to the provisions of the penal law relative to the making and filing of false instruments.

SELLER SIGNATURE

SELLER SIGNATURE DATE

BUYER SIGNATURE

BUYER SIGNATURE DATE

BUYER CONTACT INFORMATION

(Enter information for the buyer. Note: If buyer is LLC,society, association, corporation, joint stock company, estate or entity that is not an individual agent or fiduciary, then a name and contact information of an individual/responsible party who can answer questions regarding the transfer must be entered. **Type or print clearly.**)

355 Properties LLC (* LAST NAME) (FIRST NAME)

(*AREA CODE) (*TELEPHONE NUMBER (Ex: 9999999))

28 (* STREET NUMBER) Fox Hill Drive (* STREET NAME)

Tabernacle (*CITY OR TOWN) NJ (*STATE) 08088 (*ZIP CODE)

BUYER'S ATTORNEY

Townsley (LAST NAME) Robert (FIRST NAME)

(716) (AREA CODE) 885-1150 (TELEPHONE NUMBER (Ex: 9999999))

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

INSTRUCTIONS(RP-5217-PDF-INS): www.orps.state.ny.us

FOR COUNTY USE ONLY

C1. SWIS Code 142289

C2. Date Deed Recorded 9 / 10 / 19 (Month / Day / Year)

C3. Book 11349 C4. Page 6748

New York State Department of Taxation and Finance

Office of Real Property Tax Services

RP- 5217-PDF

Real Property Transfer Report (8/10)

PROPERTY INFORMATION

1. Property Location: 321 & 355 (* STREET NUMBER) Commerce Drive (* STREET NAME)
Amherst (* CITY OR TOWN) (VILLAGE) 14228 (* ZIP CODE)

2. Buyer Name: 355 Properties LLC (* LAST NAME/COMPANY) (FIRST NAME)
(LAST NAME/COMPANY) (FIRST NAME)

3. Tax Billing Address: Indicate where future Tax Bills are to be sent if other than buyer address(at bottom of form) (LAST NAME/COMPANY) (FIRST NAME)
(STREET NUMBER AND NAME) (CITY OR TOWN) (STATE) (ZIP CODE)

4. Indicate the number of Assessment Roll parcels transferred on the deed: 2 # of Parcels OR ☐ Part of a Parcel

5. Deed Property Size: (* FRONT FEET) X (* DEPTH) OR 3.88 (*ACRES)

6. Seller Name: EWE II, LLC (* LAST NAME/COMPANY) (FIRST NAME)
(LAST NAME/COMPANY) (FIRST NAME)

*7. Select the description which most accurately describes the use of the property at the time of sale: F. Commercial

(Only if Part of a Parcel) Check as they apply:
4A. Planning Board with Subdivision Authority Exists ☐
4B. Subdivision Approval was Required for Transfer ☐
4C. Parcel Approved for Subdivision with Map Provided ☐

Check the boxes below as they apply:
8. Ownership Type is Condominium ☐
9. New Construction on a Vacant Land ☐
10A. Property Located within an Agricultural District ☐
10B. Buyer received a disclosure notice indicating that the property is in an Agricultural District ☐

SALE INFORMATION

11. Sale Contract Date: 06/26/2019

* 12. Date of Sale/Transfer: 09/10/2019

*13. Full Sale Price: 775,000.00

(Full Sale Price is the total amount paid for the property including personal property. This payment may be in the form of cash, other property or goods, or the assumption of mortgages or other obligations.) *Please round to the nearest whole dollar amount.*

14. Indicate the value of personal property included in the sale: 0.00

15. Check one or more of these conditions as applicable to transfer:
☐ A. Sale Between Relatives or Former Relatives
☐ B. Sale between Related Companies or Partners in Business.
☐ C. One of the Buyers is also a Seller
☐ D. Buyer or Seller is Government Agency or Lending Institution
☐ E. Deed Type not Warranty or Bargain and Sale (Specify Below)
☐ F. Sale of Fractional or Less than Fee Interest (Specify Below)
☐ G. Significant Change in Property Between Taxable Status and Sale Dates
☐ H. Sale of Business is Included in Sale Price
☐ I. Other Unusual Factors Affecting Sale Price (Specify Below)
☒ J. None

Comment(s) on Condition:

ASSESSMENT INFORMATION - Data should reflect the latest Final Assessment Roll and Tax Bill

16. Year of Assessment Roll from which information taken(YY): 19

*17. Total Assessed Value: 710,000

*18. Property Class: 449

*19. School District Name: Sweet Home

*20. Tax Map Identifier(s)/Roll Identifier(s) (If more than four, attach sheet with additional identifier(s))
40.07-3-2.112 40.07-3-5

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SELLER SIGNATURE

Angela Sweeney 9.10.19
SELLER SIGNATURE DATE

BUYER SIGNATURE

BUYER SIGNATURE DATE

BUYER CONTACT INFORMATION

(Enter information for the buyer. Note: If buyer is LLC,society, association, corporation, joint stock company, estate or entity that is not an individual agent or fiduciary, then a name and contact information of an individual/responsible party who can answer questions regarding the transfer must be entered. **Type or print clearly.**)

355 Properties LLC (* LAST NAME) (FIRST NAME)
(*AREA CODE) (*TELEPHONE NUMBER (Ex: 9999999))
28 (* STREET NUMBER) Fox Hill Drive (* STREET NAME)
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BUYER'S ATTORNEY

Townsley (LAST NAME) Robert (FIRST NAME)
(716) (AREA CODE) 885-1150 (TELEPHONE NUMBER (Ex: 9999999))

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

January 11, 2022

Kristin Savard
Advanced Design Group
761 Cayuga Street
Lewiston, NY 14092

Re: DEC
Commerce Drive Self-Storage Construction Project
321 Commerce Dr, Amherst, Erie County, NY
21PR06285

Dear Kristin Savard:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

R. Daniel Mackay

Deputy Commissioner for Historic Preservation
Division for Historic Preservation

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

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Appendix L
Project Drawings

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

321 Commerce, LLC

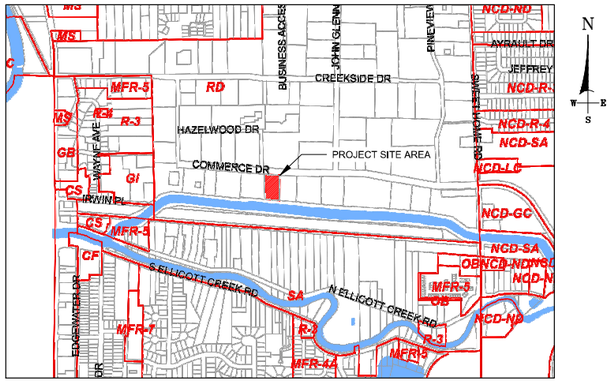
321 Commerce Drive

Town of Amherst, County of Erie, New York 14228

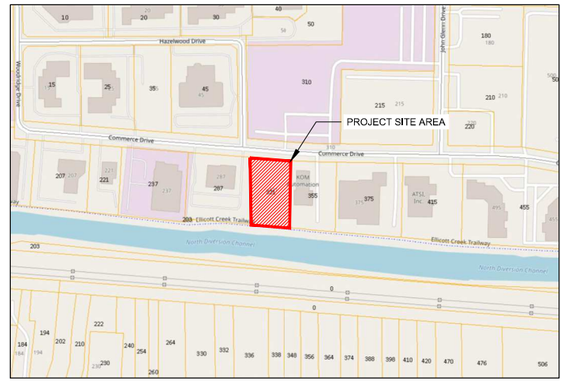




AERIAL PHOTO
NTS



ZONING MAP
NTS



LOCATION MAP
NTS

ZONING DATA

ZONING: RD RESEARCH AND DEVELOPMENT DISTRICT

	REQUIREMENT	EXISTING CONDITION	PROVIDED
MIN. LOT AREA	1.0 AC	1.78± AC	NA
MIN. LOT WIDTH	35'	209'±	NA
MIN. FRONT YARD SETBACK	20'	NA	20'
MIN. SIDE YARD SETBACK	15'	NA	15'
MIN. REAR YARD SETBACK	15'	NA	15'
MAX. BUILDING HEIGHT (FEET)	65'	NA	10'
MAX BUILDING COVERAGE	NONE	0%	25%
MAX INTERIOR BUILDING SEPARATION	30'	NA	30'

Legend

- Zoning District Boundary
- Village of Williamsville
- Water Body

RR	Rural Residential
SA	Suburban Agricultural
R-1	Residential District One
R-2	Residential District Two
R-3	Residential District Three
CR-3A	Cluster Residential District Three-A
TR-3	Traditional Single-Family Residential District
R-4	Residential District Four
MFR-4A	Multifamily Residential District Four-A
MFR-5	Multifamily Residential District Five
MFR-6	Multifamily Residential District Six
MFR-7	Multifamily Residential District Seven
MHR-8	Manufactured Home Residential District Eight
OB	Office Building District
NB	Neighborhood Business District
GB	General Business District
CS	Commercial Service District
MS	Motor Service District
RD	Research & Development District
ST	Science Technology District
GI	General Industrial District
AG	Agricultural District
NCD	New Community District
PRD	Planned Residential District
PDD	Planned Development District
CF	Community Facilities District
TND	Traditional Neighborhood Development District
TNB	Traditional Neighborhood Business Overlay District
LW-1	Live-Work District 1
RC	Recreation Conservation District

MIXED USE DISTRICTS

TI-2.5	Traditional Infill 2.5
TI-4	Traditional Infill 4
SC-3	Shallow Corridor 3
DC-3	Deep Corridor 3
DC-5	Deep Corridor 5
CTR-2.5	Center 2.5
CTR-5	Center 5
CTR-8	Center 8

MIXED USE DISTRICT FRONTAGE TYPE

g	Green
v	Village

DRAWING INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	1 OF 11
EXISTING CONDITIONS PLAN	2 OF 11
SITE LAYOUT PLAN	3 OF 11
GRADING AND DRAINAGE PLAN	4 OF 11
PHOTOMETRIC PLAN	5 OF 11
LANDSCAPING PLAN	6 OF 11
EROSION AND SEDIMENT CONTROL PLAN	7 OF 11
DETAILS - EROSION & SEDIMENT CONTROL	8 OF 11
DETAILS - PAVING & DRAINAGE	9 OF 11
DETAILS - STORMWATER MANAGEMENT	10 OF 11
DETAILS - TYPICAL STORAGE UNITS	11 OF 11

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
3		
4		
5		
6		
7		
8		

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

Prepared by:
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
6885 Campbell Blvd
Lewiston, NY 14092
Phone:(716)754-2256
Fax:(716)754-4252

COVER SHEET

321 Commerce, LLC
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120

Project Contact: Advanced Design Group (716) 754-2256

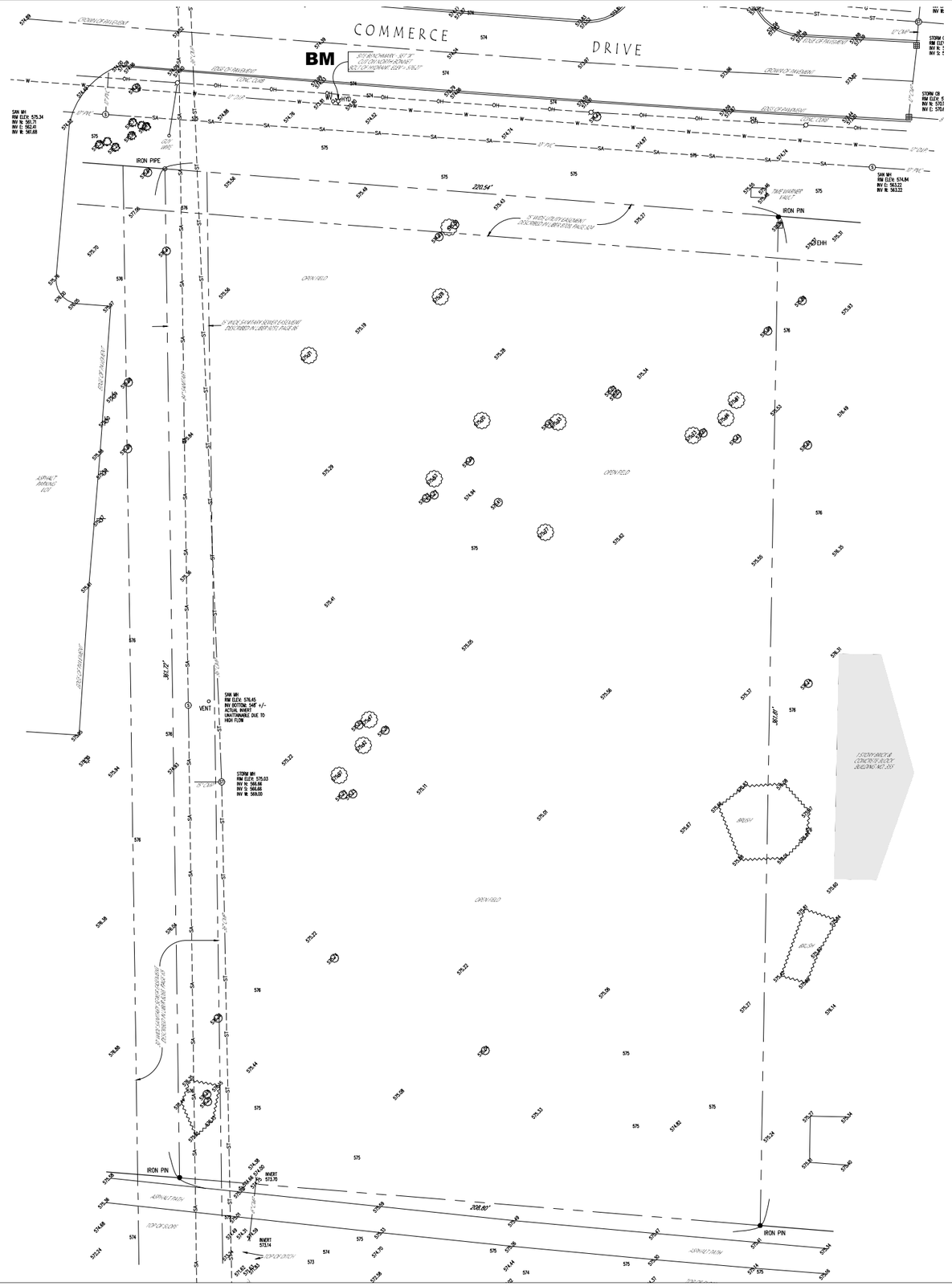
date	project no.:	sheet
1-21-2022	21-4768	1 OF 11

AS NOTED

\\192.168.1.5\ceb\adg\ADG Projects\2021\21-4768 321 Commerce Drive Shatra\Drawings\ADG-Commerce Cover Sheet.dwg

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)



LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W	W	WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE

NOTES:

1) NORTH AS SHOWN ON THIS MAP IS TRUE NORTH AT 78°35' MERIDIAN WEST LONGITUDE, BASED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM NAD 83, WEST ZONE 3103, AS ESTABLISHED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REAL TIME NETWORK. (NYSDOT RTN)

2) ELEVATIONS AS SHOWN ON THIS MAP OF SURVEY ARE BASED ON NAVD88 DATUM, AS ESTABLISHED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REAL TIME NETWORK. (NYSDOT RTN)

3) THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM VISIBLE STRUCTURES, SURFACE MARKINGS. TERRA POINTE LAND SURVEYING PLLC DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE ALL OF THE UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE, THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES UPON INSTALLATION EACH CONTRACTOR MUST CALL DIG SAFELY NEW YORK AT 1-800-962-7962 THREE DAYS PRIOR TO ANY EXCAVATION.

4) CONTOUR INTERVAL IS 1.0 FOOT.

5) THE BOUNDARY LINEWORK AND EASEMENT INFORMATION AS SHOWN HEREON WAS TAKEN FROM MAPPING BY NUSSBAUMER & CLARK INC, DATED JULY 24, 2019 AND IDENTIFIED AS JOB NO. 19324-1119

MAP REFERENCE

BOUNDARY AND TOPOGRAPHIC SURVEY OF LANDS OWNED BY BOGART SINATRA DEVELOPMENT, LLC. PREPARED BY TERRA POINTE LAND SURVEYING, PLLC.: DATED OCTOBER 22, 2021 JOB NO: 1311-21

NOTE:

ALL EXISTING VEGETATION WITHIN PROJECT AREA TO BE REMOVED. SEE LANDSCAPING PLAN FOR PROPOSED PLANTINGS.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

N

W E

S

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
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3		
4		
5		
6		
7		
8		

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STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ PIONEER

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
7574 Transit Road
Lewiston, NY 14092
Phone(716)754-2256
Fax (716)754-4252

EXISTING CONDITIONS PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6685 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale:	1-21-2022	project no.:	21-4768
AS NOTED		sheet	2 OF 11

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

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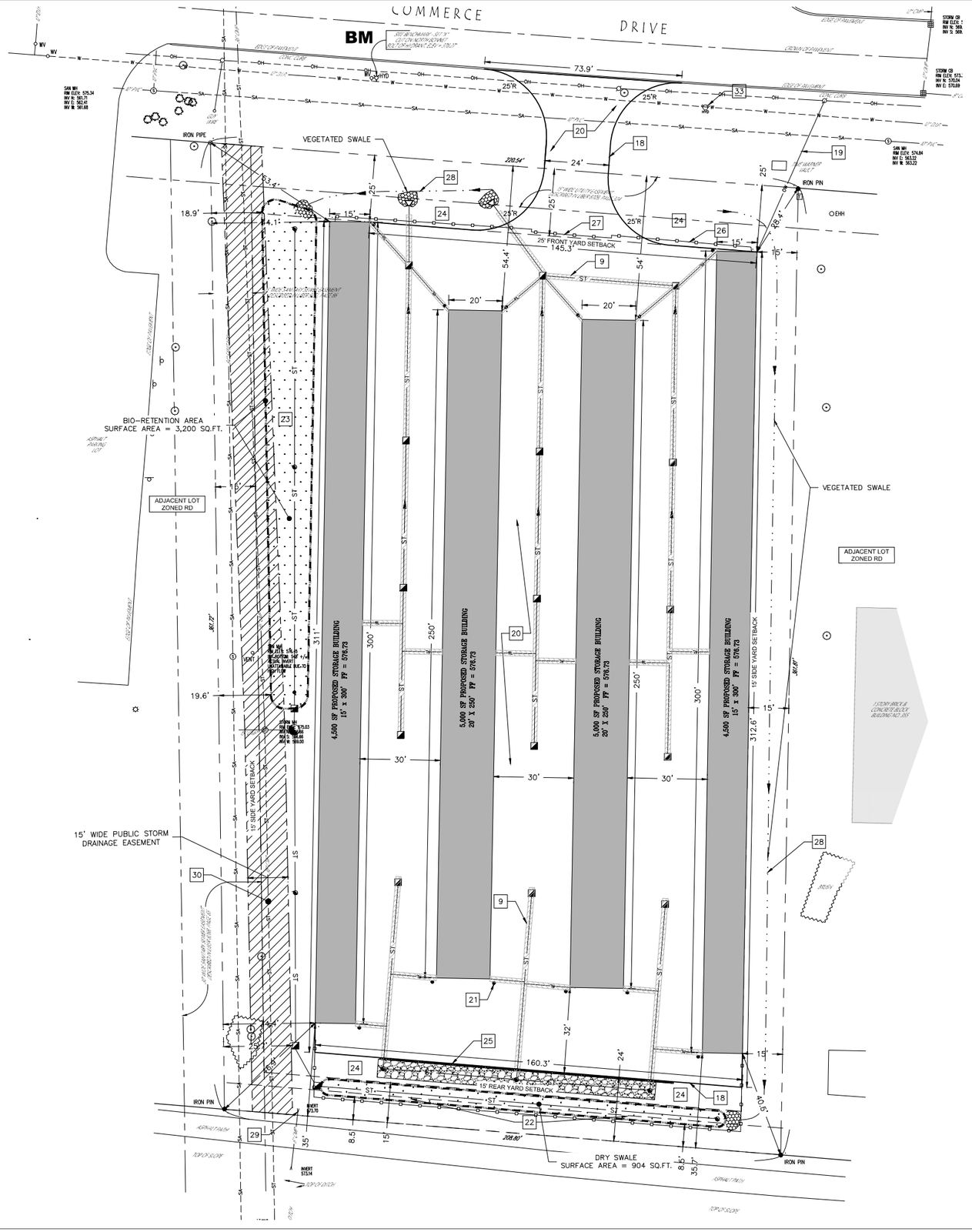

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
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ST	STMH	STORM MANHOLE
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HYD	HYD	HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE

ZONING DATA

ZONING: RD RESEARCH AND DEVELOPMENT DISTRICT

	REQUIREMENT	EXISTING CONDITION	PROVIDED
MIN. LOT AREA	1.0 AC	1.78± AC	NA
MIN. LOT WIDTH	35'	209'±	NA
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MIN. SIDE YARD SETBACK	15'	NA	15'
MIN. REAR YARD SETBACK	15'	NA	15'
MAX. BUILDING HEIGHT (FEET)	65'	NA	15'
MAX BUILDING COVERAGE	NONE	0%	25%
MAX INTERIOR BUILDING SEPARATION	30'	NA	30'

[X] CONSTRUCTION NOTES

1. UTILITIES AS SHOWN ON THIS MAP ARE PLOTTED FROM FIELD EVIDENCE AND INFORMATION SUPPLIED BY VARIOUS UTILITY AGENCIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. ADVANCED DESIGN GROUP P.E. & L.S., P.C. ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OF THE UNDERGROUND UTILITIES. CONTRACTORS MUST CALL U.F.P.O. AT LEAST TWO WORKING DAYS PRIOR TO ANY EXCAVATION 1-800-962-7962. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS TO LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS AS REQUIRED TO MEET EXISTING CONDITIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL AREAS THAT ARE NOT PAVED OR LANDSCAPED MUST BE PERMANENTLY VEGETATED WITH A MINIMUM OF 5" OF TOPSOIL AND GRASS SEED AND MAINTAINED AS LAWN. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
3. NOT USED
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 6 INCHES IN THICKNESS.
6. FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
7. CONTRACTOR TO REFER TO GEOTECHNICAL REPORT, IF AVAILABLE, FOR ALL SITE WORK, OR PROVIDE TEST PITS; SUBMISSION OF A BID INDICATES THAT THE SITE CONTRACTOR AND THE GENERAL CONTRACTOR HAVE ACCEPTED THE FINDINGS OF THE REPORT/TEST PITS AND WILL PROVIDE ALL WORK IN CONFORMANCE WITH ITS RECOMMENDATIONS.
8. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
9. SELECT BACKFILL IS REQUIRED FOR ALL UTILITIES (ELECT., STORM) THAT CROSS THROUGH AND WITHIN 5 FEET OF ANY PAVEMENT AREA.
10. ALL PROPOSED ELEVATIONS SHOWN HEREON ARE FINISHED GRADE ELEVATIONS.
11. ALL SITE CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF AMHERST CONSTRUCTION SPECIFICATIONS, RULES AND DETAILS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE TO SECURE ALL PERMITS AND PROVIDE ALL BONDS REQUIRED FOR THIS WORK INCLUDING, BUT NOT LIMITED TO, UTILITY CONNECTIONS AND BUILDING AND SITE CONSTRUCTION.
13. CONTRACTOR TO COORDINATE WITH PRIVATE UTILITY OWNERS PRIOR TO START OF CONSTRUCTION AND NOTIFY DESIGN ENGINEER OF ANY UTILITY RE-LOCATIONS THAT MAY BE NECESSARY AND HAVE AN AFFECT ON THE APPROVED DESIGN (EX: POLES AND GUY WIRES, BURIED SERVICES, ETC).
14. SIGNAGE SHALL BE IN CONFORMANCE WITH THE TOWN OF AMHERST'S SIGN LAW. ALL SIGNAGE TO BE APPROVED BY THE TOWN OF AMHERST BUILDING DEPARTMENT PRIOR TO INSTALLATION.
15. EXTERIOR LIGHTING FOR PROPOSED BUILDING TO BE DARK SKY FRIENDLY LIGHTING. LIGHTS TO BE LOCATED ON BUILDING EXTERIOR WALLS FOR SAFETY. ALL LIGHTS ARE TO SHINE DOWNWARD. SEE PHOTOMETRIC PLAN.
16. NO DUMPSTER IS PROVIDED OR NECESSARY.
17. FACILITY WILL BE MANAGED AND HAVE SECURITY FROM A REMOTE OFFICE. NO SANITARY OR WATER SERVICES TO BE PROVIDED.
18. APPROXIMATE LOCATION PROPOSED EDGE OF PAVEMENT – NO CURBING –TYP.
19. APPROXIMATE LOCATION PROPOSED OVERHEAD ELECTRIC/TELEPHONE/CABLE. INSTALLATION TO BE COORDINATED WITH UTILITY OWNER.
20. STANDARD DUTY ASPHALT PAVEMENT – SEE DETAIL.
21. 6" CONCRETE BOLLARD (TYP. OF 12) – SEE DETAIL. CENTER OF BOLLARD TO BE 1.5' FROM BUILDING CORNER.
22. DRY SWALE TO BE PLANTED WITH PERMANENT VEGETATION SEED MIXTURE AND MAINTAINED AT A 6"± HEIGHT.
23. BIO-RETENTION AREA PLANTINGS TYPE TO BE OBTAINED FROM TABLE H.5 NATIVE PLANT GUIDE FOR STORMWATER MANAGEMENT AREAS (NY) LOCATED IN APPENDIX H OF THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL. PLANTINGS MUST BE ZONE 2 COMPLIANT. PLANT SELECTION SHALL BE DIVERSE. LAYOUT SHALL BE RANDOM AND NATURAL. PLANTINGS SHALL BE PLACED APPROX. 18" ON CENTER. – SEE BIO-RETENTION AREA PLANTING PLAN.
24. SNOW STORAGE AREA (TYP.)
25. 6" WIDE PEA GRAVEL DIAPHRAGM – SEE DRY SWALE CROSS SECTION.
26. 6' CHAIN LINK FENCE – REFER TO DETAIL.
27. PUBLIC ACCESS GATE – KEYPAD ENTRY.
28. VEGETATED SWALES TO BE PLANTED WITH PERMANENT VEGETATION SEED MIXTURE AND MAINTAINED AT 6"± HEIGHT S=0.2% – TYP.
29. EXISTING ON-SITE STORM DRAINAGE CULVERT TO BE CAPPED AND FILLED OVER.
30. PROPOSED 15' WIDE PUBLIC STORM DRAINAGE EASEMENT TO BE PROVIDED FOR EXISTING STORM SEWER.
31. FIRE DEPARTMENT KNOX KEY BOX TO BE PROVIDED AT ENTRANCE GATE TO ACCESS BUILDINGS.
32. ALL EXISTING VEGETATION WITHIN PROJECT AREA TO BE REMOVED. SEE LANDSCAPING PLAN FOR PROPOSED PLANTINGS.
33. PRIVATE FIRE HYDRANT TO BE MAINTAINED AND TESTED BY OWNER.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NO.	DATE	REVISIONS
8		
7		
6		
5		
4		
3	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
2	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
0		

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STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ 097156 ★ LICENSED PROFESSIONAL LAND SURVEYOR ★ LICENSED PROFESSIONAL

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
8 Cleveland Street
Lewiston, NY 14092
Phone:(716)754-2256
Fax (716)754-4252

SITE LAYOUT PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd.
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

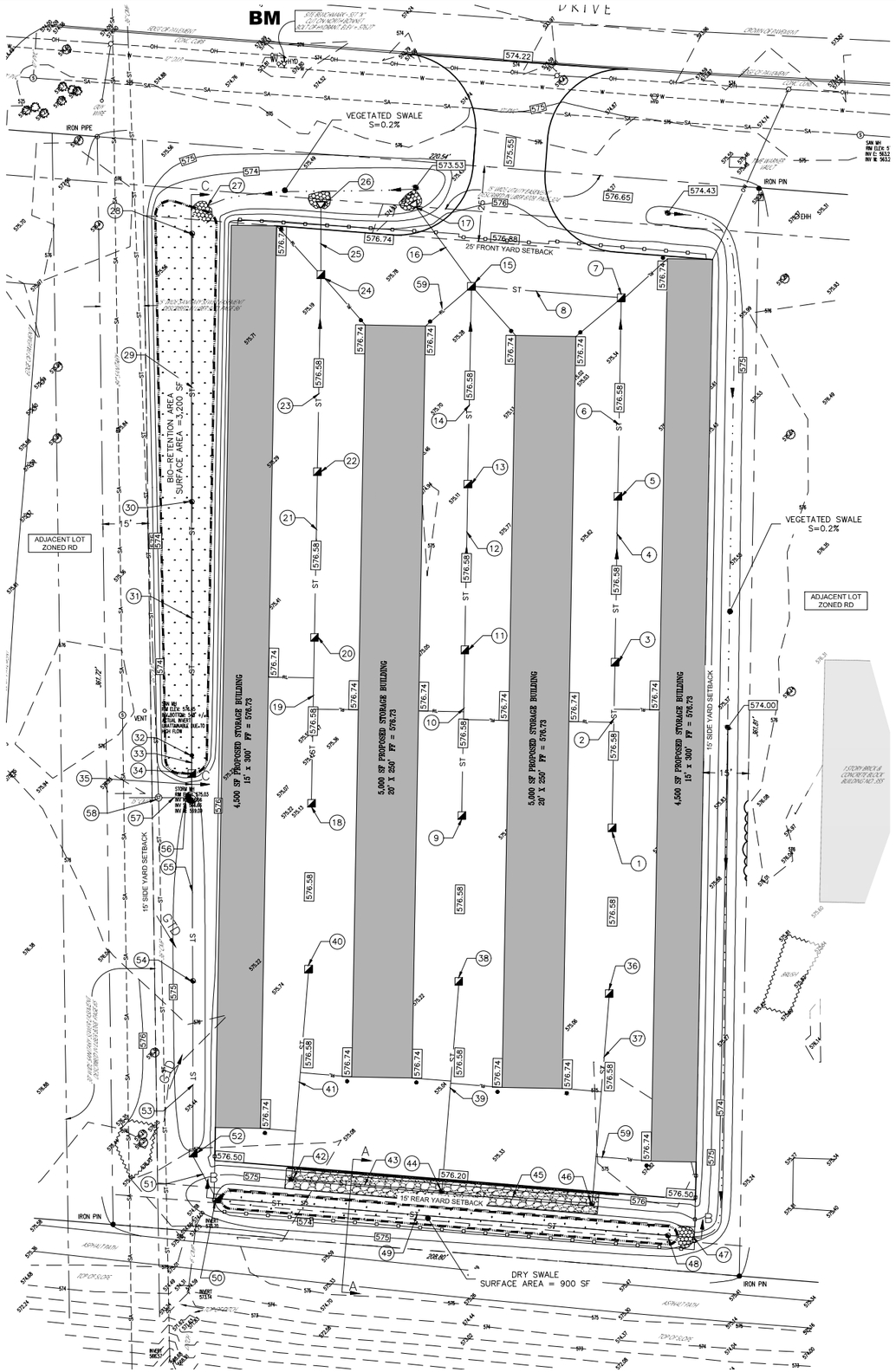
date:	project no.:	sheet:
1-21-2022	21-4768	3 OF 11

AS NOTED

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

\\192.168.1.5\ucdg\ucdg\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG-Layout Plan 3-11-22 JRJ.dwg

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)



(XX) STORM STRUCTURE TABLE

1 CATCH BASIN
RIM=576.30
INV N=574.03 (12")

2 53L.F. 12" HDPE @ S=0.2%

3 CATCH BASIN
RIM=576.30
INV N,S=573.92 (12")

4 53L.F. 12" HDPE @ S=0.2%

5 CATCH BASIN
RIM=576.30
INV N,S=573.81 (12")

6 64L.F. 12" HDPE @ S=0.2%

7 CATCH BASIN
RIM=576.30
INV S,W=573.68 (12")

8 48L.F. 12" HDPE @ S=0.2%

9 CATCH BASIN
RIM=576.30
INV N=573.92 (12")

10 53L.F. 12" HDPE @ S=0.2%

11 CATCH BASIN
RIM=576.30
INV N,S=573.81 (12")

12 53L.F. 12" HDPE @ S=0.2%

13 CATCH BASIN
RIM=576.30
INV N,S=573.71 (12")

14 64L.F. 12" HDPE @ S=0.2%

15 CATCH BASIN
RIM=576.30
INV N,E=573.59 (12")
INV S=573.53 (12")

16 31L.F. 12" HDPE @ S=0.2%

17 12" PIPE OUTLET W/ END SECTION AND ROCK OUTLET PROTECTION
INV=573.53

18 CATCH BASIN
RIM=576.30
INV N=573.83 (12")

19 53L.F. 12" HDPE @ S=0.2%

20 CATCH BASIN
RIM=576.30
INV N,S=573.72 (12")

21 53L.F. 12" HDPE @ S=0.2%

22 CATCH BASIN
RIM=576.30
INV N,S=573.62 (12")

23 63L.F. 12" HDPE @ S=0.2%

24 CATCH BASIN
RIM=576.30
INV N=573.51 (12")
INV S=573.46 (12")

25 21L.F. 12" HDPE @ S=0.2%

26 12" PIPE OUTLET W/ END SECTION AND ROCK OUTLET PROTECTION
INV=573.46

27 VEGETATED SWALE OUTLET TO BIO-RETETNION AREA W/ ROCK PROTECTION
INV=573.40

28 CLEANOUT (6" RISER)
RIM=573.90
INV S=569.65 (6" PERF)

29 87L.F. 6" PERF. HDPE @ S=0.2%

30 CLEANOUT (6" RISER)
RIM=573.90
INV N,S=569.48 (6" PERF)

31 87L.F. 6" PERF. HDPE @ S=0.2%

32 ELBOW ASSEMBLY
INV N=569.30 (6" PERF)
INV S=570.30 (6")

33 5L.F. 6" HDPE @ S=0.2%

34 BIO-RETENTION CATCH BASIN OUTLET
RIM=574.00
INV N=570.29 (6")
INV S=570.29 (12")

35 5L.F. 12" HDPE @ S=0.2%

36 CATCH BASIN
RIM=576.30
INV S=573.40 (6")

37 69L.F. 6" HDPE @ S=0.2%

38 CATCH BASIN
RIM=576.30
INV S=573.40 (6")

39 69L.F. 6" HDPE @ S=0.2%

40 CATCH BASIN
RIM=576.30
INV S=573.40 (6")

41 69L.F. 6" HDPE @ S=0.2%

42 6"X6"X6" HDPE TEE W/ 6" RISER
RIM=574.25
INV=573.25

43 LEVEL SPREADER – SEE DETAIL
50L.F. 6" PERF. HDPE @ S=0.2%

44 6"X6"X6" HDPE TEE W/ 6" RISER
RIM=574.25
INV=573.25

45 LEVEL SPREADER – SEE DETAIL
50L.F. 6" PERF. HDPE @ S=0.2%

46 6"X6"X6" HDPE TEE W/ 6" RISER
RIM=574.25
INV=573.25

47 VEGETATED SWALE OUTLET TO DRY SWALE W/ ROCK PROTECTION
INV=573.40

48 DRY SWALE YARD DRAIN
RIM=573.22
INV=570.65 (6" PERF.)

49 148L.F. 6" PERF. HDPE @ S=0.2%

50 DRY SWALE CATCH BASIN OUTLET
RIM=573.25
INV E=570.37 (6" PERF)
INV NW=570.35 (12")

51 14L.F. 12" HDPE @ S=0.2%

52 YARD CATCH BASIN
RIM=575.00
INV SE,N=570.32 (12")

53 58L.F. 12" HDPE @ S=0.2%

54 YARD DRAIN
RIM=574.72
INV N,S=570.20 (12")

55 58L.F. 12" HDPE @ S=0.2%

56 STORM MANHOLE
RIM=575.00
INV N=570.27 (12")
INV S=570.09 (12")
INV W=570.00 (12")

57 5L.F. 12" HDPE @ S=0.2%

58 EXISTING STORM MANHOLE
RIM=575.03
INV E=569.99 (12")

59 6" HDPE ROOF LEADER – TYP.

LEGEND

NTS

EXISTING	PROPOSED	
	G	GAS
E,T,C	E,T,C	UNDERGROUND ELEC/TELE/CABLE
OH	OH	OVERHEAD ELEC/TELE
W	W	WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE
	GTD	GRADE TO DRAIN

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

N

W E

S

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
3		
4		
5		
6		
7		
8		

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

STATE OF NEW YORK ★ PROFESSIONAL ENGINEER ★ LICENSED PROFESSIONAL ENGINEER

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
76 Center Street
Lewiston, NY 14092
Phone(716)754-2256
Fax (716)754-4232

GRADING AND DRAINAGE PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

date:	project no.:	sheet	
1-21-2022	21-4768	4	OF 11

AS NOTED

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Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

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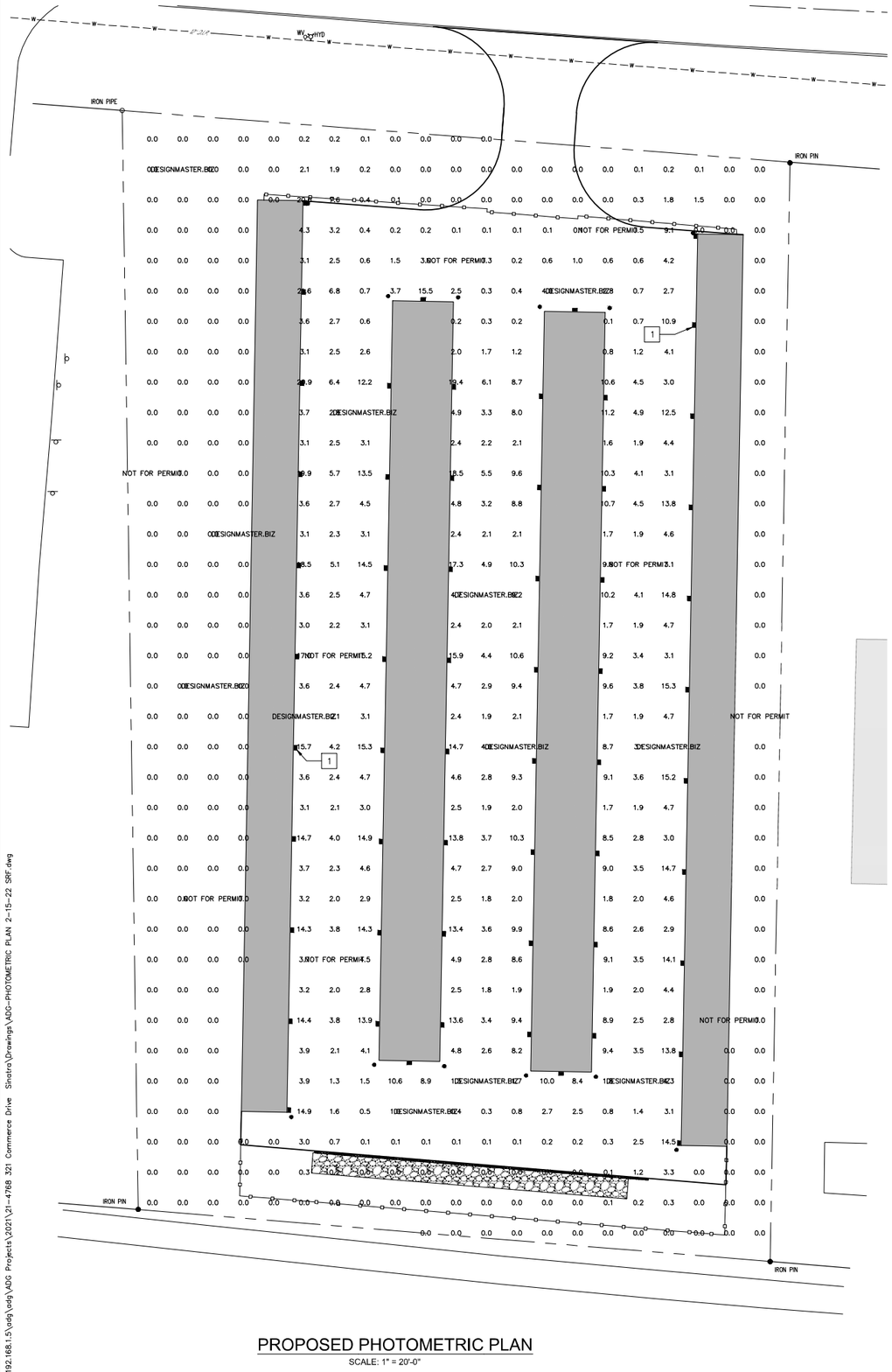


PROPOSED PHOTOMETRIC PLAN

SCALE: 1" = 20'-0"

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E,T,C	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W	W	WATER
SA	S	SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
BM		BENCHMARK
		UTILITY POLE
S	SMH	SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV	WV	WATER VALVE
		FENCE

GRAPHIC SCALE

20 0 10 20 40 80

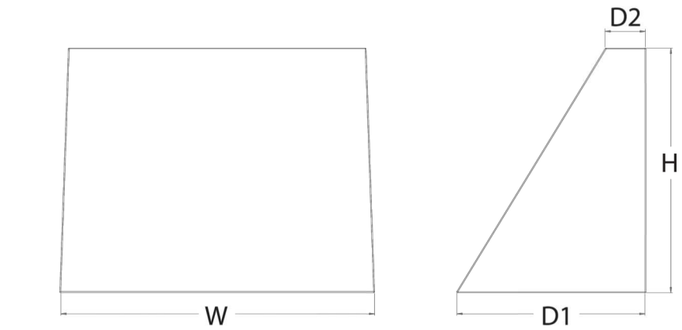
(IN FEET)
1 inch =20 ft.

NOTES:

1. WALL PACK MOUNTED LIGHTS TO BE INSTALLED ABOVE OVERHEAD DOORS (APPROX. 8' ABOVE FINISHED GRADE) AT LOCATIONS SHOWN ON THE PLAN. WALL PACK LIGHTS (TYP.) - NOT SHOWN TO SCALE
2. LIGHTS ARE TO BE LITHONIA LIGHTING WDGE2 LED P3 40K 80CRI VM MVOLT SRM DBLXD OR SIMILAR

Specifications

Depth (D1):	7"
Depth (D2):	1.5"
Height:	9"
Width:	11.5"
Weight: (without options)	13.5 lbs



TYPICAL WALL PACK DETAIL

N.T.S.

N
W E
S

NO.	DATE	REVISIONS
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
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0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION

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Prepared by:

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PHOTOMETRIC PLAN

321 Commerce, LLC
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

date: 1-21-2022 project no.: 21-4768 sheet: 5 OF 11

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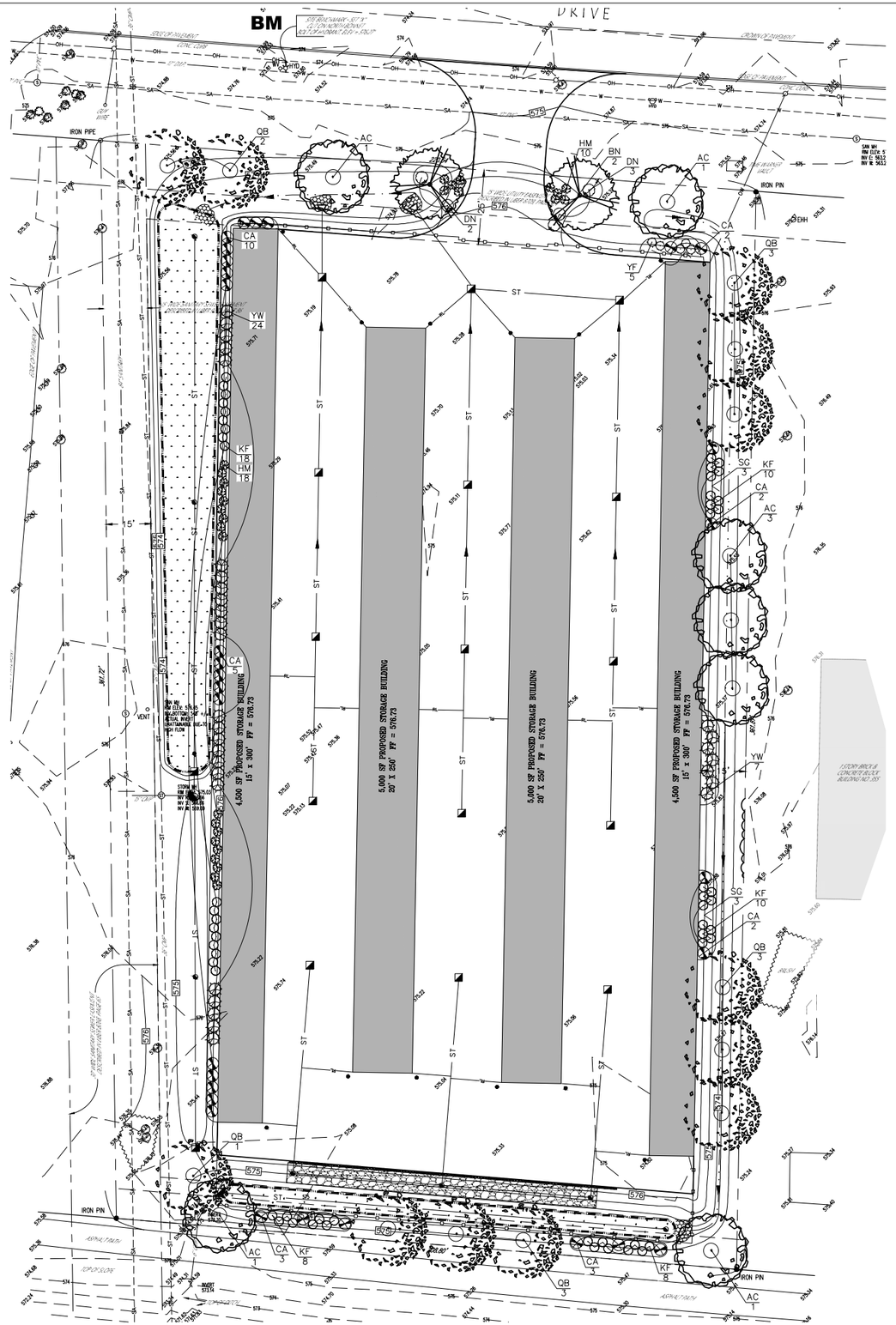
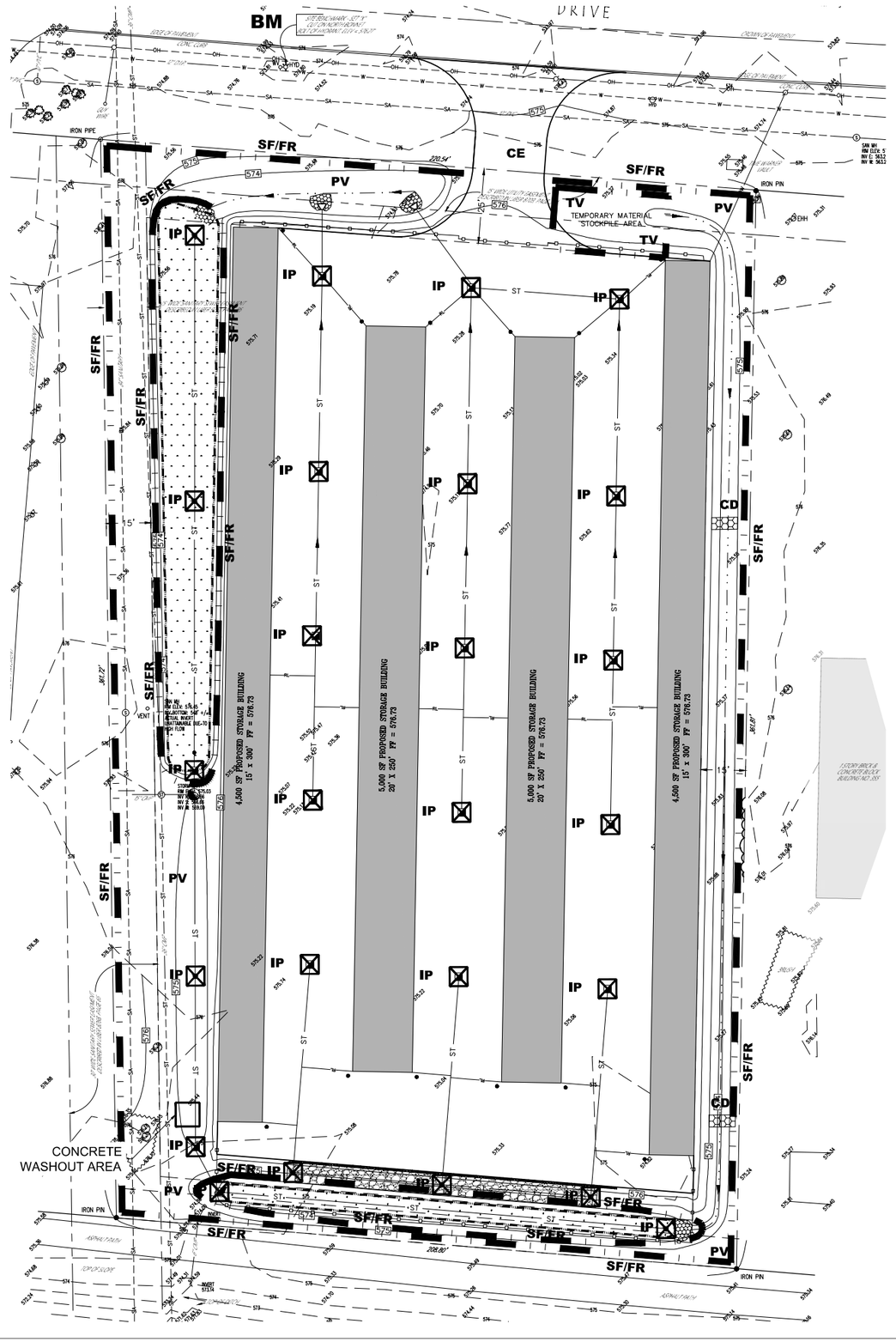

BM
DRIVE
IRON PIPE
IRON PIN
5' WIDE CONCRETE WALK
ASPHALT
CONCRETE
4,500 SF PROPOSED STORAGE BUILDING
15' x 300' FF = 576.73
5,000 SF PROPOSED STORAGE BUILDING
20' x 250' FF = 576.73
4,500 SF PROPOSED STORAGE BUILDING
15' x 300' FF = 576.73
17,000 SQ.FT. CONCRETE FACTORY BUILDING NO. 55
5' WIDE CONCRETE WALK
STORM MH
RIM ELEV. 576.05
INVERT ELEV. 568.55
ACTUAL INVERT OBSTRUCTING HALF OF FLOW
SAN MH
RIM ELEV. 575.5
INV E: 563.2
INV W: 563.2
INVERT ELEV. 573.83
INVERT ELEV. 573.63
INVERT ELEV. 573.43
INVERT ELEV. 573.23
INVERT ELEV. 573.03
INVERT ELEV. 572.83
INVERT ELEV. 572.63
INVERT ELEV. 572.43
INVERT ELEV. 572.23
INVERT ELEV. 572.03
INVERT ELEV. 571.83
INVERT ELEV. 571.63
INVERT ELEV. 571.43
INVERT ELEV.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)



LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/R/W LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE
	GTD	GRADE TO DRAIN
		TEST PIT
SF/FR		SILT FENCE/FIBER ROLL
CE		CONSTRUCTION ENTRANCE
TV		TEMPORARY VEGETATION
PV		PERMANENT VEGETATION
IP		INLET PROTECTION
CD		CHECK DAM
		STONE DIAPHRAGM

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch =20 ft.

EROSION CONTROL NOTES

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH PROJECT DRAWINGS.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 6 INCHES
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED AND PERMANENT VEGETATION MUST BE ESTABLISHED IMMEDIATELY FOLLOWING FINISHED GRADING.
12. BIO-FILTER MEDIA SHALL BE INSTALLED ONCE THE SITE IS STABILIZED.

N

NO.	DATE	REVISIONS
3	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
2	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
0		

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Prepared by:
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
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Phone:(716)754-2256
Fax (716)754-4252

EROSION AND SEDIMENT CONTROL PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

AS NOTED	date: 1-21-2022	project no.: 21-4768	sheet: 7 OF 11

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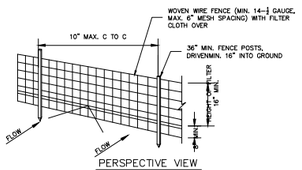
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

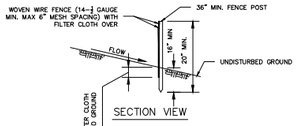
Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

EROSION CONTROL NOTES

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS".
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 6 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
12. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.



PERSPECTIVE VIEW



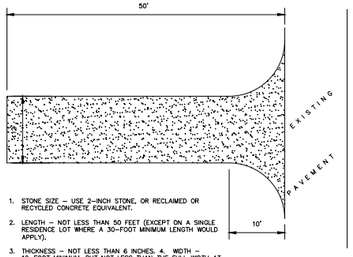
SECTION VIEW

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1.) WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2.) FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE, WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3.) WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4.) MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.

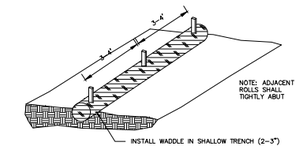
POSTS: Steel either T or U type or 2" hardwood.
FENCE: Woven wire, 14-1/2 Ga. 6" max. mesh opening.
FILTER CLOTH: Filter x, Mirafi 100x, Stabi-Linka T140N or approved equal.
PREFABRICATED UNIT: Geofab, Envirofence, or approved equal.

SILT FENCE DETAIL
N.T.S.

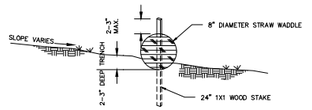


1. STONE SIZE – USE 2-INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30-FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN 6 INCHES. 4. WIDTH – 12-FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24-FOOT IF SINGLE ENTRANCE TO SITE.
4. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
7. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



TYPICAL INSTALLATION



ENTRENCHMENT DETAIL

TYPICAL WADDLE INSTALLATION
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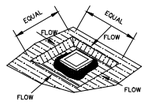
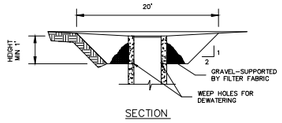
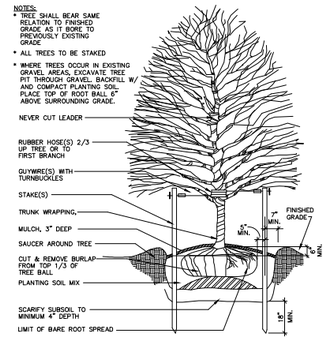


PLAN

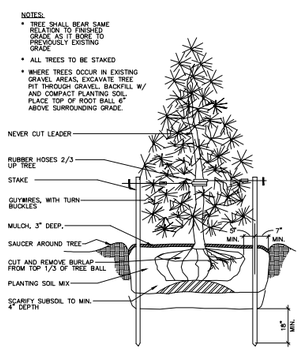


SECTION

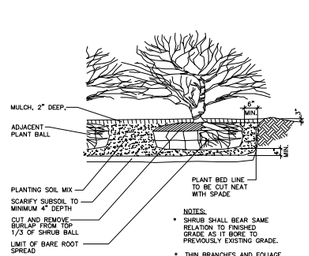
CATCH BASIN INLET PROTECTION
N.T.S.



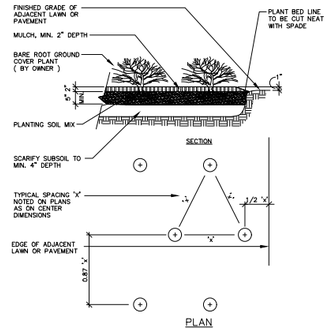
DECIDUOUS TREE PLANTING W/ STAKES



EVERGREEN TREE PLANTING

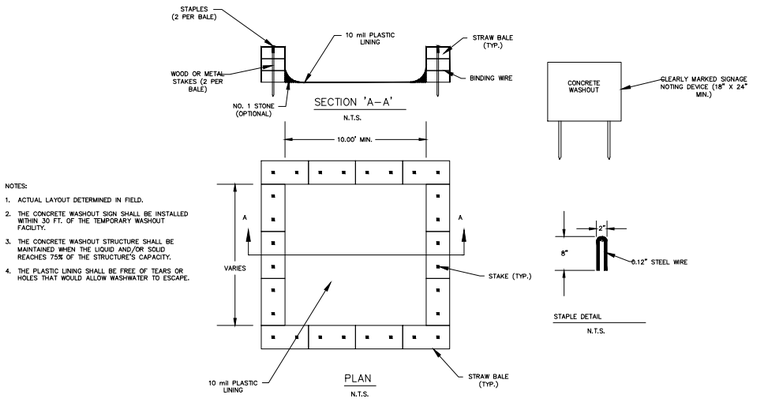


SHRUB PLANTING



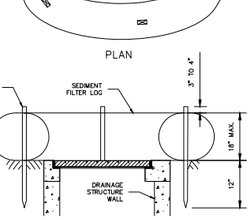
GROUNDCOVER PLANTING

PLANTING DETAIL
N.T.S.

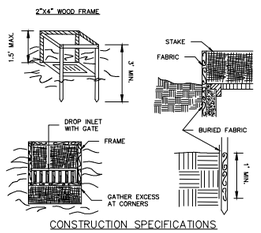


NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY WASHOUT FACILITY.
3. THE CONCRETE WASHOUT STRUCTURE SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURE'S CAPACITY.
4. THE PLASTIC LINING SHALL BE FREE OF TEARS OR HOLES THAT WOULD ALLOW WASHWATER TO ESCAPE.

TYPICAL ABOVE GRADE CONCRETE WASHOUT INSTALLATION DETAIL
N.T.S.



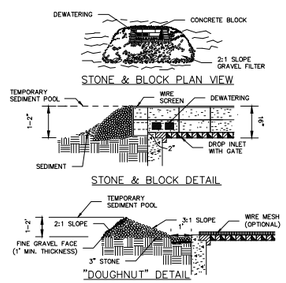
DRAINAGE STRUCTURE INLET PROTECTION – TEMPORARY (SEDIMENT FILTER LOG)
N.T.S.



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY. MAXIMUM DRAINAGE AREA 1 ACRE

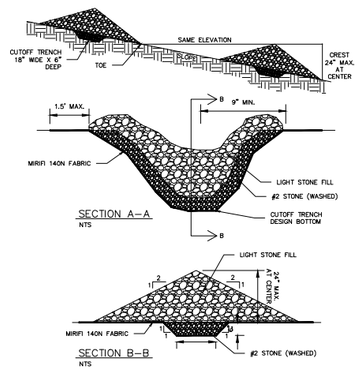
FILTER FABRIC DROP INLET PROTECTION
N.T.S.



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS. MAXIMUM DRAINAGE AREA 1 ACRE

STONE BLOCK DROP INLET PROTECTION
N.T.S.



CHECK DAM DETAIL
N.T.S.

MIXTURE	RATE PER 1,000 SQ.FT. (LBS.)
KENTUCKY BLUEGRASS	0.60
CREEPING RED FESCUE	0.50
PERENNIAL RYEGRASS	0.20

SEED MIXTURE FOR PERMANENT VEGETATION

\\192.168.1.5\odg\odg\ADG Projects\2021\21-4788 321 Commerce Drive Sinatra\Drawings\ADG Details 01-12-22 Working.dwg

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

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DETAILS - EROSION & SEDIMENT CONTROL

321 Commerce, LLC
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

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6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

project no.: 21-4788
date: 1-21-2022
AS NOTED
sheet: 8 OF 11

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

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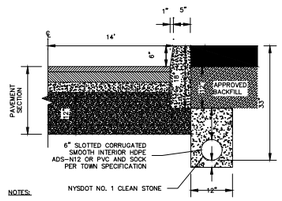
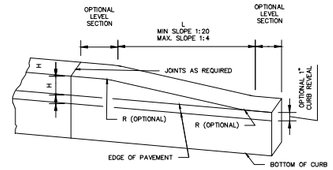


NOTES:
1. FORMED UPRIGHT CONCRETE CURB SHALL BE 4,000 PSI MIX (28 DAY)
2. PROVIDE FINE BROOM FINISH TO EXPOSED PORTION OF CONCRETE CURB

6" UPRIGHT CURB DETAIL

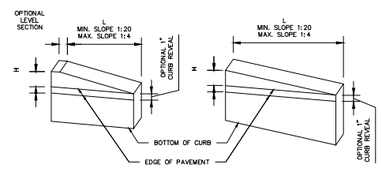
N.T.S.



CAST-IN-PLACE CONCRETE CURB TRANSITION

N.T.S.

CURB TRANSITION LENGTHS (L)			
H SLOPE	1:4	1:12	1:20
4"	16"	48"	80"
6"	24"	72"	120"

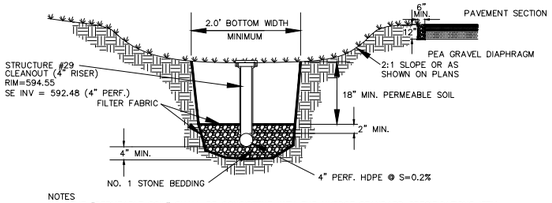


PRECAST CONCRETE, STONE, AND GRANITE CURB TRANSITION

N.T.S.

NOTES:
1. USE 1" REVEAL AND CONTINUE CURB ACROSS DRIVEWAY ENTRANCES ONLY IF IN CONTRACT DOCUMENTS OR DIRECTED BY THE ENGINEER AS A FIELD CONDITION
2. TERMINATE CURB, CURB AND GUTTER AND ASPHALT CURB BY TRANSITIONING ON A MAXIMUM SLOPE OF 1:12 TO PAVEMENT SURFACE, EXCEPT WHEN BEHIND GUIDE RAIL
3. EXTEND JOINT FILLER 6" MINIMUM BEHIND CURB IN BOTH SIDES OF CURB BOX. 705-07 NOT NEEDED WHEN VERTICAL FACE CURB WIDTH EQUAL TO WIDTH OF CURB BOX

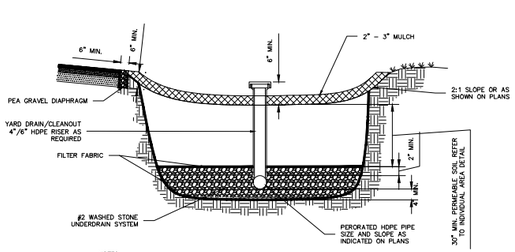
CURB TRANSITION LENGTHS (L) WITH CURB REVEAL			
h SLOPE	1:4	1:12	1:20
4"	12"	36"	60"
6"	20"	60"	100"



NOTES
1. THE "PERMEABLE SOIL" SHALL BE CONSISTENT WITH THE NYSDOT STANDARD SPECIFICATIONS ITEM 208.0103 22. THE "PERMEABLE SOIL" SHALL BE A WELL BLENDED MIXTURE OF THREE (3) PARTS SAND AND ONE (1) PART TOPSOIL, BY VOLUME. SAND SHALL MEET THE REQUIREMENTS OF SECTION 703-07 "CONCRETE SAND" OF THE NYSDOT STANDARD SPECIFICATIONS. TOPSOIL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 713-01 "TOPSOIL". THE "PERMEABLE SOIL" SHALL HAVE A pH RANGE OF 5.2 TO 7.6 AND AN ORGANIC CONTENT OF 3-7% SOIL AMENDMENTS TO INCREASE ORGANIC CONTENT SHALL BE PEAT MOSS IN ACCORDANCE WITH SECTION 713-15 "ORGANIC MATERIAL" OF THE NYSDOT STANDARD SPECIFICATIONS. A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR.) IS REQUIRED. THE SOIL SHALL BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER AND VISIBLY FREE OF NOXIOUS WEEDS. THE SOIL SHOULD BE PLACED IN 12" LIFTS AND LOOSELY COMPACTED (TAMPED LIGHTLY WITH A DOZER OR BACKHOE BUCKET).

TYPICAL DRY SWALE

N.T.S.



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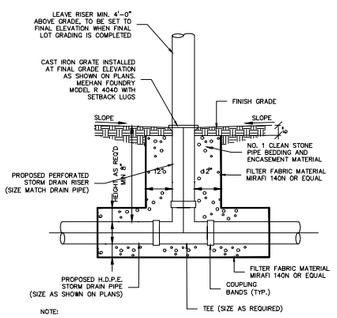
2. THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS, SUCH AS WEED SEEDS, SOIL, ROOTS, ETC. THE MULCH SHOULD BE APPPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

BIO-RETENTION AREA - TYPICAL SECTION

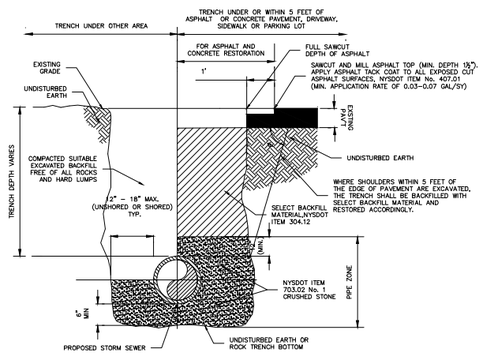
N.T.S.



NOTE:
1.) DRAINAGE FABRIC TO BE INSTALLED FOR ENTIRE LENGTH OF DRAINAGE PIPE TRENCH.
2.) HDPE SMOOTH INTERIOR PERFORATED PIPE SHALL BE AN ACCEPTABLE PIPE MATERIAL.

YARD DRAIN DETAIL

N.T.S.



STORM SEWER TRENCH DETAIL

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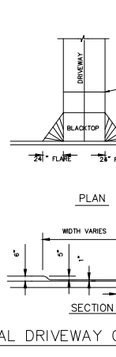
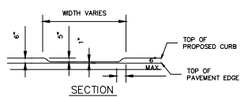


PLAN



SECTION

TYPICAL DRIVEWAY CURB-CUT DETAIL

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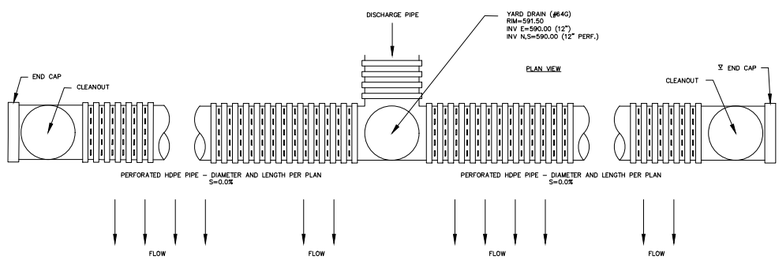
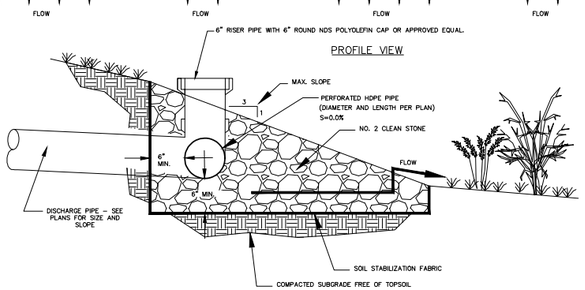
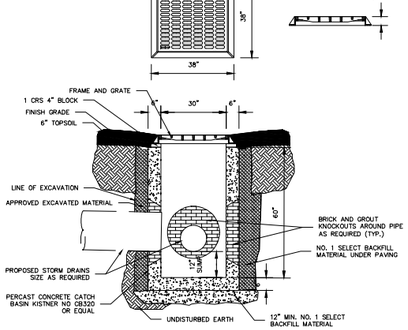




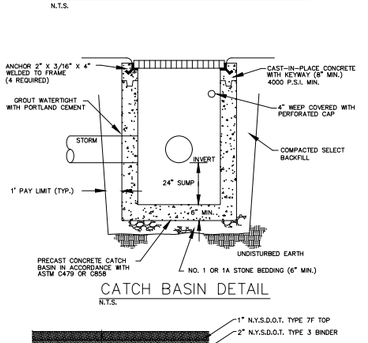
TYPICAL LEVEL SPREADER DETAIL

N.T.S.



TYPICAL REAR YARD CATCH BASIN

N.T.S.



CATCH BASIN DETAIL

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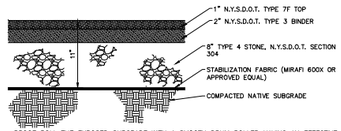


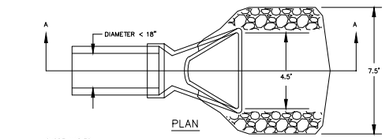
PROOF ROLL THE EXPOSED SUBGRADE WITH A SMOOTH DRUM ROLLER HAVING AN EFFECTIVE FOR OF AT LEAST 600LBS/LI. ANY AREAS EXHIBITING WEAVING, YIELDING, RUTTING, OR BOILING SHOULD BE REWORKED BY OVER EXCAVATED AND REPLACEMENT WITH STRUCTURAL FILL COMPACTED TO 95% MP

COMPACT FOUNDATION COURSE WITH A MINIMUM OF 5 PASSES OF A SMOOTH DRUM ROLLER HAVING AN EFFECTIVE WEIGHT OF AT LEAST 600LBS/LI. THE FINISHED SURFACE SHOULD BE UNIFORM AND DENSE AND COMPACTED TO 95% MP, WITHIN A MOISTURE RANGE OF 2% OF OPTIMUM CONTENT

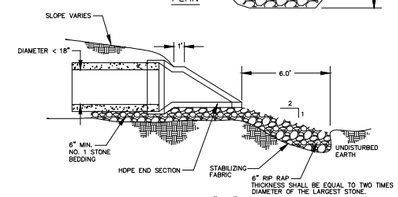
* OWNER/CONTRACTOR RESPONSIBLE FOR REVIEW OF GEOTECHNICAL REPORT AND ANY DEVIATION FROM RECOMMENDED PAVEMENT SECTION.

STANDARD DUTY PAVEMENT

N.T.S.



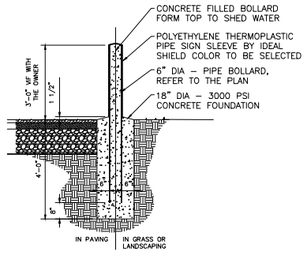
PLAN



SECTION "AA"

END SECTION AT DITCH RIP RAP DETAIL

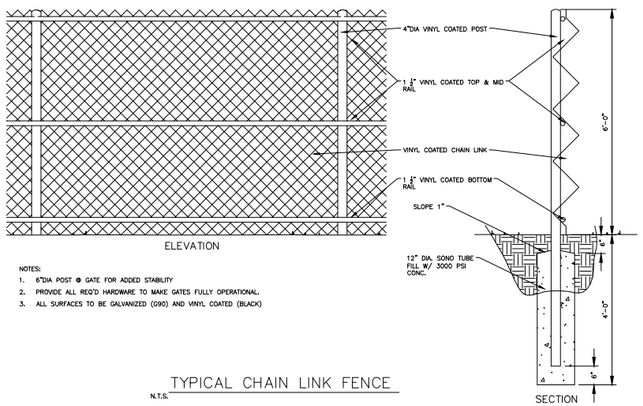
N.T.S.



SEE PLANS FOR QUANTITIES AND LOCATIONS.

TYPICAL BOLLARD SECTION

NTS



NOTES:
1. 6"DIA POST @ GATE FOR ADDED STABILITY
2. PROVIDE ALL REQ'D HARDWARE TO MAKE GATES FULLY OPERATIONAL.
3. ALL SURFACES TO BE GALVANIZED (G90) AND VINYL COATED (BLACK)

ELEVATION

SECTION

TYPICAL CHAIN LINK FENCE

N.T.S.

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Prepared by
ADVANCED DESIGN GROUP
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3556 Delaware Road
Lawleton, NY 14092
Phone:(716)754-2256
Fax (716)754-4232

DETAILS - PAVING & DRAINAGE

321 Commerce, LLC
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

Prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

date:	1-21-2022
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sheet:	9 OF 11

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Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

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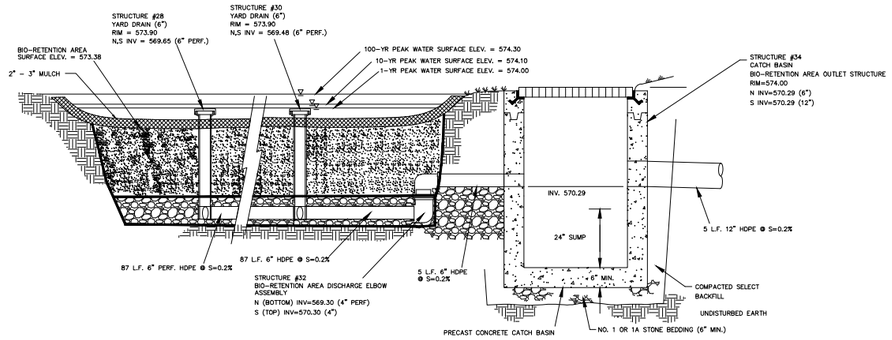
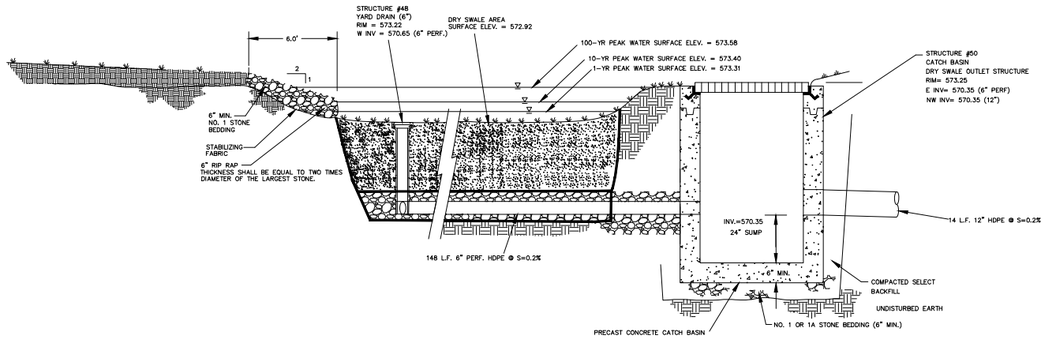


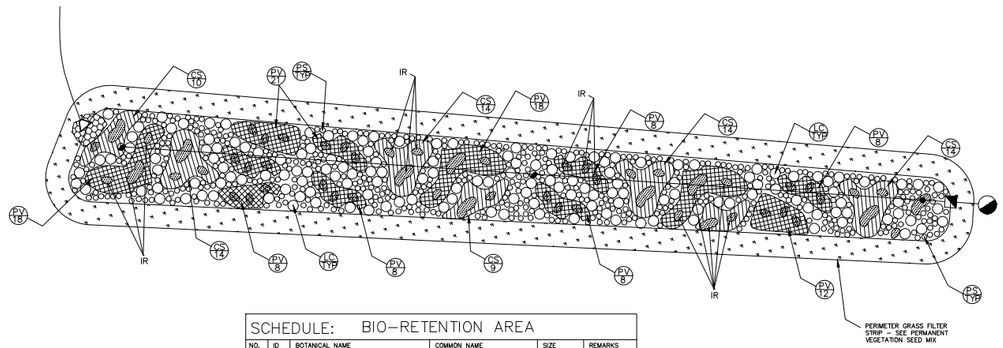
CROSS SECTION "C–C" – BIO–RETENTION AREA & OUTLET STRUCTURE

N.T.S.



CROSS SECTION "B–B" – DRY SWALE & OUTLET STRUCTURE

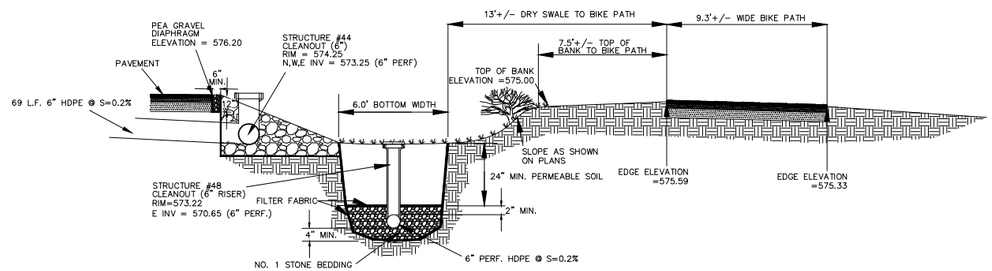
N.T.S.



SCHEDULE: BIO–RETENTION AREA					
NO.	ID	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
36	PV	PANICUM VIRGATUM	SWITCHGRASS	2" PLUG	2 FT. O.C.
36	CS	CAREX SPP.	SEDGES	2" PLUG	2 FT. O.C.
96	PS	POLYGONUM SPP.	SMARTWEED	2" PLUG	2 FT. O.C.
34	LC	LOBELIA CARDINALIS	CARDINAL FLOWER	2" PLUG	2 FT. O.C.
39	IR	IRIS VERSICOLOR	NORTHERN BLUE FLAG IRIS	2" PLUG	2 FT. O.C.

BIO–RETENTION AREA SAMPLE PLANTING PLAN

N.T.S.



CROSS SECTION "A–A" – LEVEL SPREADER OUTLET TO SOUTH DRY SWALE

N.T.S.

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
3		
4		
5		
6		
7		
8		

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ PROFESSIONAL ENGINEERING & LAND SURVEYING

Prepared by

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
6810 Dodge Road
Lawrence, NY 14092
Phone:(716)754-2256
Fax (716)754-4232

DETAILS - STORMWATER MANAGEMENT

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

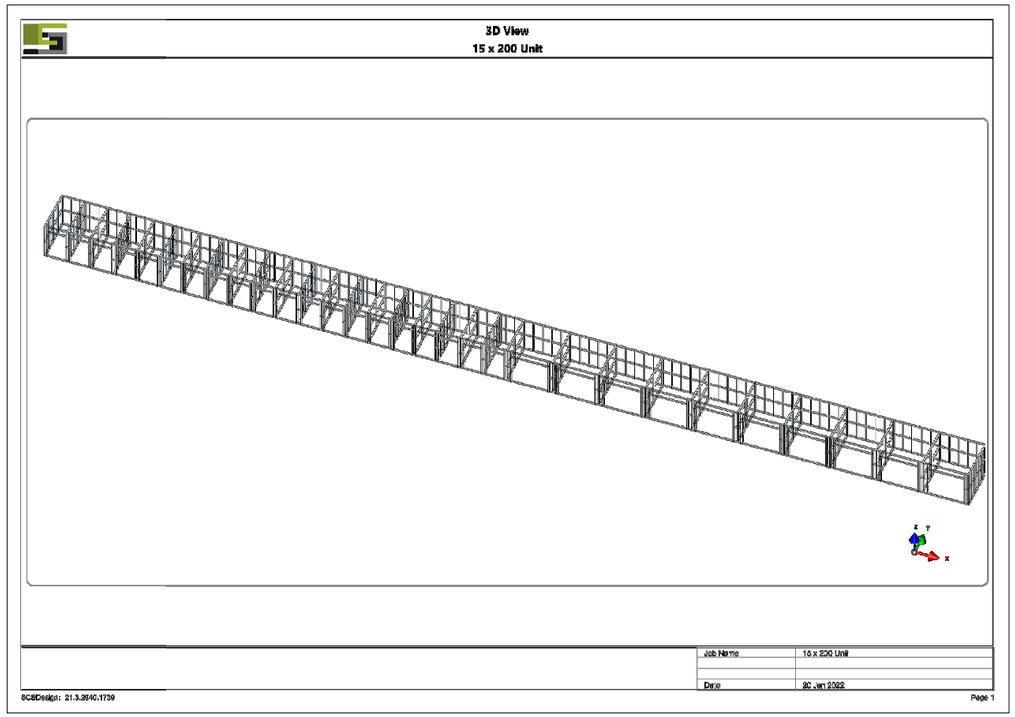
date:	project no.:	sheet:
1-21-2022	21-4768	10 OF 11

AS NOTED

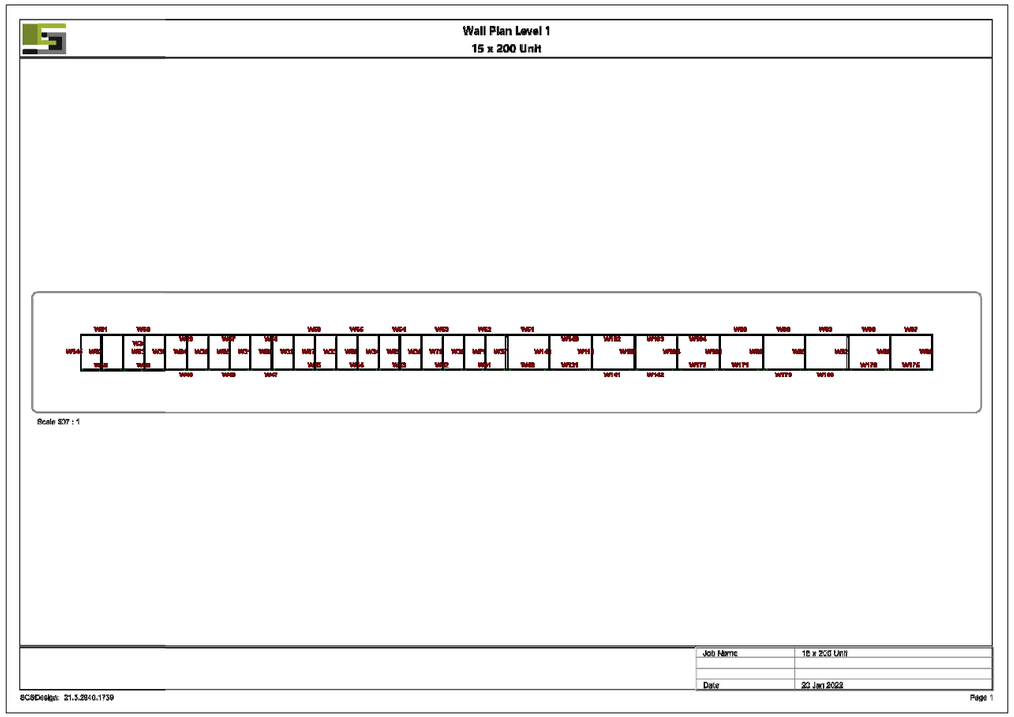
\\192.168.1.5\odg\odg\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG Details 01-12-22 Working.dwg

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)



TYPICAL 3-D VIEW OF STORAGE UNIT FRAMING



TYPICAL SELF-STORAGE UNIT FLOOR PLAN



TYPICAL SELF-STORAGE UNIT

NO.	DATE	REVISIONS
8		
7		
6		
5		
4		
3		
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone(716)754-2256
Fax (716)754-4252

DETAILS - TYPICAL STORAGE UNITS

321 Commerce, LLC
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

S NOTED	date: 1-21-2022	project no.: 21-4768	sheet: 11 OF 11

\\192.168.1.5\adg\adg\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG Details 01-12-22 Working.dwg

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Packet Pg. 1379

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Appendix M
Stormwater Maintenance Agreement

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Town of Amherst

STORMWATER CONTROL FACILITY
MAINTENANCE AGREEMENT

Whereas, the Town of Amherst ("Town") and 321 COMMERCE LLC ("facility owner") want to enter into an agreement to provide for the long term maintenance and continuation of stormwater control measures approved by the Town for the below named project, and

Whereas, the Town and the facility owner desire that the stormwater control measures be built in accordance with the approved project plans and thereafter be maintained, cleaned, repaired, replaced and continued in perpetuity in order to ensure optimum performance of the components. Therefore, the Town and the facility owner agree as follows:

1. This agreement binds the Town and the facility owner, its successors and assigns, to the maintenance provisions depicted in the approved project plans which are attached as Schedule A of this agreement.

2. The facility owner shall maintain, clean, repair, replace and continue the stormwater control measures depicted in Schedule A as necessary to ensure optimum performance of the measures to design specifications. The stormwater control measures shall include, but shall not be limited to, the following: drainage ditches, swales, dry wells, infiltrators, drop inlets, pipes, culverts, soil absorption devices and retention ponds.

3. The facility owner shall be responsible for all expenses related to the maintenance of the stormwater control measures and shall establish a means for the collection and distribution of expenses among parties for any commonly owned facilities.

4. The facility owner shall provide for the periodic inspection of the stormwater control measures, not less than once in every five-year period, to determine the condition and integrity of the measures. Such inspection shall be performed by a Professional Engineer licensed by the State of New York. The inspecting engineer shall prepare and submit to the Town within 30 days of the inspection, a written report of the findings including recommendations for those actions necessary for the continuation of the stormwater control measures.

5. The facility owner shall not authorize, undertake or permit alteration, abandonment, modification or discontinuation of the stormwater control measures except in accordance with written approval of the Town.

6. The facility owner shall undertake necessary repairs and replacement of the stormwater control measures at the direction of the Town or in accordance with the recommendations of the inspecting engineer.

7. The facility owner shall provide to the Town within 30 days of the date of this agreement, a security for the maintenance and continuation for the stormwater control measures in the form of (a Bond, letter of credit or escrow account).

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

8. This agreement shall be recorded in the Office of the County Clerk, County of Erie together with the deed for the common property and shall be included in the offering plan and/or prospectus approved pursuant to _____.

9. If ever the Town determines that the facility owner has failed to construct or maintain the stormwater control measures in accordance with the project plan or has failed to undertake corrective action specified by the Town or by the inspecting engineer, the Town is authorized to undertake such steps as reasonably necessary for the preservation, continuation or maintenance of the stormwater control measures and to affix the expenses thereof as a lien against the property.

10. The agreement is effective _____.

	321 COMMERCE LLC
Town of Amherst	Facility Owner

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Advanced Design Group
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716)754-2256
Fax (716)754-4252

March 23rd, 2022

Town of Amherst
c/o Planning Department
5583 Main Street
Williamsville, NY 14221

Subject: ***321 Commerce, LLC – Revised Plans per Planning Board's Review***
321 Commerce Drive, Amherst, New York 14228
ADG Project No. 21-4768

To whom it may concern:

This letter is in response to the Town Planning Department Comments from March 4th, 2022, regarding the 321 Commerce, LLC storage site plan submittal. The following is a summary of the Town's comments (in *italics*) and our responses (in **bold**) to them.

ZONING ENFORCEMENT OFFICER REVIEW:

Denied for the following reasons:

- *Adherence to §203-2-5-2.A.(4) of Town Code cannot be confirmed as setback dimensions are not provided on the site plan for the stormwater management facilities. Dimension the west and south stormwater management facilities to the property line.*

  Dimensions added to stormwater management swale and bio-retention area.

- *Unable to determine compliance with §203-4-9-2 B of Town Code as the proposed building are not dimensioned to the north and south property lines. Dimensions are to be provided perpendicular to the property lines to the closest point of the building.*

  Dimensions added from exterior buildings perpendicular to north and south property lines.

- *Parking provided on the site plan is inadequate to meet the requirements §203-7-1-6 of Town Code, 4 spaces are required. An alternative parking plan in accordance with the requirements §203-7-1-7 of Town Code may be an alternative, provide an alternative parking plan if you believe this may address the parking concerns.*

  Alternative parking plan submitted.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

New York State WBE Engineering & Survey Services
Boundary & Topographic Survey • Construction Stakeout • Construction Inspection • Subdivisions • Site Plans • SPDES • Drainage Designs

- *Unable to determine compliance with §203-7-1-9 A of Town Code as the parking spaces in the southwest and southeast corners of the site plan are not dimensioned. Provide dimensions on the site plan.*

  No longer applicable.

- *Note the "Zoning Data" table is incorrect. There is no minimum lot frontage requirement in the Research Development District.*

  Minimum lot frontage removed.

PLANNING DEPARTMENT STAFF REVIEW:

- *Although the proposed landscaping has been revised, the stormwater management area on the west side of the development remains on the proposed stormwater sewer easement. A license agreement (s) must be executed, filed with the Erie County Clerk's Office and copies provided to the Town in order to co-locate the bio-retention area on the proposed stormwater management easement.*

  Noted.

- *Your request to waive required sidewalks along Commerce Drive has been received. Should the Planning Board not grant the requested waiver four (4) foot wide concrete sidewalks will be required along the Commerce Drive frontage of the parcel.*

  Noted.

- *As required by §203-7-2-4 (C) of Town Code; All dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, RPZ's, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Such screening shall be shown on the plans submitted for review. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced and enclosure shall be high enough to screen the dumpster(s) within.*

  No dumpster is proposed, not applicable.

- *The required geotechnical report must be submitted prior to the Planning Board making a SEQR determination*

  Geotechnical report pending, to be submitted prior to meeting.

- *Please provide an 8½" x 11" reduction of the site plan and an electronic version of any revised plans, amended or additional materials submitted for review.*

  Noted.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

New York State WBE Engineering & Survey Services
Boundary & Topographic Survey • Construction Stakeout • Construction Inspection • Subdivisions • Site Plans • SPDES • Drainage Design

SITE PLAN SWPPP APPROVED WITH CONDITIONS

- *Please show location of concrete wash out area, contractor parking and erosion and sediment control measures around bio-retention and vegetated swale.*

  Concrete washout area added to southwest property corner. Erosion and sediment control measures added around bio-retention and vegetated swales.

- *Construction sequence does not list when the bio-retention area and vegetated swales will be constructed so proper erosion control measures can be installed.*

  Construction of bio-retention area and vegetated swales added to sequence list.

- *Add a note to the ESC plan that bio-filter media shall be installed once the site is stabilized.*

  Note added.

- *Under the NOT requirements within the SWPPP include language that once the project is stabilized, level 1 inspection for the stormwater management practices & bio-retention construction inspection checklist shall be performed and signed off by a professional engineer. The report shall be submitted to the Town's stormwater management officer along with the NOT form.*

  Note added.

- *Please provide 3 signed copies of stormwater maintenance agreement (sample attached) to maintain the post-control stormwater controls for the Supervisor's signatures and to be recorded in the office of County Clerk.*

  Noted. A copy of the agreement is in Appendix M of the SWPPP and 3 additional copies are attached.

LANDSCAPE ARCHITECT REVIEW:

- *Plans received on February 28, 2022, adequately address previously raised comments.*

  Noted.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Six (6) copies of the revised plans (dated March 23, 2022) are enclosed for your review.

The SWPPP/Design Report has not been revised for this submission. This submission is only addressing the comments regarding the Site Plans by the Town Planning Board. A revised SWPPP will be issued following any comments by the Town Engineer after their review.

We trust that this satisfies the Town's comments.

Please contact our office should you have any further comments or questions regarding this matter.

Sincerely,



Jarret R. Johnston, EIT
Advanced Design Group Professional Engineering and Land Surveying, PC

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

January 11, 2022

Kristin Savard
Advanced Design Group
761 Cayuga Street
Lewiston, NY 14092

Re: DEC
Commerce Drive Self-Storage Construction Project
321 Commerce Dr, Amherst, Erie County, NY
21PR06285

Dear Kristin Savard:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

R. Daniel Mackay

Deputy Commissioner for Historic Preservation
Division for Historic Preservation

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Town of Amherst Curb Cut Permit

The undersigned, the Town Superintendent of Highways, of the Town of Amherst, County of Erie upon the writte
application of owner/contractor (Name) _____
(Address) _____
dated on the _____ day of _____, 20 _____ and filed with him, hereby gra
permission to said applicant to perform a curb cut on the highway described as follows:
(Address of Inspection) _____

This permit is granted subject to the following conditions:

1. The work authorized by this permit shall be performed in a manner satisfactory to the Town Superintende
2. The applicant is to keep in good repair all pipes, hydrants or appurtenances which may be placed within th bounds of the highway under terms of this permit and is to save the town harmless from all claims and damage which may accrue by reason of their location in the highway and upon notice by the town superintendent agree to make any repairs required for the protection and preservation of the highway; and further agrees that upon th failure of the applicant to make such repairs they may be made by the town superintendent at the expense of th applicant and such expense shall be a prior lien upon the land benefited by the use of the highway for such pipe hydrants or appurtenances.
3. If the work performed is on a road which has been improved by State aid in no case shall the pavement b disturbed. Upon completion of the work the highway shall be left in as good a condition as before the work wa performed and to the satisfaction of the town superintendent.
4. The said applicant hereby agrees to hold the Town of Amherst harmless on account of damages of any kin which may arise during the progress of the work authorized by this permit or by reason thereof. Applicar certifies all persons concerned with actual work under this permit are duly covered by Workmen Compensation Insurance and the Town of Amherst shall be held harmless on account thereof.
5. Failure to comply with the above requirements will be considered a violation of this and other conditions as s forth in approved permit.
6. The said town superintendent may, upon the failure of the applicant to comply with any of the conditior contained herein, revoke this permit.
7. Permit and inspection is required for all types of curb: "A", "B", or "C". Builder shall notify Highway Superi tendent 24 hours prior to installing driveway apron in right of way.

DATE INSPECTION REQUESTED: _____

APPROVED: First Insp. ☐ Approved Final Insp. ☐

REJECTED: First Insp. ☐ Rejected Final Insp. ☐

Reason for Rejection: _____

_____

_____

LOCATION IS ON STATE / COUNTY HIGHWAY
FOR WHICH TOWN DOES NOT ISSUE PERMIT

_____
TOWN SUPT.

_____
PER

_____
DATE

_____
APPLICANT

_____
PHONE

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

C-WP-D-TR Series

Traditional-Style LED Wall Pack with Glass Lens

Replaces up to 400W PSMH

C-LITE LED LIGHTING

PACK UP THIS ONE

Our dimmable cULus Listed Traditional-Style LED Wall Pack has a glass lens, delivers up to 23,400 lumens, is available in 4000K and 5000K, and comes with a 5-year limited warranty. It also features four ½" NPS tapped conduit knockouts for flexibility with mounting options.



PRODUCT SPECIFICATIONS

OVERVIEW

- Max. Delivered Lumens: Up to 23,400 Lumens
- CRI: ≥ 80 **(4L, 6L, 9L & 14L),** ≥ 70 **(18L & 23L)**
- CCT: 4000K or 5000K
- Input Power: 30W **(4L)**, 45W **(6L)**, 67W **(9L)**, 106W **(14L)**, 136W **(18L)**, 166W **(23L)**
- Estimated L_{70} Lifetime @ 25˚C: > 100,000 Hours
- Power Factor: > 0.9 at full load
- Total Harmonic Distortion: <20% at full load
- Limited Warranty: 5-Year*
- Replaces: 100W PSMH **(4L)**, 150W PSMH **(6L)**, 250W MH **(9L)**, 320W PSMH **(14L)**, 400W MH **(18L)**, 400W PSMH **(23L)**

FEATURES	RECOMMENDED USE	INPUT VOLTAGE
• Borosilicate prismatic glass lens • 0-10V Dimming to 10% • Extremely efficient with over 130LPW on every fixture • Easy installation • FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions	• Entryways • General Area Lighting • Perimeter Lighting • Storage Facilities	• Universal (120V - 277V)

CERTIFICATIONS:

c UL us LISTED · DLC PREMIUM · RoHS COMPLIANT · WET LOCATION SUITABLE · DIMMABLE · 5 YEAR WARRANTY

CA RESIDENTS WARNING: Cancer and Reproductive Harm – www.p65warnings.ca.gov

For informational purposes only. Content is subject to change. *See creelighting.com/resources/warranties

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

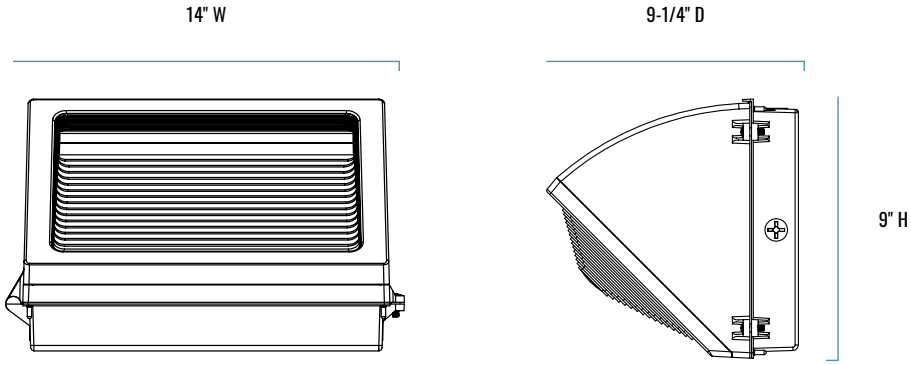
C-WP-D-TR Series

ORDERING INFORMATION

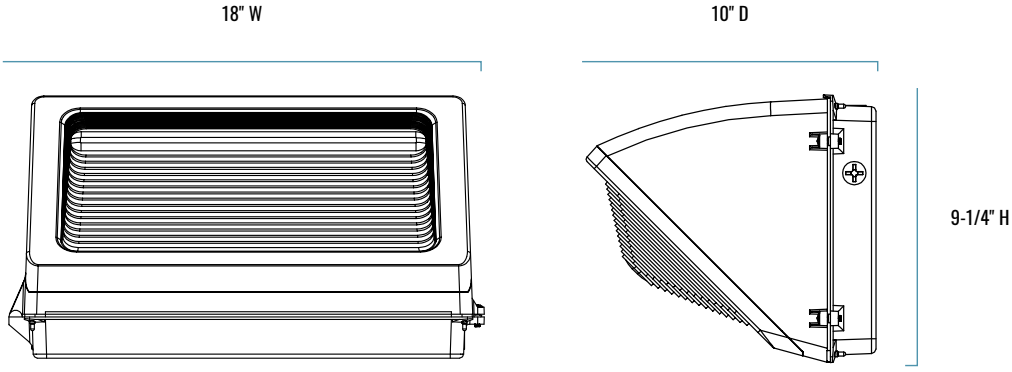
Example SKU: C-WP-D-TR-4L-40K-UL-BZ

C-WP	D	TR				UL	BZ
PRODUCT	**SERIES**	**STYLE**	**LUMEN PACKAGE**			**COLOR TEMP**	**VOLTAGE**	**HOUSING COLOR**
C-WP	**D**	**TR** Traditional-Style	**4L** 4300 (4000K) 4200 (5000K) 30W **6L** 6200 (4000K) 6400 (5000K) 45W	**9L** 9100 (4000K) 9200 (5000K) 67W **14L** 14,000 (4000K) 14,300 (5000K) 106W	**18L** 18,600 (4000K) 18,700 (5000K) 136W **23L** 22,600 (4000K) 23,400 (5000K) 166W	**40K** Neutral White (4000K) **50K** Cool White (5000K)	**UL** Universal (120-277V)	**BZ** Dark Bronze

C-WP-D-TR-4L, 6L, 9L & 14L



C-WP-D-TR-18L & 23L



SERIES OVERVIEW

DIMENSIONS	PRODUCT WEIGHT	MOUNTING HEIGHT	SPACING
9-1/4" D x 14" W x 9" H **(4L, 6L, 9L & 14L),** 10" D x 18" W x 9-1/4" H **(18L & 23L)**	8.4 lbs. **(4L),** 9.08 lbs. **(6L),** 10.05 lbs. **(9L),** 10.34 lbs. **(14L),** 15.92 lbs. **(18L),** 17.4 lbs. **(23L)**	10 to 15 feet **(4L)** & 20 to 25 feet **(6L, 9L, 14L, 18L, 23L)**	2 to 3 times the mounting height

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

For informational purposes only. Content is subject to change. *See creelighting.com/resources/warranties

C-WP-D-TR Series

FIXTURE SPECIFICATIONS

HOUSING	Heavy-duty dark bronze die-cast aluminum
LENS ASSEMBLY	Borosilicate prismatic glass lens
MOUNTING	Four 1/2" NPS tapped conduit knockouts for flexibility with mounting options

LUMINAIRE AND ELECTRICAL PERFORMANCE

OPERATING TEMPERATURE RANGE	ESTIMATED L_{70} LIFETIME @ 25°C (77°F)	POWER FACTOR	TOTAL HARMONIC DISTORTION
-40°F to 104°F (-40°C to 40°C)	> 100,000 Hours	> 0.9 at full load	<20% at full load

SKU	REPLACES	LUMEN OUTPUT	BUG RATINGS*	SYSTEM WATTS	CURRENT DRAW (AMPS)			
					120V	208V	240V	277V
C-WP-D-TR-4L-40K-UL-BZ	100W PSMH	4300 L	B1-U3-G3	30W	0.251	0.15	0.132	0.117
C-WP-D-TR-4L-50K-UL-BZ		4200 L						
C-WP-D-TR-6L-40K-UL-BZ	150W PSMH	6200 L	B1-U3-G4	45W	0.384	0.227	0.20	0.176
C-WP-D-TR-6L-50K-UL-BZ		6400 L						
C-WP-D-TR-9L-40K-UL-B	250W MH	9100 L	B2-U4-G3	67W	0.57	0.35	0.31	0.30
C-WP-D-TR-9L-50K-UL-BZ		9200 L	B2-U4-G4					
C-WP-D-TR-14L-40K-UL-BZ	320W PSMH	14,000 L	B3-U4-G4	106W	0.89	0.53	0.46	0.42
C-WP-D-TR-14L-50K-UL-BZ		14,300 L	B2-U4-G5					
C-WP-D-TR-18L-40K-UL-BZ	400W MH	18,600 L	B3-U4-G4	136W	1.20	0.67	0.59	0.52
C-WP-D-TR-18L-50K-UL-BZ		18,700 L						
C-WP-D-TR-23L-40K-UL-BZ	400W PSMH	22,600 L	B3-U5-G5	166W	1.43	0.83	0.73	0.63
C-WP-D-TR-23L-50K-UL-BZ		23,400 L						

* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

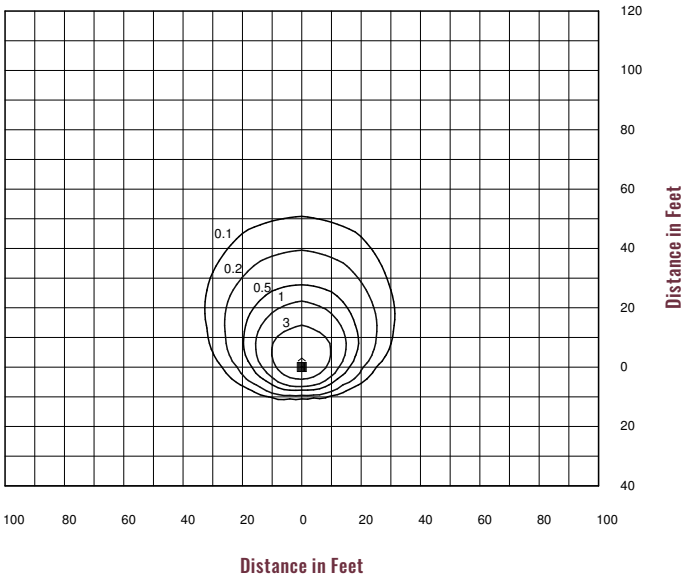
For informational purposes only. Content is subject to change. *See creelighting.com/resources/warranties

C-WP-D-TR Series

ISO PLOT CHARTS

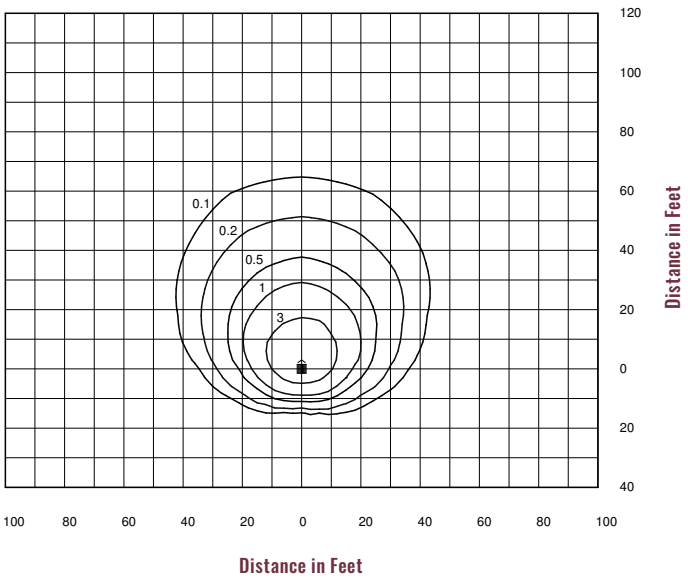
C-WP-D-TR-4L-50K

Mounting Height: 10'



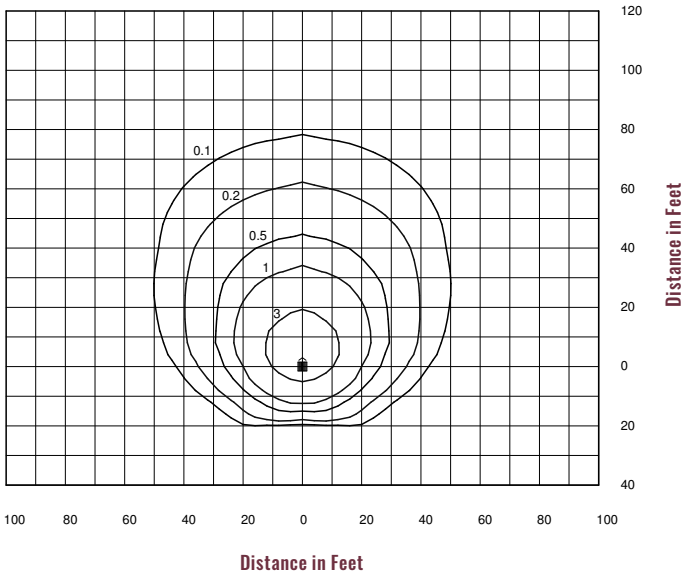
C-WP-D-TR-6L-50K

Mounting Height: 15'



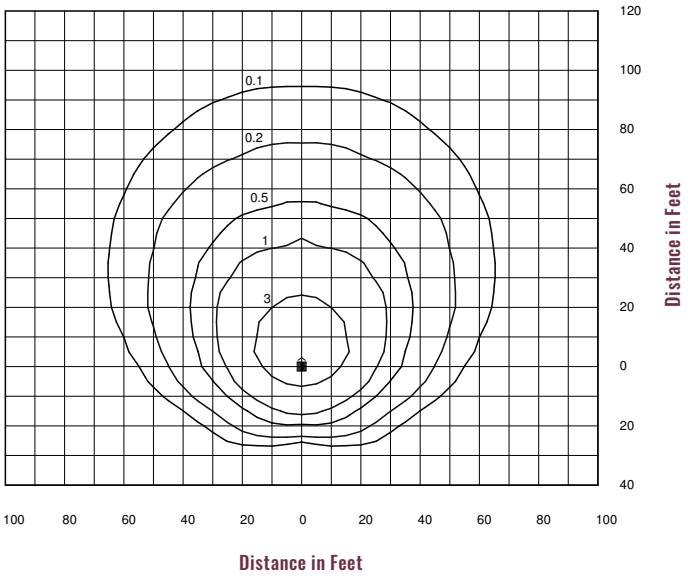
C-WP-D-TR-9L-50K

Mounting Height: 20'



C-WP-D-TR-14L-50K

Mounting Height: 25'



Note: All published photometric testing performed to IES LM-79 standards. Fixture photometry was completed on a single representative fixture. Foot candle levels are noted inside graph.

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

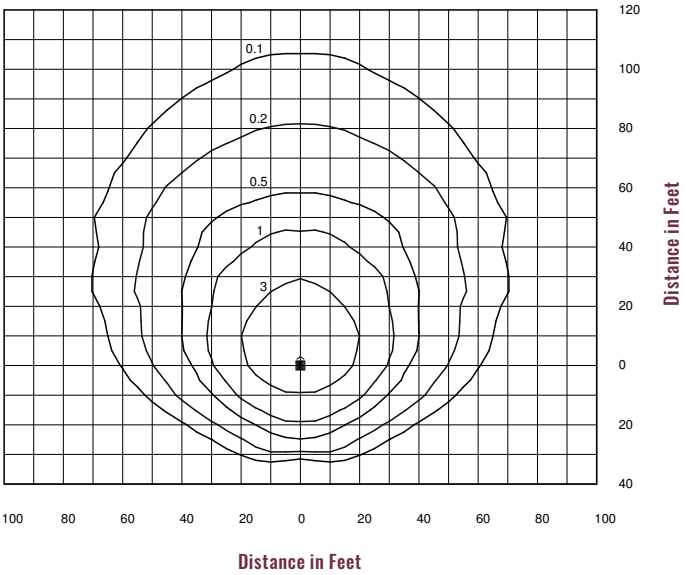
For informational purposes only. Content is subject to change. *See creelighting.com/resources/warranties

C-WP-D-TR Series

ISO PLOT CHARTS

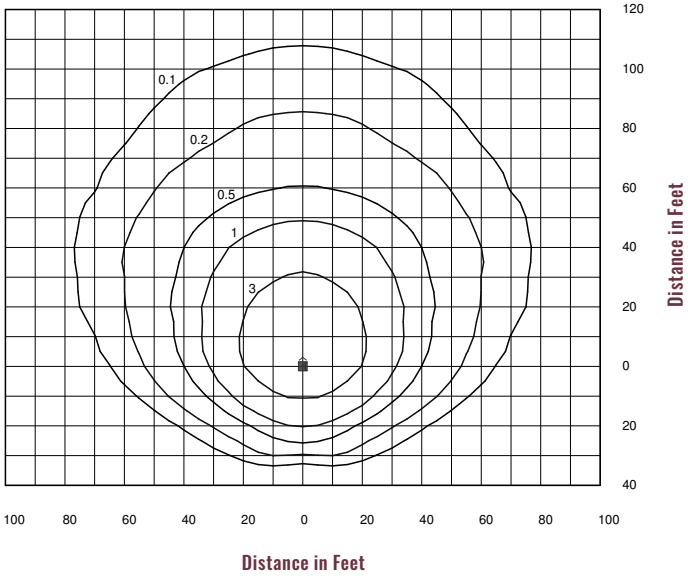
C-WP-D-TR-18L-50K

Mounting Height: 25'



C-WP-D-TR-23L-50K

Mounting Height: 25'



Note: All published photometric testing performed to IES LM-79 standards. Fixture photometry was completed on a single representative fixture. Foot candle levels are noted inside graph.

WARRANTY AND CERTIFICATIONS

WARRANTY	cULus LISTED	DLC
5-Year Warranty*	Wet Listed	5.1 Premium Refer to https://www.designlights.org/search/ for most current information.

ACCESSORIES



UNIVERSAL BUTTON PHOTOCELL (120V-277V)

SKU: **CCR-PHC-0306-GC**
USE: Photocell is field installed and drilling of the back box is required. 500W Max.



UNIVERSAL BUTTON PHOTOCELL (120V-277V)

SKU: **JL-423CZ**
USE: Photocell is field installed and drilling of the back box is required. 1000W Max.

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Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

321 Commerce Drive SF
SP-2022-01

T. of A. Account No. 3-63 Parcel C-36-618 U.D.C. P.E. "H"
Page 1 of 4

TOWN OF AMHERST EASEMENT

THIS AGREEMENT, made this 5th of February, 19 75, by and between

New York State Urban Development Corporation
name of property owner

1345 Avenue of The Americas
mailing address

New York, New York 10019
zip code

parties of the first part, and TOWN of AMHERST, a municipal corporation of the State of New York, having its principal office in the Amherst Municipal Building, 5583 Main Street, Williamsville, New York 14221, party of the second part:

WITNESSETH

WHEREAS, the parties of the first part are the owners of all that tract or parcel of land, situated in the Town of Amherst, County of Erie and State of New York, being part of Lot 82, Township 12, Range 7, of the Holland Land Company's survey, account number 3-63 and fronting on the South side of the street or highway known as Creekside Drive and bounded on the West by land described as account number 500-3-62 and bounded on the East by land described as account number 3-63.

WHEREAS, the party of the second part seeks the permission and easement to install 84" R.C.P. Sanitary Sewer & Appurtenances, over a portion of said premises and to operate, maintain and make repairs in connection therewith.

THIS EASEMENT is given upon the following conditions and covenants, each of which the party of the second part shall keep and perform.

FIRST: The parties of the first part hereby grant unto the party of the second part the permanent right and easement to construct, operate, maintain, repair and extend said 84" Sanitary Sewer & Appurtenances, upon, under and across the Herein described Parcel ~~Lot~~ of the real property of the parties of the first part.

SECOND: The party of the second part hereby agrees that the property of the party of the first part shall be restored to the same condition as it existed prior to construction.

IN WITNESS, the parties of the first part have hereunto set their hands and seals and the party of the second part has caused this easement to be executed by its duly authorized officer and its corporate seal to be hereunto affixed, the day and year written above.

NEW YORK STATE URBAN DEVELOPMENT CORP.

[signature]
signature of property owner(s)
KENNETH E. McLAUGHLIN
Director, Real Estate Transactions

STATE OF NEW YORK :
SS :
COUNTY OF ERIE :

On the day of , 19 , before me, the subscriber (s), personally appeared to me personally known to be the same person (s) described in and who executed the foregoing instrument and that duly acknowledged to me executed the same.

notary

By [signature]
Supervisor TOWN OF AMHERST

STATE OF NEW YORK :
SS :
COUNTY OF ERIE :

On this 15th day of March, 19 75, before me personally came Allen Dekdebrun to me personally known, who being by me duly sworn, did depose and say that he resides in the Town of Amherst, County of Erie and State of New York; that he is the Supervisor of the TOWN OF AMHERST, the corporation described in, and which executed the above instrument; that he knows the seal of said corporation, and that it was so affixed by order of the Town Board of said corporation; and that he signed his name thereto by like order.

DOLORES B. BLUM
Notary Public, State of New York
Qualified in Erie County
My Commission Expires March 30, 1975

Dolores B. Blum
notary

LIBER 8268 PAGE 65

C-36-618 Town of Amherst Job. No.

REAL ESTATE TRANSFER TAX STATE OF NEW YORK 00.00
Dept. of Taxation & Finance APR 10 '75 PB 10923
ERIE COUNTY 1 7 2 0 0 1

APR 10 2 00 PM '75
FILED
ERIE COUNTY
CLERK'S OFFICE

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Permanent Easement for Construction of an 84" R.C.P. Sanitary Sewer and appurtenances across the property of the New York State Urban Development Corporation
Town of Amherst, Erie County, New York

Parcel No. C-36-618 - U.D.C. P.E. "H"

Beginning at a Point on the Southerly Highway Boundary of existing Creekside Drive, as a 80 Foot wide Highway, at the intersection of said Highway Boundary with the division line between the property of New York State Urban Development Corporation (reputed owner), Town of Amherst Account No. 3-63 on the East and the property of Town of Amherst (reputed owner), Town of Amherst Account No. 500-3-62, on the West, said division line being further identified as the West line of Lot 82, Township 12, Range 7; Thence measured Easterly along the aforementioned Southerly Highway Boundary of Creekside Drive, a distance of 30.01± Feet to a Point on said Southerly Highway Boundary; Thence measured Southerly through the property of New York State Urban Development Corporation (reputed owner), Town of Amherst Account No. 3-63, along a line parallel to and 30 Feet East of the aforementioned division line, and West lot line, a distance of 1937.62 Feet to an Angle Point within the above mentioned property; Thence measured Southeasterly through the property of New York State Urban Development Corporation, (reputed owner), Town of Amherst Account No. 3-63, along a line making an Angle, North to East, with the aforementioned line of 135°-00', a distance of 110.44± Feet to a Point of Intersection on the division line between the property of New York State Urban Development Corporation (reputed owner), Town of Amherst Account No. 3-63 on the North and the property of Niagara Mohawk Power Corporation (reputed owner), Town of Amherst Account No. 300-1-103 on the South; Thence measured Westerly along the last mentioned division line, a distance of 102.06± Feet to a Point of Intersection with the West line of Lot 82, Township 12, Range 7; Thence measured Northerly along the said West

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

T. of A. Account No. 3-63

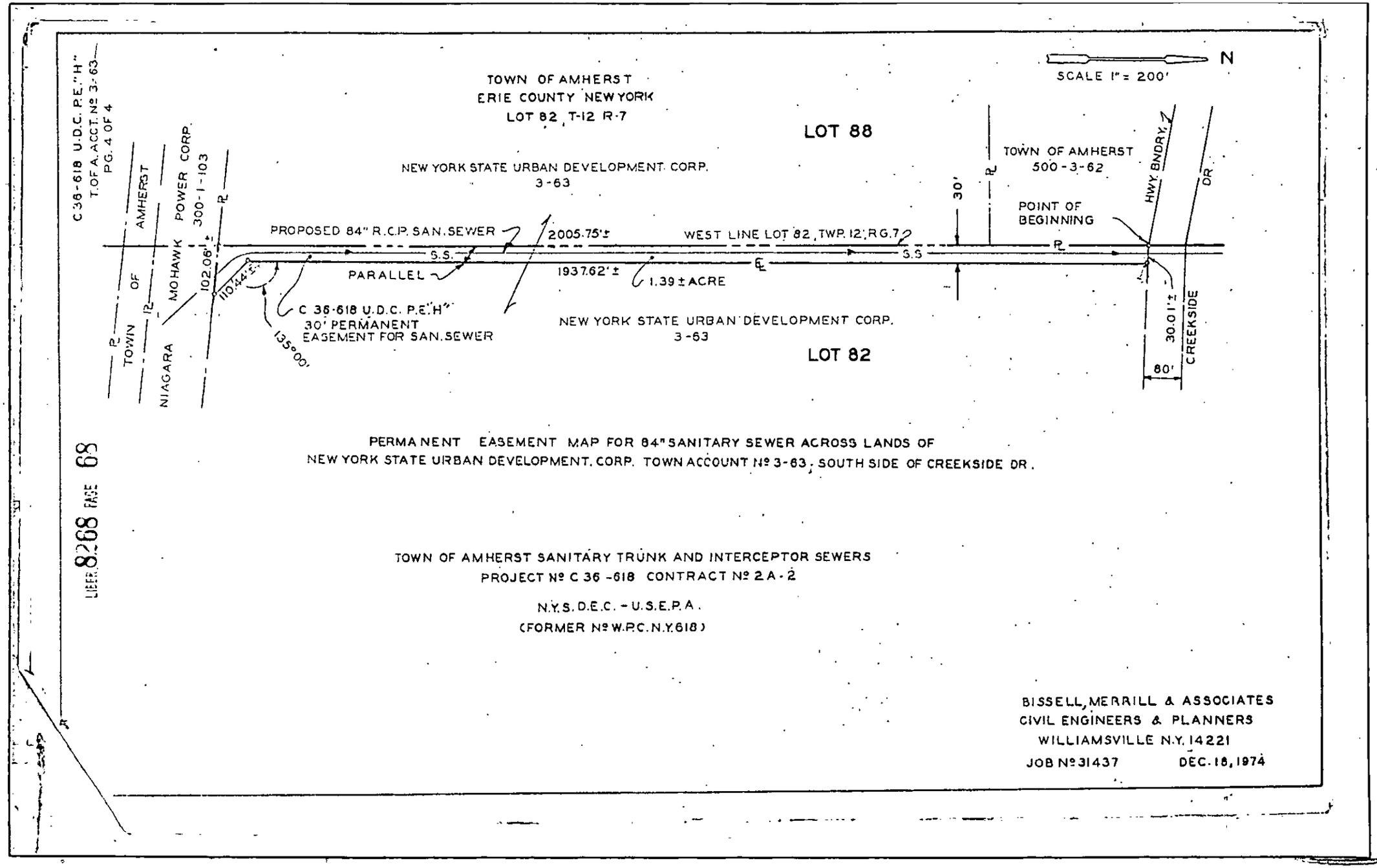
P.E. "H"

line of Lot 82, Township 12, Range 7, through the property of New York State Urban Development Corporation (reputed owner), Town of Amherst Account No. 3-36, a distance of 2005.75± Feet to the Point of Beginning, being 1.39 Acre More or Less.

LIBER 8268 PAGE 67

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)



PERMANENT EASEMENT MAP FOR 84" SANITARY SEWER ACROSS LANDS OF
NEW YORK STATE URBAN DEVELOPMENT. CORP. TOWN ACCOUNT Nº 3-63, SOUTH SIDE OF CREEKSIDE DR.

TOWN OF AMHERST SANITARY TRUNK AND INTERCEPTOR SEWERS
PROJECT Nº C 36-618 CONTRACT Nº 2A-2

N.Y.S.D.E.C. - U.S.E.P.A.
(FORMER Nº W.P.C.N.Y.618)

BISSELL, MERRILL & ASSOCIATES
CIVIL ENGINEERS & PLANNERS
WILLIAMSVILLE N.Y. 14221
JOB Nº 31437 DEC. 18, 1974

CORPORATE ACKNOWLEDGEMENT

COUNTY OF New York)ss:
STATE OF NEW YORK)

On the 5th day of February, in the year 1975 before me personally came KENNETH E. McLAUGHLIN to me known, who, being by me dully sworn, did depose and say that he resides in NEW YORK CITY, 2494 Monroe Ave Bronx N.Y.
(If the place of residence is in a city, include the street number and street, if any thereof);

that he is the Director Real Estate Transactions
(president or other officer or director)

of the NEW YORK STATE URBAN DEVELOPMENT CORP.
(name of corporation)

the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the board of directors of said corporation, and that he signed his name thereto by like order.

Edward J. Pitter
(Signature and Office of person taking acknowledgement)
(NOTARY PUBLIC MUST AFFIX STAMP)

If such corporation have no seal, that fact must be stated in place of the statements required respecting the seal.

EDWARD J. PITTER
Notary Public, State of New York
No. 52 3294820
Qualified in Suffolk County
Commission Expires March 30, 1975

CORPORATE ACKNOWLEDGEMENT

Attachment: SP-2022-01 application 042122 (25330 : Sp-2022-01)

Easement Bx 224
New York State Urban
Development Corporation
to
Town of Amherst

193

LIBER 8268 PAGE 70

STATE OF NEW YORK
ERIE COUNTY CLERK'S OFFICE
Recorded in Liber 8268 Page 65
of Deeds
on the 10 day of April
A. D., 1975 at 3:00 o'clock P M
and examined.

Genevieve M. Staraciak
Clerk

Chg F 12096
7-10.00-21

321 Commerce, LLC

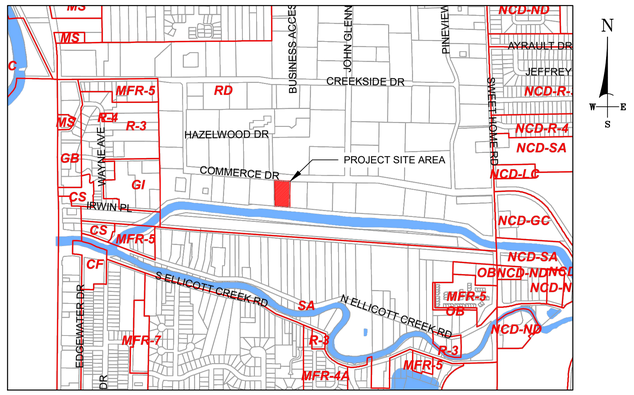
321 Commerce Drive

Town of Amherst, County of Erie, New York 14228

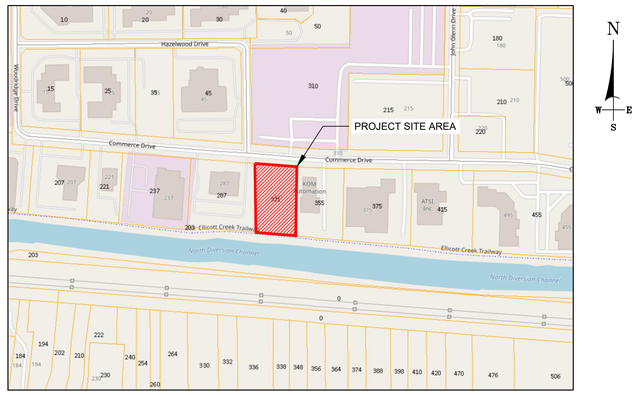




AERIAL PHOTO
NTS



ZONING MAP
NTS



LOCATION MAP
NTS

ZONING DATA

ZONING: RD RESEARCH AND DEVELOPMENT DISTRICT

	REQUIREMENT	EXISTING CONDITION	PROVIDED
MIN. LOT AREA	1.0 AC	1.78± AC	NA
MIN. LOT WIDTH	35'	209'±	NA
MIN. FRONT YARD SETBACK	20'	NA	20'
MIN. SIDE YARD SETBACK	15'	NA	15'
MIN. REAR YARD SETBACK	15'	NA	15'
MAX. BUILDING HEIGHT (FEET)	65'	NA	10'
MAX BUILDING COVERAGE	NONE	0%	25%
MAX INTERIOR BUILDING SEPARATION	30'	NA	30'

Legend

- Zoning District Boundary
- Village of Williamsville
- Water Body

RR	Rural Residential
SA	Suburban Agricultural
R-1	Residential District One
R-2	Residential District Two
R-3	Residential District Three
CR-3A	Cluster Residential District Three-A
TR-3	Traditional Single-Family Residential District
R-4	Residential District Four
MFR-4A	Multifamily Residential District Four-A
MFR-5	Multifamily Residential District Five
MFR-6	Multifamily Residential District Six
MFR-7	Multifamily Residential District Seven
MHR-8	Manufactured Home Residential District Eight
OB	Office Building District
NB	Neighborhood Business District
GB	General Business District
CS	Commercial Service District
MS	Motor Service District
RD	Research & Development District
ST	Science Technology District
GI	General Industrial District
AG	Agricultural District
NCD	New Community District
PRD	Planned Residential District
PDD	Planned Development District
CF	Community Facilities District
TND	Traditional Neighborhood Development District
TNB	Traditional Neighborhood Business Overlay District
LW-1	Live-Work District 1
RC	Recreation Conservation District
	MIXED USE DISTRICTS
TI-2.5	Traditional Infill 2.5
TI-4	Traditional Infill 4
SC-3	Shallow Corridor 3
DC-3	Deep Cooridor 3
DC-5	Deep Cooridor 5
CTR-2.5	Center 2.5
CTR-5	Center 5
CTR-8	Center 8
	MIXED USE DISTRICT FRONTAGE TYPE
g	Green
v	Village

DRAWING INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	1 OF 11
EXISTING CONDITIONS PLAN	2 OF 11
SITE LAYOUT PLAN	3 OF 11
GRADING AND DRAINAGE PLAN	4 OF 11
PHOTOMETRIC PLAN	5 OF 11
LANDSCAPING PLAN	6 OF 11
EROSION AND SEDIMENT CONTROL PLAN	7 OF 11
DETAILS - EROSION & SEDIMENT CONTROL	8 OF 11
DETAILS - PAVING & DRAINAGE	9 OF 11
DETAILS - STORMWATER MANAGEMENT	10 OF 11
DETAILS - TYPICAL STORAGE UNITS	11 OF 11

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
3		
4		
5		
6		
7		
8		

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER

Prepared by:
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716) 754-4252
Fax (716)754-4252

COVER SHEET

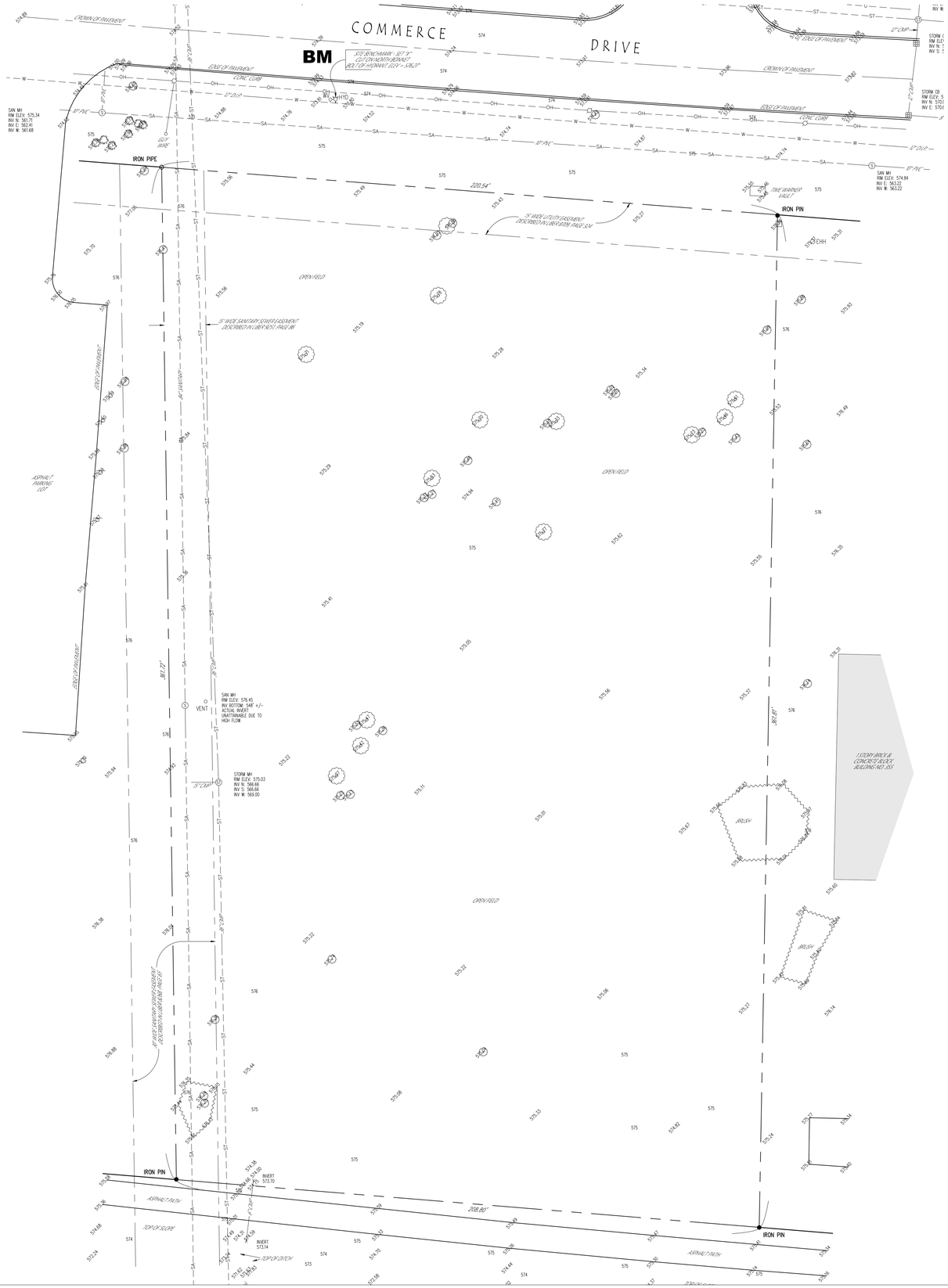
321 Commerce, LLC
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

date:	1-21-2022
project no.:	21-4768
sheet:	1 OF 11
scale:	AS NOTED

\\192.168.1.5\vdg\vdg\VDG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\VDG-Commerce Cover Sheet.dwg

Attachment: SP-2022-01 drawings 042122 (25330 : Sp-2022-01)



LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE

NOTES:

1) NORTH AS SHOWN ON THIS MAP IS TRUE NORTH AT 78°35' MERIDIAN WEST LONGITUDE, BASED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM NAD 83, WEST ZONE 3103, AS ESTABLISHED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REAL TIME NETWORK. (NYSDOT RTN)

2) ELEVATIONS AS SHOWN ON THIS MAP OF SURVEY ARE BASED ON NAVD88 DATUM, AS ESTABLISHED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REAL TIME NETWORK. (NYSDOT RTN)

3) THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM VISIBLE STRUCTURES, SURFACE MARKINGS. TERRA POINTE LAND SURVEYING PLLC DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE ALL OF THE UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES UPON INSTALLATION. EACH CONTRACTOR MUST CALL DIG SAFELY NEW YORK AT 1-800-962-7962 THREE DAYS PRIOR TO ANY EXCAVATION.

4) CONTOUR INTERVAL IS 1.0 FOOT.

5) THE BOUNDARY LINEWORK AND EASEMENT INFORMATION AS SHOWN HEREON WAS TAKEN FROM MAPPING BY NUSSBAUMER & CLARK INC., DATED JULY 24, 2019 AND IDENTIFIED AS JOB NO. 1952-1119

MAP REFERENCE

BOUNDARY AND TOPOGRAPHIC SURVEY OF LANDS OWNED BY BOGART SINATRA DEVELOPMENT, LLC. PREPARED BY TERRA POINTE LAND SURVEYING, PLLC.: DATED OCTOBER 22, 2021 JOB NO: 1311-21

NOTE:

ALL EXISTING VEGETATION WITHIN PROJECT AREA TO BE REMOVED. SEE LANDSCAPING PLAN FOR PROPOSED PLANTINGS.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

N
W E
S

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
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7		
8		

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STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ 90183 ★ ENGINEERING & LAND SURVEYING

Prepared by

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716)754-4252
Fax (716)754-4252

EXISTING CONDITIONS PLAN

321 Commerce, LLC

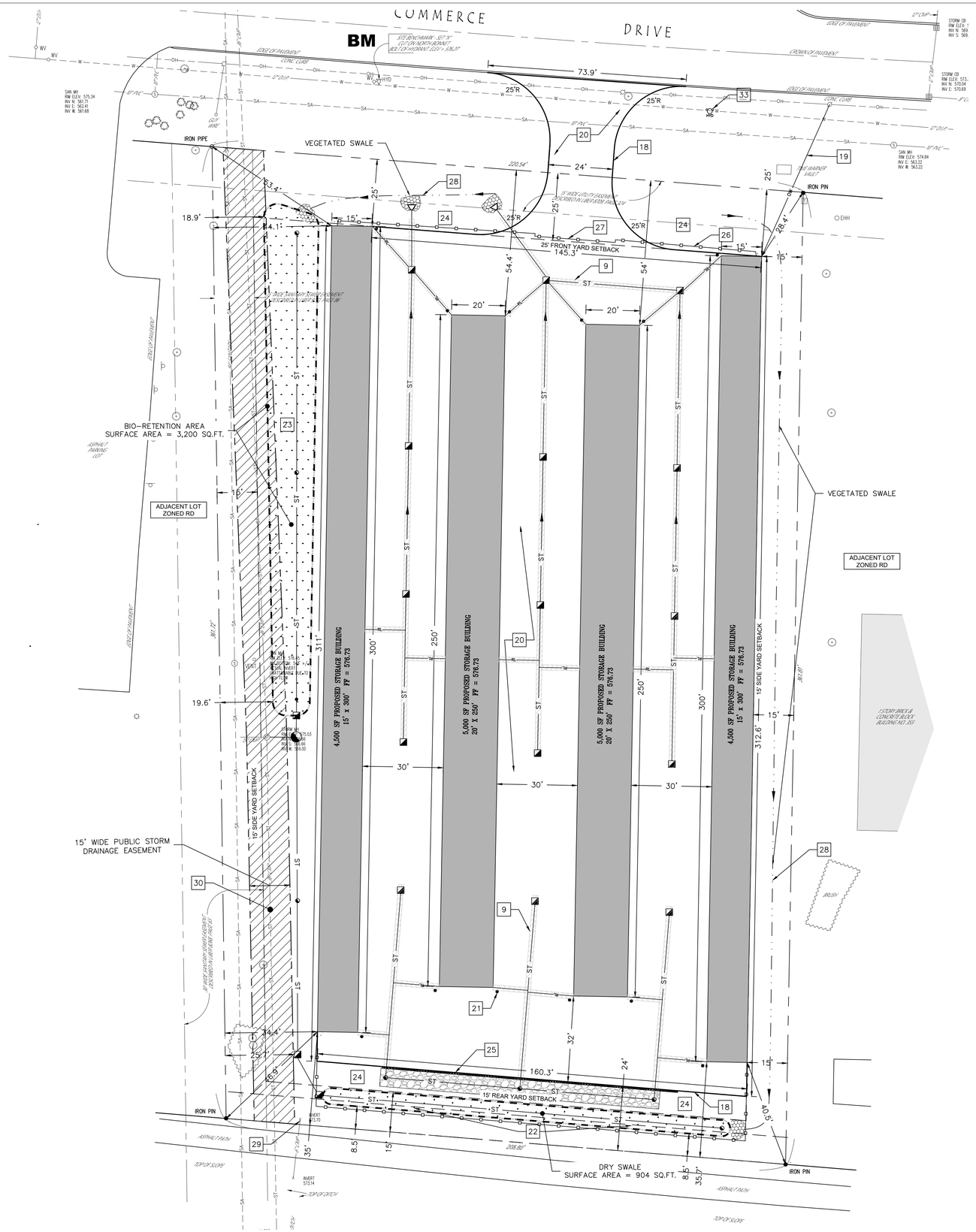
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale: AS NOTED | date: 1-21-2022 | project no.: 21-4768 | sheet: 2 OF 11

\\192.168.1.5\adg\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG-Layout Plan 3-11-22 JRJ.dwg

Attachment: SP-2022-01 drawings 042122 (25330 : Sp-2022-01)



LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
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SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
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		PUBLIC EASEMENT HATCH
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ST	STMH	STORM MANHOLE
		CATCHBASIN
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HYD		HYDRANT
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		SIGN
		SELECT BACKFILL
WV		WATER VALVE

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MIN. REAR YARD SETBACK	15'	NA	15'
MAX. BUILDING HEIGHT (FEET)	65'	NA	15'
MAX BUILDING COVERAGE	NONE	0%	25%
MAX INTERIOR BUILDING SEPARATION	30'	NA	30'

N

W E

S

CONSTRUCTION NOTES

X

1. UTILITIES AS SHOWN ON THIS MAP ARE PLOTTED FROM FIELD EVIDENCE AND INFORMATION SUPPLIED BY VARIOUS UTILITY AGENCIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. ADVANCED DESIGN GROUP P.E. & L.S., P.C. ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OF THE UNDERGROUND UTILITIES. CONTRACTORS MUST CALL U.F.P.O. AT LEAST TWO WORKING DAYS PRIOR TO ANY EXCAVATION 1–800–962–7962. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS TO LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS AS REQUIRED TO MEET EXISTING CONDITIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL AREAS THAT ARE NOT PAVED OR LANDSCAPED MUST BE PERMANENTLY VEGETATED WITH A MINIMUM OF 5" OF TOPSOIL AND GRASS SEED AND MAINTAINED AS LAWN. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
3. NOT USED
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 6 INCHES IN THICKNESS.
6. FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
7. CONTRACTOR TO REFER TO GEOTECHNICAL REPORT, IF AVAILABLE, FOR ALL SITE WORK, OR PROVIDE TEST PITS; SUBMISSION OF A BID INDICATES THAT THE SITE CONTRACTOR AND THE GENERAL CONTRACTOR HAVE ACCEPTED THE FINDINGS OF THE REPORT/TEST PITS AND WILL PROVIDE ALL WORK IN CONFORMANCE WITH ITS RECOMMENDATIONS.
8. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
9. SELECT BACKFILL IS REQUIRED FOR ALL UTILITIES (ELECT., STORM) THAT CROSS THROUGH AND WITHIN 5 FEET OF ANY PAVEMENT AREA.
10. ALL PROPOSED ELEVATIONS SHOWN HEREON ARE FINISHED GRADE ELEVATIONS.
11. ALL SITE CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF AMHERST CONSTRUCTION SPECIFICATIONS, RULES AND DETAILS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE TO SECURE ALL PERMITS AND PROVIDE ALL BONDS REQUIRED FOR THIS WORK INCLUDING, BUT NOT LIMITED TO, UTILITY CONNECTIONS AND BUILDING AND SITE CONSTRUCTION.
13. CONTRACTOR TO COORDINATE WITH PRIVATE UTILITY OWNERS PRIOR TO START OF CONSTRUCTION AND NOTIFY DESIGN ENGINEER OF ANY UTILITY RE–LOCATIONS THAT MAY BE NECESSARY AND HAVE AN AFFECT ON THE APPROVED DESIGN (EX: POLES AND GUY WIRES, BURIED SERVICES, ETC).
14. SIGNAGE SHALL BE IN CONFORMANCE WITH THE TOWN OF AMHERST'S SIGN LAW. ALL SIGNAGE TO BE APPROVED BY THE TOWN OF AMHERST BUILDING DEPARTMENT PRIOR TO INSTALLATION.
15. EXTERIOR LIGHTING FOR PROPOSED BUILDING TO BE DARK SKY FRIENDLY LIGHTING. LIGHTS TO BE LOCATED ON BUILDING EXTERIOR WALLS FOR SAFETY. ALL LIGHTS ARE TO SHINE DOWNWARD. SEE PHOTOMETRIC PLAN.
16. NO DUMPSTER IS PROVIDED OR NECESSARY.
17. FACILITY WILL BE MANAGED AND HAVE SECURITY FROM A REMOTE OFFICE. NO SANITARY OR WATER SERVICES TO BE PROVIDED.
18. APPROXIMATE LOCATION PROPOSED EDGE OF PAVEMENT – NO CURBING –TYP.
19. APPROXIMATE LOCATION PROPOSED OVERHEAD ELECTRIC/TELEPHONE/CABLE. INSTALLATION TO BE COORDINATED WITH UTILITY OWNER.
20. STANDARD DUTY ASPHALT PAVEMENT – SEE DETAIL.
21. 6" CONCRETE BOLLARD (TYP. OF 12) – SEE DETAIL. CENTER OF BOLLARD TO BE 1.5' FROM BUILDING CORNER.
22. DRY SWALE TO BE PLANTED WITH PERMANENT VEGETATION SEED MIXTURE AND MAINTAINED AT A 6"± HEIGHT.
23. BIO–RETENTION AREA PLANTINGS TYPE TO BE OBTAINED FROM TABLE H.5 NATIVE PLANT GUIDE FOR STORMWATER MANAGEMENT AREAS (NY) LOCATED IN APPENDIX H OF THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL. PLANTINGS MUST BE ZONE 2 COMPLIANT. PLANT SELECTION SHALL BE DIVERSE. LAYOUT SHALL BE RANDOM AND NATURAL. PLANTINGS SHALL BE PLACED APPROX. 18" ON CENTER. – SEE BIO–RETENTION AREA PLANTING PLAN.
24. SNOW STORAGE AREA (TYP.)
25. 6" WIDE PEA GRAVEL DIAPHRAGM – SEE DRY SWALE CROSS SECTION.
26. 6' CHAIN LINK FENCE – REFER TO DETAIL.
27. PUBLIC ACCESS GATE – KEYPAD ENTRY.
28. VEGETATED SWALES TO BE PLANTED WITH PERMANENT VEGETATION SEED MIXTURE AND MAINTAINED AT 6"± HEIGHT S=0.2% – TYP.
29. EXISTING ON–SITE STORM DRAINAGE CULVERT TO BE CAPPED AND FILLED OVER.
30. PROPOSED 15' WIDE PUBLIC STORM DRAINAGE EASEMENT TO BE PROVIDED FOR EXISTING STORM SEWER.
31. FIRE DEPARTMENT KNOX KEY BOX TO BE PROVIDED AT ENTRANCE GATE TO ACCESS BUILDINGS.
32. ALL EXISTING VEGETATION WITHIN PROJECT AREA TO BE REMOVED. SEE LANDSCAPING PLAN FOR PROPOSED PLANTINGS.
33. PRIVATE FIRE HYDRANT TO BE MAINTAINED AND TESTED BY OWNER.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NO.	DATE	REVISIONS
8		
7		
6		
5		
4		
3		
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION

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Prepared by:
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SITE LAYOUT PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2566

scale: AS NOTED | date: 1-21-2022 | project no.: 21-4768 | sheet: 3 OF 11

Attachment: SP-2022-01 drawings 042122 (2330 : Sp-2022-01)

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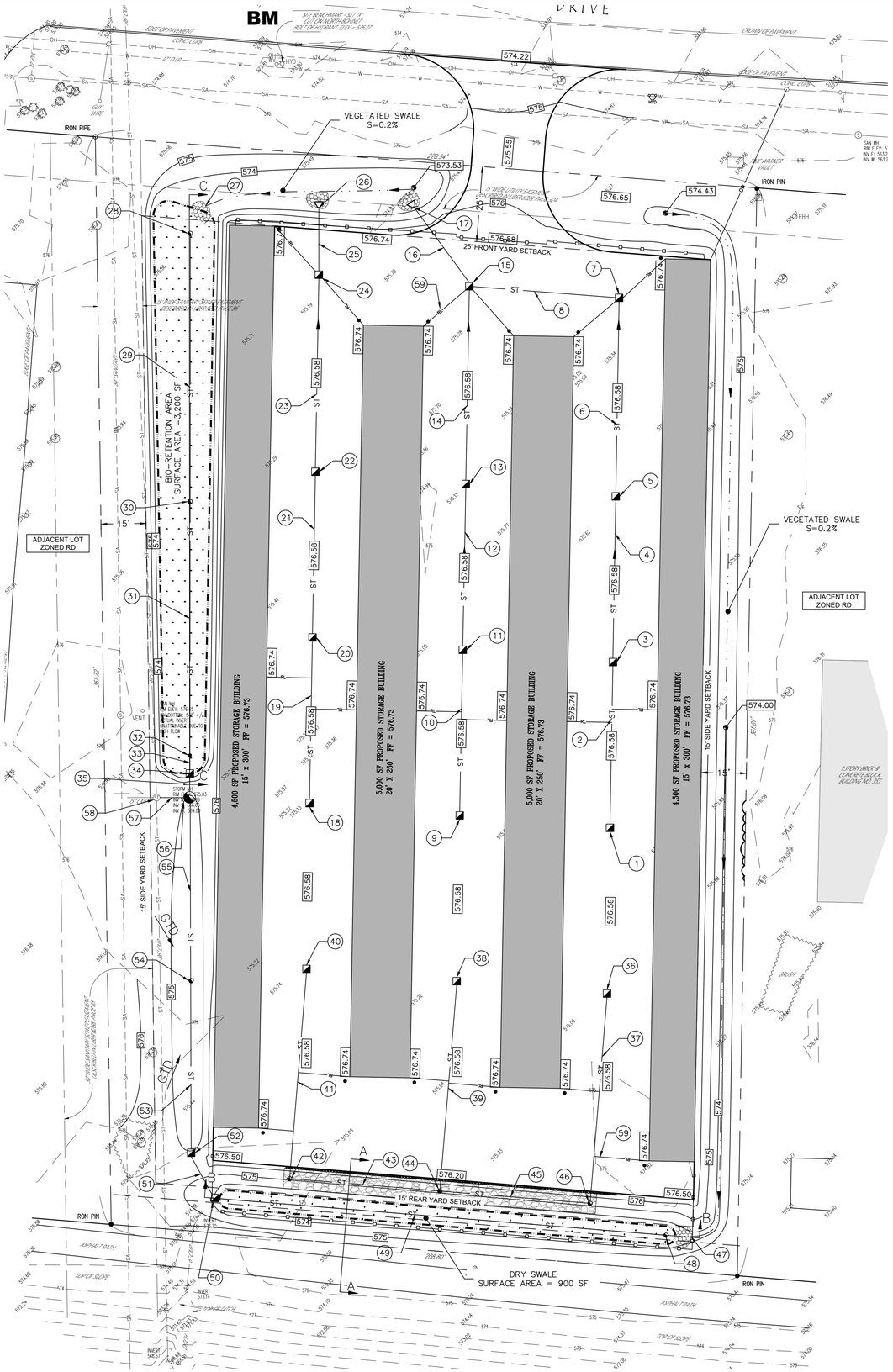

(XX) STORM STRUCTURE TABLE

1 CATCH BASIN
RIM=576.30
INV N=574.03 (12")

2 53L.F. 12" HDPE @ S=0.2%

3 CATCH BASIN
RIM=576.30
INV N,S=573.92 (12")

4 53L.F. 12" HDPE @ S=0.2%

5 CATCH BASIN
RIM=576.30
INV N,S=573.81 (12")

6 64L.F. 12" HDPE @ S=0.2%

7 CATCH BASIN
RIM=576.30
INV S,W=573.68 (12")

8 48L.F. 12" HDPE @ S=0.2%

9 CATCH BASIN
RIM=576.30
INV N=573.92 (12")

10 53L.F. 12" HDPE @ S=0.2%

11 CATCH BASIN
RIM=576.30
INV N,S=573.81 (12")

12 53L.F. 12" HDPE @ S=0.2%

13 CATCH BASIN
RIM=576.30
INV N,S=573.71 (12")

14 64L.F. 12" HDPE @ S=0.2%

15 CATCH BASIN
RIM=576.30
INV N,E=573.59 (12")
INV S=573.53 (12")

16 31L.F. 12" HDPE @ S=0.2%

17 12" PIPE OUTLET W/ END SECTION
AND ROCK OUTLET PROTECTION
INV=573.53

18 CATCH BASIN
RIM=576.30
INV N=573.83 (12")

19 53L.F. 12" HDPE @ S=0.2%

20 CATCH BASIN
RIM=576.30
INV N,S=573.72 (12")

21 53L.F. 12" HDPE @ S=0.2%

22 CATCH BASIN
RIM=576.30
INV N,S=573.62 (12")

23 63L.F. 12" HDPE @ S=0.2%

24 CATCH BASIN
RIM=576.30
INV N=573.51 (12")
INV S=573.46 (12")

25 21L.F. 12" HDPE @ S=0.2%

26 12" PIPE OUTLET W/ END SECTION
AND ROCK OUTLET PROTECTION
INV=573.46

27 VEGETATED SWALE OUTLET TO
BIO-RETETNION AREA
W/ ROCK PROTECTION
INV=573.40

28 CLEANOUT (6" RISER)
RIM=573.90
INV S=569.65 (6" PERF)

29 87L.F. 6" PERF. HDPE @ S=0.2%

30 CLEANOUT (6" RISER)
RIM=573.90
INV N,S=569.48 (6" PERF)

31 87L.F. 6" PERF. HDPE @ S=0.2%

32 ELBOW ASSEMBLY
INV N=569.30 (6" PERF)
INV S=570.30 (6")

33 5L.F. 6" HDPE @ S=0.2%

34 BIO-RETENTION CATCH BASIN OUTLET
RIM=574.00
INV N=570.29 (6")
INV S=570.29 (12")

35 5L.F. 12" HDPE @ S=0.2%

36 CATCH BASIN
RIM=576.30
INV S=573.40 (6")

37 69L.F. 6" HDPE @ S=0.2%

38 CATCH BASIN
RIM=576.30
INV S=573.40 (6")

39 69L.F. 6" HDPE @ S=0.2%

40 CATCH BASIN
RIM=576.30
INV S=573.40 (6")

41 69L.F. 6" HDPE @ S=0.2%

42 6"X6"X6" HDPE TEE W/ 6" RISER
RIM=574.25
INV=573.25

43 LEVEL SPREADER - SEE DETAIL
50L.F. 6" PERF. HDPE @ S=0.2%

44 6"X6"X6" HDPE TEE W/ 6" RISER
RIM=574.25
INV=573.25

45 LEVEL SPREADER - SEE DETAIL
50L.F. 6" PERF. HDPE @ S=0.2%

46 6"X6"X6" HDPE TEE W/ 6" RISER
RIM=574.25
INV=573.25

47 VEGETATED SWALE OUTLET TO
DRY SWALE W/ ROCK PROTECTION
INV=573.40

48 DRY SWALE YARD DRAIN
RIM=573.22
INV=570.65 (6" PERF.)

49 148L.F. 6" PERF. HDPE @ S=0.2%

50 DRY SWALE CATCH BASIN OUTLET
RIM=573.25
INV E=570.37 (6" PERF)
INV NW=570.35 (12")

51 14L.F. 12" HDPE @ S=0.2%

52 YARD CATCH BASIN
RIM=575.00
INV SE,N=570.32 (12")

53 58L.F. 12" HDPE @ S=0.2%

54 YARD DRAIN
RIM=574.72
INV N,S=570.20 (12")

55 58L.F. 12" HDPE @ S=0.2%

56 STORM MANHOLE
RIM=575.00
INV N=570.27 (12")
INV S=570.09 (12")
INV W=570.00 (12")

57 5L.F. 12" HDPE @ S=0.2%

58 EXISTING STORM MANHOLE
RIM=575.03
INV E=569.99 (12")

59 6" HDPE ROOF LEADER - TYP.

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD	HYD	HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE
	GTD	GRADE TO DRAIN

N
W E
S

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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4		
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8		

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STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ CERTIFICATE OF AUTHORIZATION

Prepared by:
ADVANCED DESIGN GROUP
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GRADING AND DRAINAGE PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale:	AS NOTED
date:	1-21-2022
project no.:	21-4768
sheet:	4 OF 11

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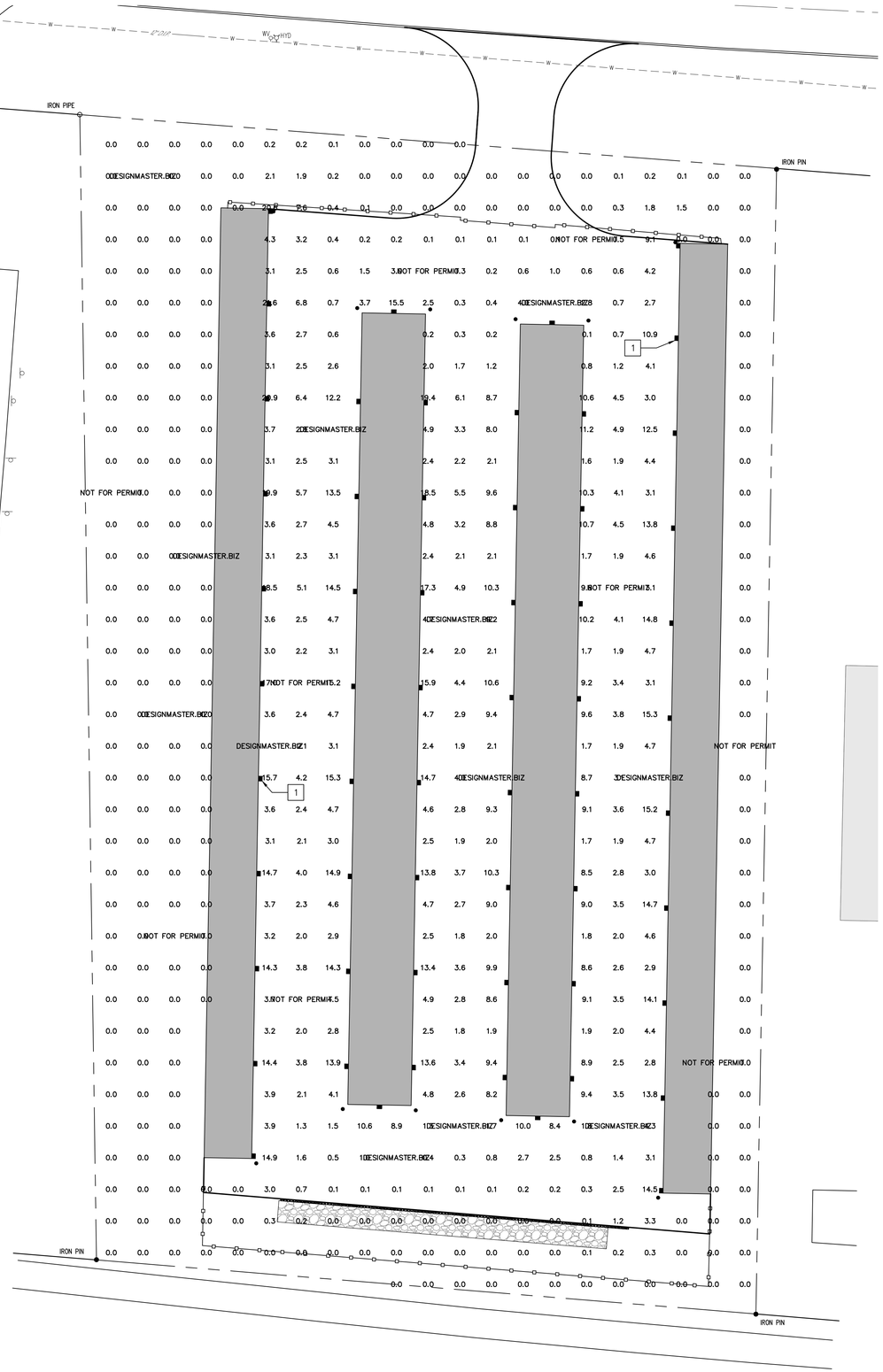
Attachment: SP-2022-01 drawings 042122 (25330 : Sp-2022-01)



PROPOSED PHOTOMETRIC PLAN
SCALE: 1" = 20'-0"

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E,T,C	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W	W	WATER
SA	S	SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
BM		BENCHMARK
		UTILITY POLE
S	SMH	SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD		HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV	WV	WATER VALVE
		FENCE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

N

W E

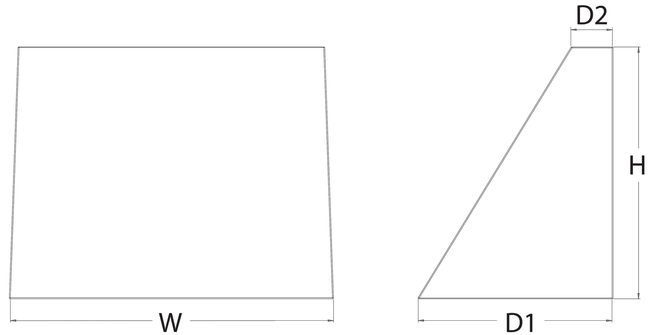
S

X NOTES:

1. WALL PACK MOUNTED LIGHTS TO BE INSTALLED ABOVE OVERHEAD DOORS (APPROX. 8' ABOVE FINISHED GRADE) AT LOCATIONS SHOWN ON THE PLAN. WALL PACK LIGHTS (TYP.) - NOT SHOWN TO SCALE
2. LIGHTS ARE TO BE LITHONIA LIGHTING WDGE2 LED P3 40K 80CRI VM MVOLT SRM DBLXD OR SIMILAR

Specifications

Depth (D1):	7"
Depth (D2):	1.5"
Height:	9"
Width:	11.5"
Weight: (without options)	13.5 lbs



TYPICAL WALL PACK DETAIL
N.T.S.

NO.	DATE	REVISIONS
8		
7		
6		
5		
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Prepared by:
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PHOTOMETRIC PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale: AS NOTED | date: 1-21-2022 | project no.: 21-4768 | sheet: 5 OF 11

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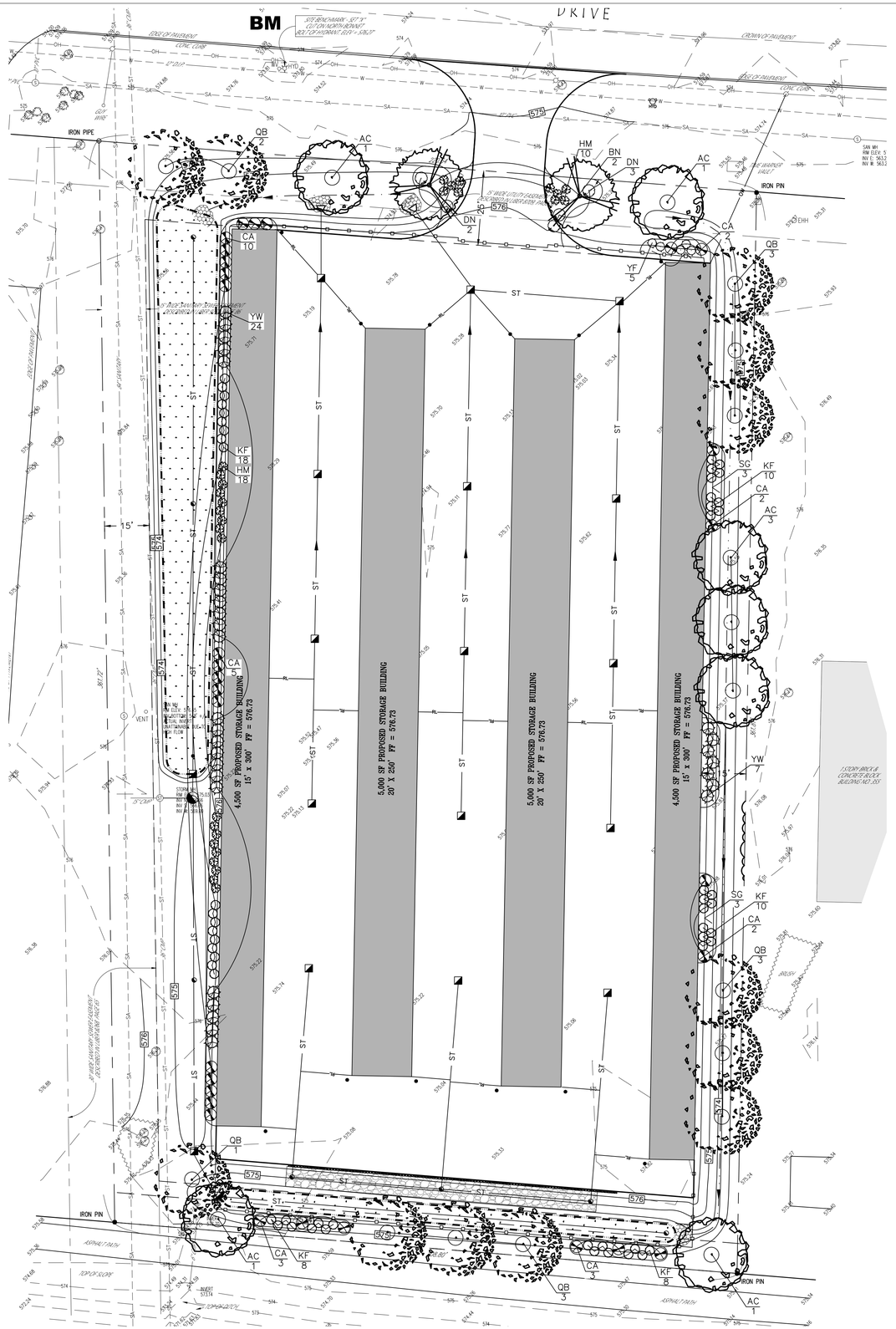

PLANTING SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
TREE SCHEDULE						
AC	7	Acer x freemanii 'Jeffersred'	AUTUMN BLAZE MAPLE	2-1/2"	B&B	PER PLAN
BN	2	Betula nigra 'Heritage' CLUMP FORM 3 TRUNKS MIN.	HERITAGE RIVER BIRCH	12' HT	B&B	PER PLAN
QB	12	Quercus bicolor	BICOLOR OAK	2-1/2"	B&B	PER PLAN
SHRUB AND PERENNIAL SCHEDULE						
CA	30	Cornus alba 'Bailhalo'	IVORY HALO RED TWIG DOGWOOD	24" ht min.	CONTAINER	PER PLAN
DN	5	Physocarpus opulifolius 'Monlo'	DIABLO NINEBARK	36" ht min.	CONTAINER	PER PLAN
HM	28	Hydrangea macrophylla 'Glowing Embers'	GLOWING EMBERS HYDRANGEA	24" ht min.	CONTAINER	PER PLAN
KF	54	Calamagrostis acutiflora	KARL FOERESTER GRASS	36" ht min.	CONTAINER	PER PLAN
SG	6	Spiraea x bumalda 'Goldflame'	GOLDFLAME SPIREA	24" ht min.	CONTAINER	PER PLAN
YF	5	Yucca filamentosa 'Color Guard'	COLOR GUARD YUCCA	24" ht min.	CONTAINER	PER PLAN
YW	31	Taxus x media 'Hicksii'	HICKS YEW	48" HT.	B&B	PER PLAN

GENERAL NOTES

1. SITE BASE PROVIDED BY ADVANCED DESIGN GROUP PROFESSIONAL ENGINEERING AND LAND SURVEYING, PC.
2. SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
3. CONTRACTOR SHALL VISIT SITE PRIOR TO BID TO CONFIRM THE EXISTING SITE CONDITIONS & SCOPE OF WORK. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF WORK RELATED DISCREPANCIES FOUND BETWEEN INFORMATION SHOWN ON PLANS & ACTUAL FIELD CONDITIONS THAT MAY AFFECT BID.
4. CONTRACTOR TO LOCATE &/OR VERIFY LOCATION OF UTILITIES IN THE FIELD BEFORE BEGINNING WORK. PRIOR TO REMOVAL & EXCAVATION WORK, CONTRACTOR TO NOTIFY UTILITY COMPANIES REGARDING DISCONNECT OF SERVICES & MARKING EXACT LOCATION OF BURIED UTILITIES.
5. PAVEMENT NOT NOTED TO BE REMOVED, BUT DAMAGED DURING CONSTRUCTION, SHALL BE REPAIRED OR REPLACED, FLUSH WITH EXISTING GRADE @ CONTRACTOR'S EXPENSE.
6. ITEMS NOT NOTED TO BE REMOVED &/OR DEMOLISHED ARE TO REMAIN & TO BE PROTECTED AS NECESSARY. IN PARTICULAR, CONTRACTOR SHALL TAKE EXTRA MEASURES NOT TO INJURE EXISTING TREES.
7. ALL DAMAGED &/OR DISTURBED LAWN AREAS REMAINING, AFTER CONSTRUCTION IS COMPLETED SHALL RECEIVE MIN. 4" TOPSOIL OR AS REQUIRED TO FEATHER INTO SURROUNDING GRADES, BE FINE GRADED, FERTILIZED, SEEDED AND MULCHED. TOPSOIL TO BE FLUSH WITH PAVEMENT &/OR TOP OF CURB AND SHALL BE "FEATHERED" INTO ADJACENT LAWN AREAS TO CREATE A SMOOTH TRANSITION BETWEEN NEWLY SEEDED AREAS AND EXISTING LAWN.
8. NEW PLANT MATERIAL SHALL CONFORM TO THE CURRENT ISSUE OF THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
9. CONTRACTOR SHALL OBTAIN ANY REQUIRED PERMITS FROM THE TOWN OF AMHERST.
10. CONTRACTOR TO NOTIFY OWNER OR OWNER'S REPRESENTATIVE OF ANY ERRORS OMISSIONS OR CONFLICTS ON THE PLANS PRIOR TO SUBMISSION OF BID.
11. CONTRACTOR TO IRRIGATE ALL PLANT MATERIAL AS NEEDED FOR FIRST MONTH AFTER INSTALLATION. AT THIS POINT MAINTENANCE RESPONSIBILITY TO BE TURNED OVER TO OWNER.
12. CONTRACTOR TO PROVIDE 1 YEAR WARRANTY ON ALL PLANT MATERIAL INSTALLED.
13. LINE SHOWN AROUND SHRUBS AND CIRCLE AROUND TREES IS SHOVEL CUT BED EDGE. ALL BEDS TO RECEIVE 6" MINIMUM DEPTH SHREDDED TOPSOIL AND MULCH OR STONE. OWNER MAY ELECT TO INSTALL LANDSCAPE FABRIC TO ASSIST WITH WEEDS IN BEDS. LANDSCAPE FABRIC IS RECOMMENDED ESPECIALLY IF STONE IS INSTALLED IN LIEU OF MULCH.
14. ALL TREE PLANTINGS AND LANDSCAPE BEDS TO RECEIVE 3" MIN DEPTH NATURAL BROWN SHREDDED HARDWOOD MULCH.
15. LAWN AREAS TO RECEIVE 4" TOPSOIL, FINE GRADE AND HYDROSEED LAWN AREAS WITH A TRIO SUN AND SHADE SEED MIX. PROVIDE AND INSTALL USING MANUFACTURERS RECOMMENDATIONS.
16. MINIMUM HEIGHTS NOTED IN PLANT SCHEDULE ARE FOR SHRUB HEIGHT AT TIME OF PLANTING.
17. OWNER MAY ELECT TO INSTALL STEEL EDGING TO HELP WITH BED MAINTENANCE

NOTE:

ALL EXISTING VEGETATION WITHIN PROJECT AREA TO BE REMOVED.
REFER TO PLANTING SCHEDULE FOR PROPOSED PLANTINGS.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E	UNDERGROUND ELEC/TELE/CABLE
OH W	OW	OVERHEAD ELEC/TELE WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD	HYD	HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE
	GTD	GRADE TO DRAIN

N
W E
S

NO.	DATE	REVISIONS
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STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ LICENSED PROFESSIONAL LAND SURVEYOR

Prepared by:

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PROPOSED LANDSCAPING PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale: AS NOTED | date: 1-21-2022 | project no.: 21-4768 | sheet: 6 OF 11

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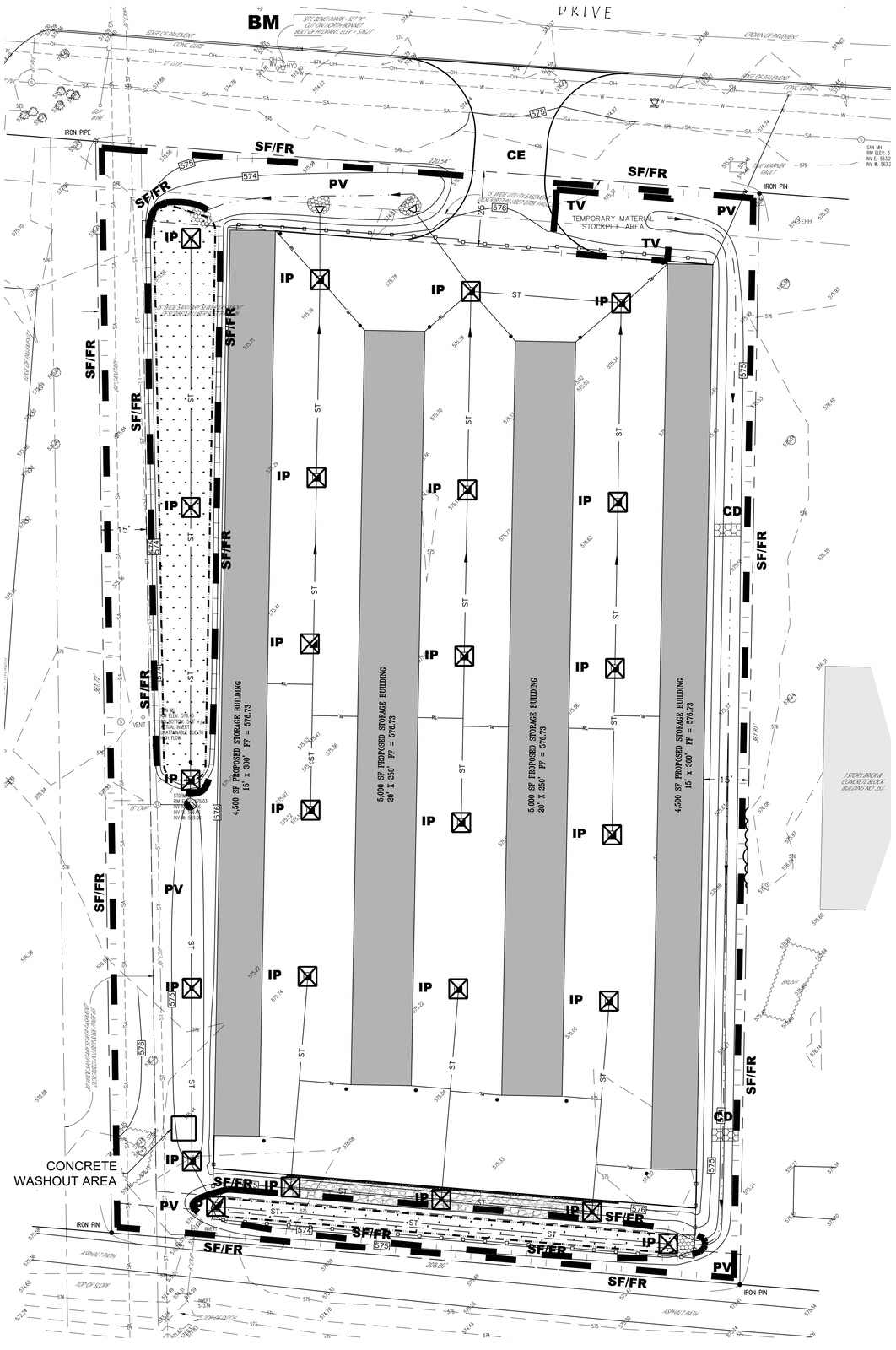
Attachment: SP-2022-01 drawings 042122 (2330 : Sp-2022-01)



LEGEND

NTS

EXISTING	PROPOSED	
G	G	GAS
E,T,C	E	UNDERGROUND ELEC/TELE/CABLE
OH	OW	OVERHEAD ELEC/TELE
W		WATER
SA		SANITARY SEWER
ST	ST	STORM SEWER
349	XXX	CONTOUR
XXX.X	XXX.X	SPOT ELEVATIONS
		PROPERTY/ROW LINE
		EASEMENT
		PUBLIC EASEMENT HATCH
		FENCE
BM		BENCHMARK
		UTILITY POLE
S		SANITARY MANHOLE
ST	STMH	STORM MANHOLE
		CATCHBASIN
YD		REAR YARD DRAIN (INLET)
HYD	HYD	HYDRANT
		LIMIT OF EXISTING VEGETATION
		CLEARING LIMITS
		SIGN
		SELECT BACKFILL
WV		WATER VALVE
	GTD	GRADE TO DRAIN
		TEST PIT
SF/FR	SF/FR	SILT FENCE/FIBER ROLL
	CE	CONSTRUCTION ENTRANCE
	TV	TEMPORARY VEGETATION
	PV	PERMANENT VEGETATION
	IP	INLET PROTECTION
	CD	CHECK DAM
		STONE DIAPHRAGM

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

N

W E

S

EROSION CONTROL NOTES

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH PROJECT DRAWINGS.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 6 INCHES
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED AND PERMANENT VEGETATION MUST BE ESTABLISHED IMMEDIATELY FOLLOWING FINISHED GRADING.
12. BIO-FILTER MEDIA SHALL BE INSTALLED ONCE THE SITE IS STABILIZED.

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
3		
4		
5		
6		
7		
8		

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

Prepared by:
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EROSION AND SEDIMENT CONTROL PLAN

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

project no.:	sheet:
21-4768	7 OF 11

scale:	date:
AS NOTED	1-21-2022

Attachment: SP-2022-01 drawings 042122 (25330 : Sp-2022-01)

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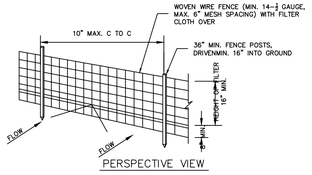
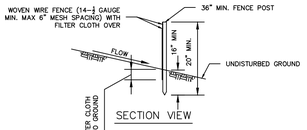
EROSION CONTROL NOTES

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS".
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 6 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
12. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.



PERSPECTIVE VIEW



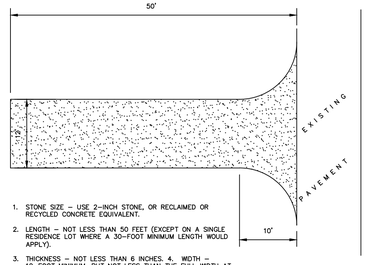
SECTION VIEW

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1.) WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS BY WIRE TIES OR STAPLES.
2.) FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3.) WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4.) MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.

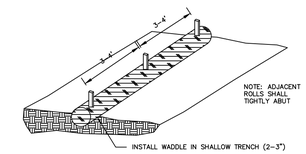
POSTS: Steel either T or U type or 2" hardwood.
FENCE: Woven wire, 14-1/2 Ga. 6" max. mesh opening.
FILTER CLOTH: Filter x, Mirafi 100x, Stabi-Linka T140N or approved equal.
PREFABRICATED UNIT: Geofab, Envirofence, or approved equal.

SILT FENCE DETAIL
N.T.S.

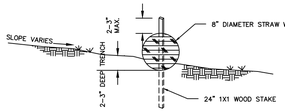


1. STONE SIZE – USE 2-INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30-FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN 6 INCHES. 4. WIDTH – 12-FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24-FOOT IF SINGLE ENTRANCE TO SITE.
4. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
7. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.

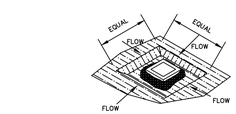


TYPICAL INSTALLATION

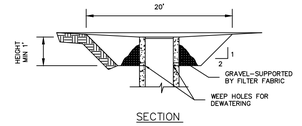


ENTRENCHMENT DETAIL

TYPICAL WADDLE INSTALLATION
N.T.S.

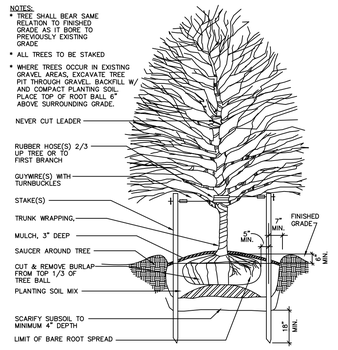


PLAN

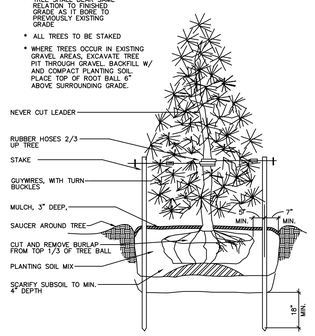


SECTION

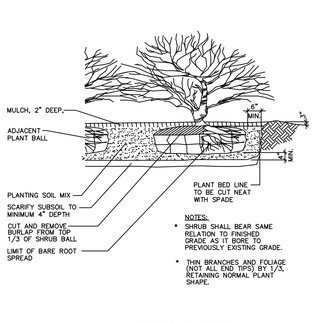
CATCH BASIN INLET PROTECTION
N.T.S.



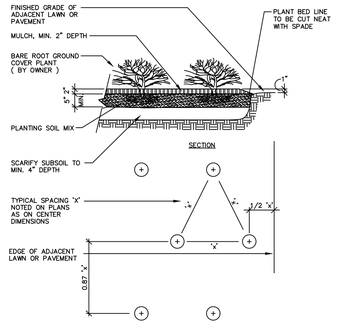
DECIDUOUS TREE PLANTING W/ STAKES



EVERGREEN TREE PLANTING

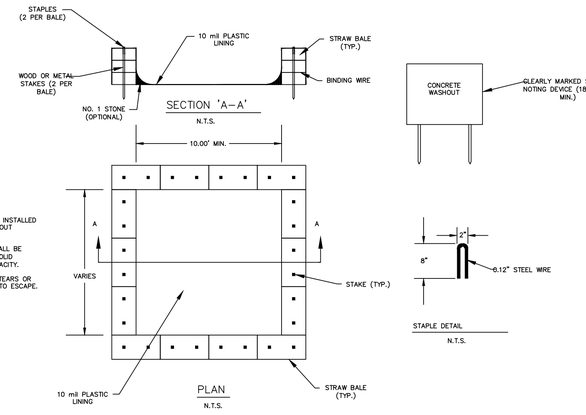


SHRUB PLANTING



GROUNDCOVER PLANTING

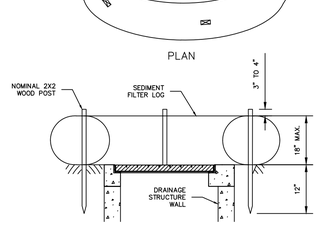
PLANTING DETAIL
N.T.S.



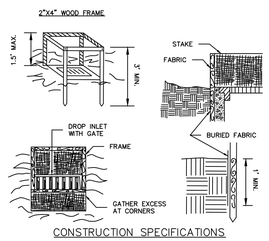
NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY WASHOUT FACILITY.
3. THE CONCRETE WASHOUT STRUCTURE SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURE'S CAPACITY.
4. THE PLASTIC LINING SHALL BE FREE OF TEARS OR HOLES THAT WOULD ALLOW WASHWATER TO ESCAPE.

TYPICAL ABOVE GRADE CONCRETE WASHOUT INSTALLATION DETAIL
N.T.S.



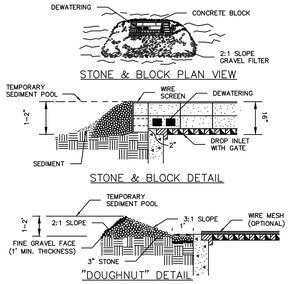
DRAINAGE STRUCTURE INLET PROTECTION – TEMPORARY (SEDIMENT FILTER LOG)
N.T.S.



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 2" x 4' WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY. MAXIMUM DRAINAGE AREA 1 ACRE

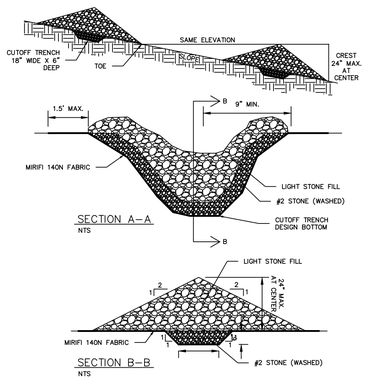
FILTER FABRIC DROP INLET PROTECTION
N.T.S.



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS. MAXIMUM DRAINAGE AREA 1 ACRE

STONE BLOCK DROP INLET PROTECTION
N.T.S.



CHECK DAM DETAIL
N.T.S.

MIXTURE	RATE PER 1,000 SQ.FT. (LBS.)
KENTUCKY BLUEGRASS	0.60
CREEPING RED FESCUE	0.50
PERENNIAL RYEGRASS	0.20

SEED MIXTURE FOR PERMANENT VEGETATION

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
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STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ LICENSED LAND SURVEYOR

Prepared by:
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
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Lewiston, New York 14092
Phone (716)754-2256
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DETAILS - EROSION & SEDIMENT CONTROL

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
8868 Campbell Blvd
North Tonawanda, New York 14120
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scale:	date:	project no.:	sheet:
AS NOTED	1-21-2022	21-4768	8 OF 11

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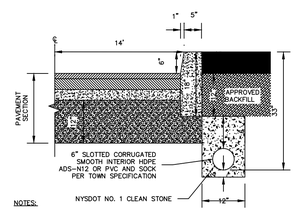
Attachment: SP-2022-01 drawings 042122 (25330 : Sp-2022-01)

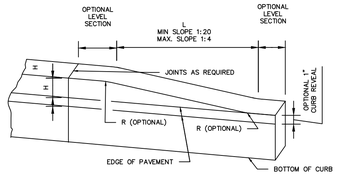


NOTES:

1. FORMED UPRIGHT CONCRETE CURB SHALL BE 4,000 PSI MIX (28 DAY)
2. PROVIDE FINE BROOM FINISH TO EXPOSED PORTION OF CONCRETE CURB

6" UPRIGHT CURB DETAIL

N.T.S.



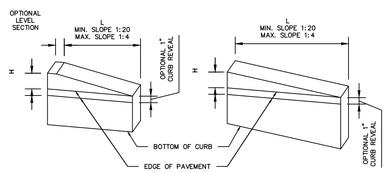
CAST-IN-PLACE CONCRETE CURB TRANSITION

N.T.S.

CURB TRANSITION LENGTHS (L)			
H \ SLOPE	1:4	1:12	1:20
4"	16'	48'	80'
6"	24'	72'	120'

NOTES:

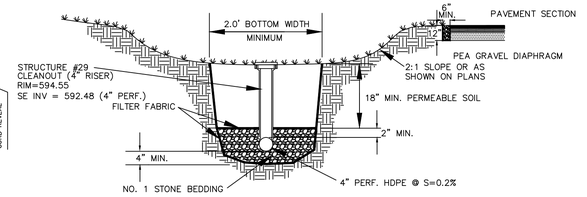
1. USE 1" REVEAL AND CONTINUE CURB ACROSS DRIVEWAY ENTRANCES ONLY IF IN CONTRACT DOCUMENTS OR DIRECTED BY THE ENGINEER AS A FIELD CONDITION
2. TERMINATE CURB, CURB AND GUTTER AND ASPHALT CURB BY TRANSITIONING ON A MAXIMUM SLOPE OF 1:12 TO PAVEMENT SURFACE, EXCEPT WHEN BEHIND GUIDE RAIL
3. EXTEND JOINT FILLER 6" MINIMUM BEHIND CURB IN BOTH SIDES OF CURB BOX. 705-07 NOT NEEDED WHEN VERTICAL FACE CURB WIDTH EQUAL TO WIDTH OF CURB BOX



PRECAST CONCRETE, STONE, AND GRANITE CURB TRANSITION

N.T.S.

CURB TRANSITION LENGTHS (L) WITH CURB REVEAL			
H \ SLOPE	1:4	1:12	1:20
4"	12"	36"	60"
6"	20"	60"	100"

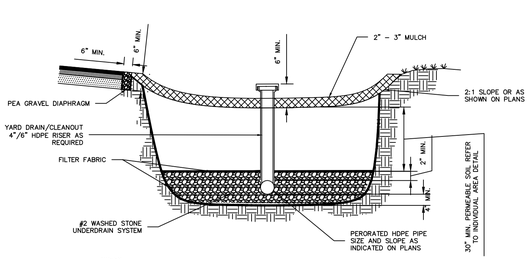


NOTES

1. THE "PERMEABLE SOIL" SHALL BE CONSISTENT WITH THE NYSDOT STANDARD SPECIFICATIONS ITEM 208.0103 22. THE "PERMEABLE SOIL" SHALL BE A WELL BLENDED MIXTURE OF THREE (3) PARTS SAND AND ONE (1) PART TOPSOIL BY VOLUME. SAND SHALL MEET THE REQUIREMENTS OF SECTION 703-07 "CONCRETE SAND" OF THE NYSDOT STANDARD SPECIFICATIONS. TOPSOIL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 713-01 "TOPSOIL". THE "PERMEABLE SOIL" SHALL HAVE A pH RANGE OF 5.2 TO 7.6 AND AN ORGANIC CONTENT OF 3-7% SOIL AMENDMENTS TO INCREASE ORGANIC CONTENT SHALL BE PEAT MOSS IN ACCORDANCE WITH SECTION 713-15 "ORGANIC MATERIAL" OF THE NYSDOT STANDARD SPECIFICATIONS. A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR.) IS REQUIRED. THE SOIL SHALL BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER AND VISIBLY FREE OF NOXIOUS WEEDS. THE SOIL SHOULD BE PLACED IN 12" LIFTS AND LOOSELY COMPACTED (TAMPED LIGHTLY WITH A DOZER OR BACKHOE BUCKET).

TYPICAL DRY SWALE

N.T.S.



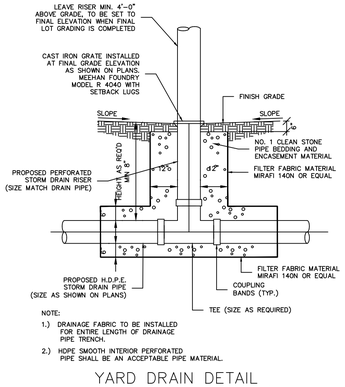
NOTES

1. THE "PERMEABLE SOIL" SHALL BE CONSISTENT WITH THE NYSDOT STANDARD SPECIFICATIONS ITEM 208.0103 22. THE "PERMEABLE SOIL" SHALL BE A WELL BLENDED MIXTURE OF THREE (3) PARTS SAND AND ONE (1) PART TOPSOIL BY VOLUME. SAND SHALL MEET THE REQUIREMENTS OF SECTION 703-07 "CONCRETE SAND" OF THE NYSDOT STANDARD SPECIFICATIONS. TOPSOIL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 713-01 "TOPSOIL". THE "PERMEABLE SOIL" SHALL HAVE A pH RANGE OF 5.2 TO 7.6 AND AN ORGANIC CONTENT OF 3-7% SOIL AMENDMENTS TO INCREASE ORGANIC CONTENT SHALL BE PEAT MOSS IN ACCORDANCE WITH SECTION 713-15 "ORGANIC MATERIAL" OF THE NYSDOT STANDARD SPECIFICATIONS. A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR.) IS REQUIRED. THE SOIL SHALL BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER AND VISIBLY FREE OF NOXIOUS WEEDS. THE SOIL SHOULD BE PLACED IN 12" LIFTS AND LOOSELY COMPACTED (TAMPED LIGHTLY WITH A DOZER OR BACKHOE BUCKET).

2. THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS, SUCH AS WEED SEEDS, SOIL, ROOTS, ETC. THE MULCH SHOULD BE APPPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

BIO-RETENTION AREA - TYPICAL SECTION

N.T.S.



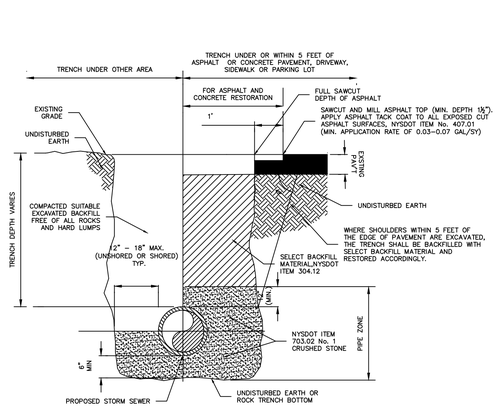
NOTE:

1.) DRAINAGE FABRIC TO BE INSTALLED FOR ENTIRE LENGTH OF DRAINAGE PIPE TRENCH.

2.) HDPE SMOOTH INTERIOR PERFORATED PIPE SHALL BE AN ACCEPTABLE PIPE MATERIAL.

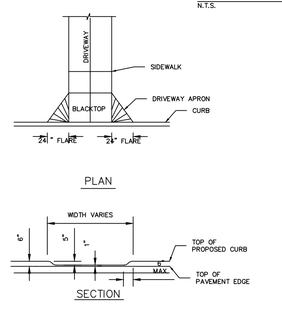
YARD DRAIN DETAIL

N.T.S.



STORM SEWER TRENCH DETAIL

N.T.S.

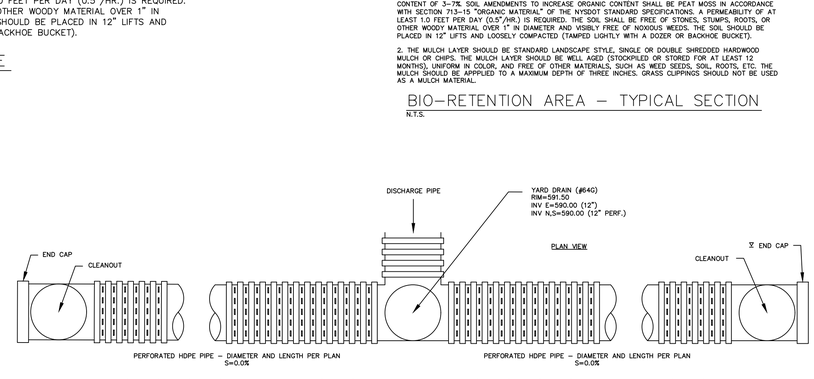


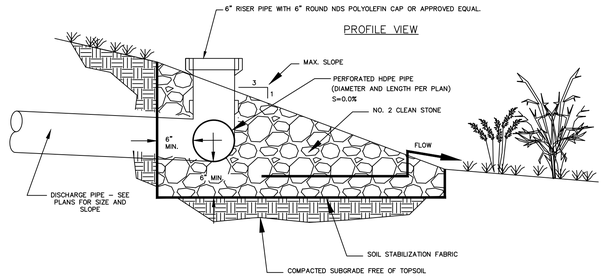
PLAN

SECTION

TYPICAL DRIVEWAY CURB-CUT DETAIL

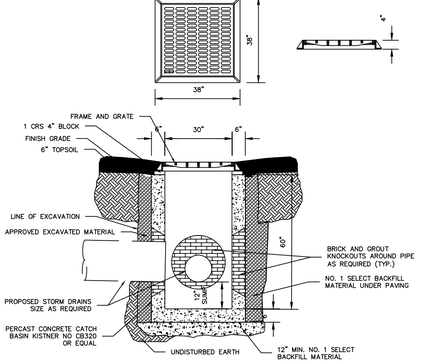
N.T.S.





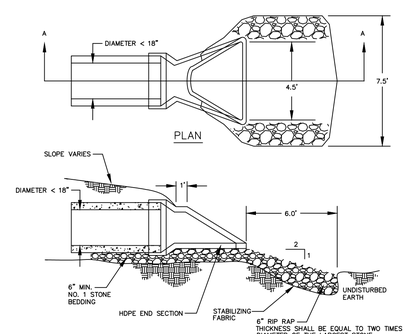
TYPICAL LEVEL SPREADER DETAIL

N.T.S.



TYPICAL REAR YARD CATCH BASIN

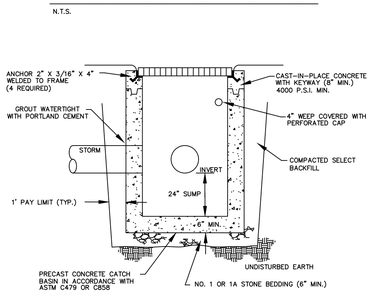
N.T.S.



SECTION "AA"

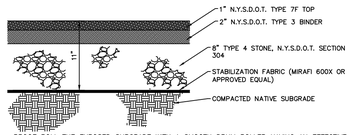
END SECTION AT DITCH RIP RAP DETAIL

N.T.S.



CATCH BASIN DETAIL

N.T.S.



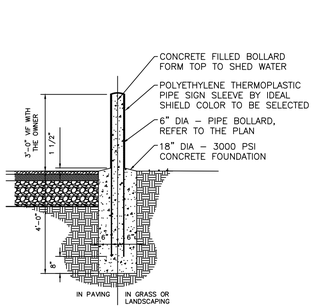
PROOF ROLL THE EXPOSED SUBGRADE WITH A SMOOTH DRUM ROLLER HAVING AN EFFECTIVE FOR OF AT LEAST 600LBS/LI. ANY AREAS EXHIBITING WEAVING, YIELDING, RUTTING, OR BOILING SHOULD BE REWORKED BY OVER EXCAVATED AND REPLACEMENT WITH STRUCTURAL FILL COMPACTED TO 95% MP

COMPACT FOUNDATION COURSE WITH A MINIMUM OF 5 PASSES OF A SMOOTH DRUM ROLLER HAVING AN EFFECTIVE WEIGHT OF AT LEAST 600LBS/LI. THE FINISHED SURFACE SHOULD BE UNIFORM AND DENSE AND COMPACTED TO 95% MP, WITHIN A MOISTURE RANGE OF 2% OF OPTIMUM CONTENT

* OWNER/CONTRACTOR RESPONSIBLE FOR REVIEW OF GEOTECHNICAL REPORT AND ANY DEVIATION FROM RECOMMENDED PAVEMENT SECTION.

STANDARD DUTY PAVEMENT

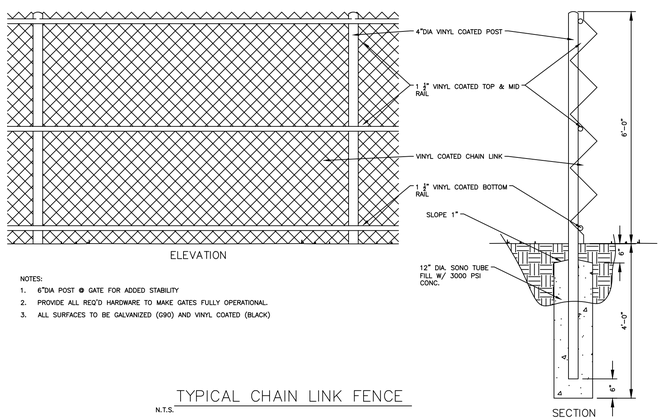
N.T.S.



SEE PLANS FOR QUANTITIES AND LOCATIONS.

TYPICAL BOLLARD SECTION

NTS



NOTES:

1. 6"DIA POST @ GATE FOR ADDED STABILITY
2. PROVIDE ALL REQ'D HARDWARE TO MAKE GATES FULLY OPERATIONAL.
3. ALL SURFACES TO BE GALVANIZED (G90) AND VINYL COATED (BLACK)

TYPICAL CHAIN LINK FENCE

N.T.S.

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
3		
4		
5		
6		
7		
8		

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

Prepared by:
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone: (716)754-4256
Fax: (716)754-4252

DETAILS - PAVING & DRAINAGE

321 Commerce, LLC

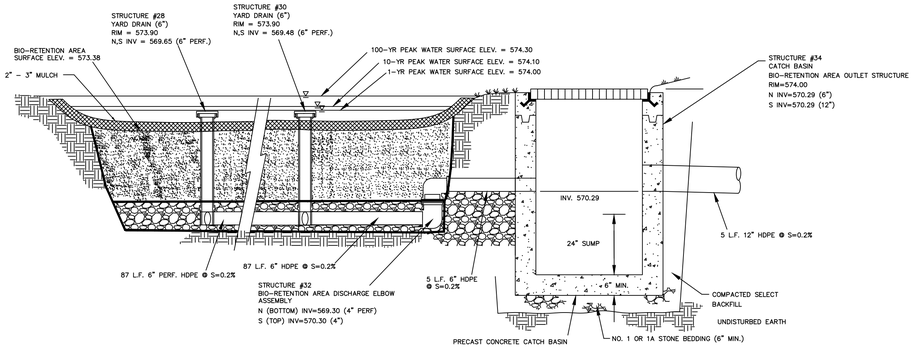
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale:	date:	project no.:	sheet:
AS NOTED	1-21-2022	21-4768	9 OF 11

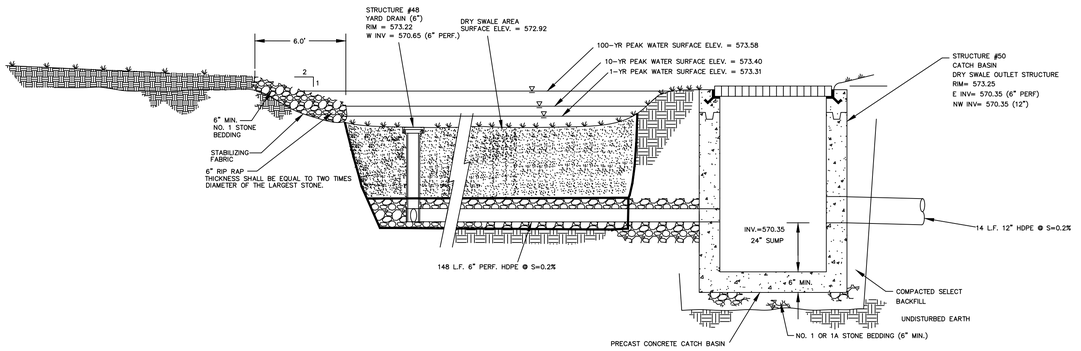
\\192.168.1.5\vdg\VDG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\VDG Details 01-12-22 Working.dwg

Attachment: SP-2022-01 drawings 042122 (25330 : Sp-2022-01)



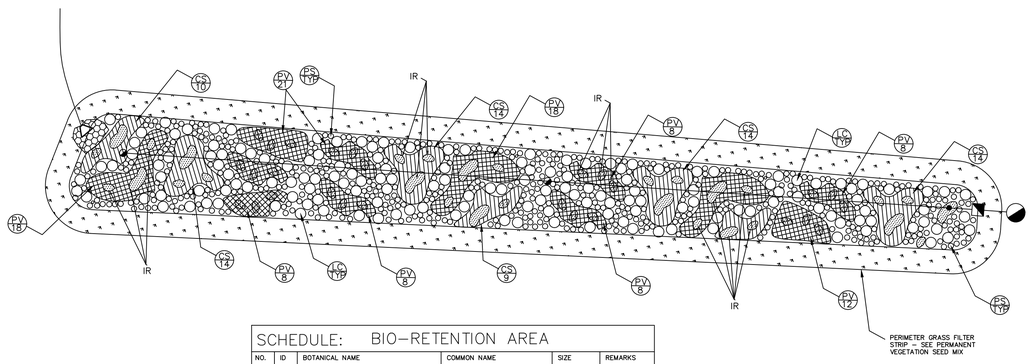
CROSS SECTION "C-C" - BIO-RETENTION AREA & OUTLET STRUCTURE

N.T.S.



CROSS SECTION "B-B" - DRY SWALE & OUTLET STRUCTURE

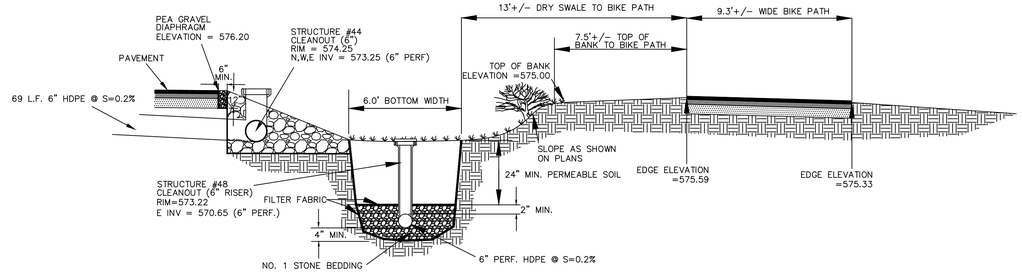
N.T.S.



SCHEDULE: BIO-RETENTION AREA					
NO.	ID	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
36	PV	PANICUM VIRGATUM	SWITCHGRASS	2" PLUG	2 FT. O.C.
36	CS	CAREX SPP.	SEDGES	2" PLUG	2 FT. O.C.
96	PS	POLYGONUM SPP.	SMARTWEED	2" PLUG	2 FT. O.C.
34	LC	LOBELIA CARDINALIS	CARDINAL FLOWER	2" PLUG	2 FT. O.C.
39	IR	IRIS VERSICOLOR	NORTHERN BLUE FLAG IRIS	2" PLUG	2 FT. O.C.

BIO-RETENTION AREA SAMPLE PLANTING PLAN

N.T.S.



CROSS SECTION "A-A" - LEVEL SPREADER OUTLET TO SOUTH DRY SWALE

N.T.S.

NO.	DATE	REVISIONS
8		
7		
6		
5		
4		
3		
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

STATE OF NEW YORK ★ LICENSED PROFESSIONAL ENGINEER ★ SURVEYOR ★ LAND SURVEYOR, P.C.

Prepared by:

ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Coyage Street
Lewiston, New York 14092
Phone (716) 754-4252
Fax (716) 754-4252

DETAILS - STORMWATER MANAGEMENT

321 Commerce, LLC

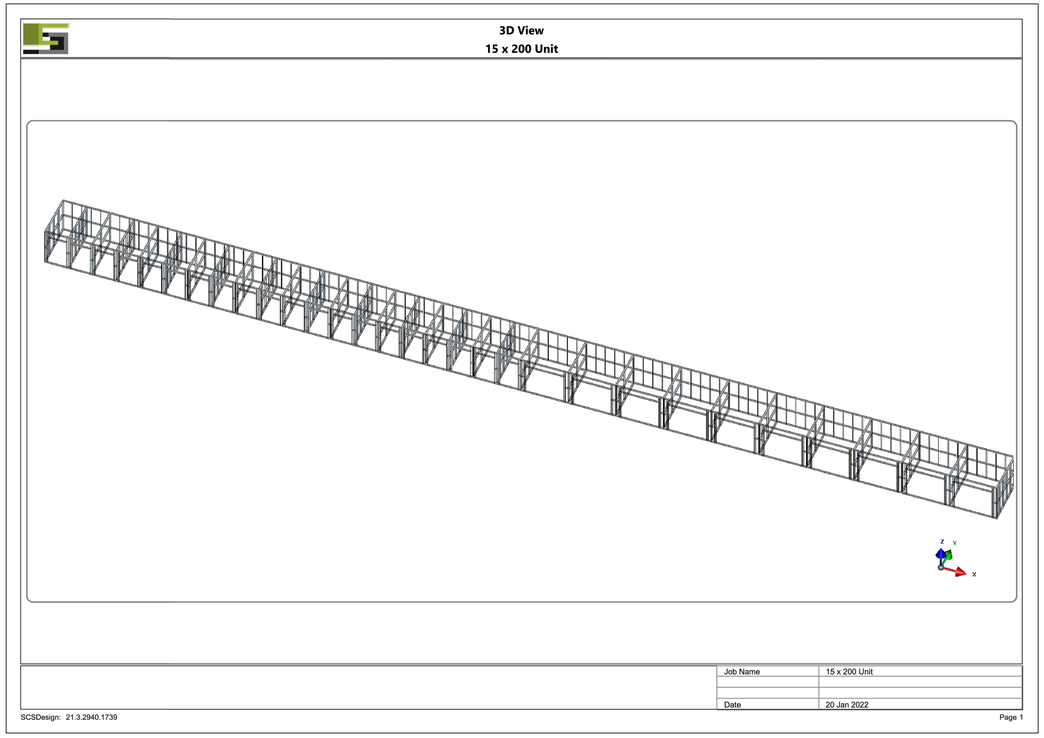
321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6885 Campbell Blvd
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale: AS NOTED | date: 1-21-2022 | project no.: 21-4768 | sheet: 10 OF 11

Attachment: SP-2022-01 drawings 042122 (25330 : Sp-2022-01)

\\192.168.1.5\adg\adg\ADG Projects\2021\21-4768 321 Commerce Drive Sinatra\Drawings\ADG Details 01-12-22 Working.dwg



TYPICAL 3-D VIEW OF STORAGE UNIT FRAMING



TYPICAL SELF-STORAGE UNIT FLOOR PLAN



TYPICAL SELF-STORAGE UNIT

NO.	DATE	REVISIONS
0	1-21-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
1	2-28-2022	TOWN MAJOR SITE PLAN SUBMITTAL - NOT FOR CONSTRUCTION
2	3-23-2022	PER TOWN OF AMHERST PLANNING DEPARTMENT COMMENTS - NOT FOR CONSTRUCTION
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5		
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UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

Prepared by:
ADVANCED DESIGN GROUP
Professional Engineering & Land Surveying, PC
761 Cayuga Street
Lewiston, NY 14092
Phone (716)754-2256
Fax (716)754-4252

DETAILS - TYPICAL STORAGE UNITS

321 Commerce, LLC

321 Commerce Drive
Town of Amherst, Erie County, New York 14228

prepared for:
321 Commerce, LLC.
6965 Campbell Blvd.
North Tonawanda, New York 14120
Project Contact: Advanced Design Group (716) 754-2256

scale:	date:	project no.:	sheet:
AS NOTED	1-21-2022	21-4768	11 OF 11

\\192.168.1.5\vdg\vdg\ADG Projects\2021\21-4768 321 Commerce Drive Sinatro\Drawings\ADG Details 01-12-22 Working.dwg

Attachment: SP-2022-01 drawings 042122 (25330 : Sp-2022-01)

DRAFT
(04/21/2022)

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst Planning Board

Project: SP-2022-01

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Type 1

Description of Action: A proposed self-storage facility consisting of four single-story structures totaling approximately 19,400 s.f. of commercial space as well as stormwater management facilities to the west and south sides.
Project includes the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 321 Commerce Drive, Amherst, Erie County

Petitioner: 321 Commerce LLC

Attachment: SP-2022-01_draft neg dec_042122 (25330 : Sp-2022-01)

Reasons Supporting This Determination

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and Part II and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on March 4, 2022 reviewed the Grading and Drainage Plans submitted on February 28, 2022, Engineer's Report, and Erosion Control Plan submitted on February 28, 2022.

   The Stormwater Pollution Prevention Plan (SWPPP) submitted on March 28, 2022 was also reviewed. Based on its April 8, 2022 review of these documents, the Engineering Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on March 28, 2022 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of March 8, 2022 and the Planning Department in their review of March 31, 2022 has reviewed the application documents, and determined that the subject project has or will have met all International Building Code – 2018 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. The NYS Office of Parks, Recreation and Historic Preservation has reviewed the project and, as stated in their letter of January 11, 2022 determined that there will be no impact on these resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the Research and Development (RD) zoning district; neighboring uses are industrial and also zoned RD; therefore, the project is consistent with surrounding land use.

6. The proposed subject development will include a self-storage facility which will not cause a major change in the use of either the quantity or type of energy.

Attachment: SP-2022-01_draft neg dec_042122 (25330 : Sp-2022-01)

7. The project will not create any hazard to human health. The Fire Chief's Association on April 7, 2022 has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency have or will have been met.

8. The project will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The 19,000 s.f. of commercial space will be consistent with the scale of surrounding land uses.

9. The function of the proposed self-storage facility will not significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated March 2, 2022, indicates that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on February 2, 2022, Assessor on March 2, 2022, Plumbing Division on February 2, 2022 and Right-of-Way Agent on March 31, 2022. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Seconded by: Ayes; Noes Absent

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

GP/bf
X:\Current_Planning\Files\Site Plans\2022\SP-2022-01_(321_Commerce_Dr)_2022\SP-2022-01_draft neg dec_042122.doc
cc: Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDEC
321 Commerce LLC, 6885 Campbell Blvd., N. Tonawanda, NY 14120
Advanced Design Group, 761 Cayuga St., Lewiston, NY 14092

Attachment: SP-2022-01_draft neg dec_042122 (25330 : Sp-2022-01)

DRAFT (4/21/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-01

PETITIONER

321 Commerce, LLC
6885 Campbell Blvd.
N. Tonawanda, NY 14120

PROPERTY LOCATION

321 Commerce Drive

WHEREAS, the Town of Amherst Planning Board on Thursday, April 21, 2022 held a public hearing on a Site Plan for a 19,400 square foot self-storage facility, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

BE IT FURTHER RESOLVED that the Planning Board, in accordance with Part II, Chapter 83, Part IX, Section 1-2 of Town Law waives sidewalks required along Commerce Drive until required at some future time by the Town Board, and

Attachment: SP-2022-01_draft resolution_042122 (25330 : Sp-2022-01)

DRAFT (4/21/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-01

PETITIONER	PROPERTY LOCATION
321 Commerce, LLC	321 Commerce Drive

BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance approves said Site Plan subject to the following conditions:

1. That the comments of the Zoning Enforcement Officer in his review letter dated March 31, 2022 be addressed to his satisfaction.

2. That the comments of the Planning Department in their review letter dated March 31, 2022 be addressed to the Department's satisfaction.

3. That the comments of the Fire Chiefs' Association in their letter dated April 7, 2022 be addressed to their satisfaction.

4. That the comments of the Stormwater Management Officer in her letter dated April 8, 2022 be addressed to her satisfaction.

5. That the comments of the Town Right-of-Way Agent in her letter dated March 31, 2022 be addressed to her satisfaction.

6. That the comments of the New York State Department of Environmental Conservation in their letter dated February 17, 2022 be addressed to their satisfaction.

7. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

8. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

9. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

Attachment: SP-2022-01_draft resolution_042122 (25330 : Sp-2022-01)

DRAFT (4/21/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-01

PETITIONER	PROPERTY LOCATION
321 Commerce, LLC	321 Commerce Drive

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

GP/bf
X:\Current_Planning\Files\Site Plans\2022\SP-2022-01_(321_Commerce_Dr)_2022\SP-2022-01_draft resolution_042122.doc
cc: Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDEC
321 Commerce LLC, 6885 Campbell Blvd., N. Tonawanda, NY 14120
Advanced Design Group, 761 Cayuga St., Lewiston, NY 14092

Approved Plan:_____
Received _____

Attachment: SP-2022-01_draft resolution_042122 (25330 : Sp-2022-01)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor

Daniel C. Howard, A
Planning Directo

Daniel J. Ulatowski, A
Assistant Planning Di

APR27'22 AM10:00 RCVD

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency:	Town of Amherst Planning Board	**Project:**	SP-2022-01
Address:	5583 Main Street Williamsville, NY 14221 (716) 631-7051	**Date:**	April 21, 2022

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Type 1

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Location: 321 Commerce Drive, Amherst, Erie County

Petitioner: 321 Commerce LLC

Attachment: SP-2022-01_signed_neg_dec_042122 (25330 : Sp-2022-01)

APR27'22 AM10:00 RCVD

REASONS SUPPORTING THIS DETERMINATION

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and Part II and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on March 4, 2022 reviewed the Grading and Drainage Plans submitted on February 28, 2022, Engineer's Report, and Erosion Control Plan submitted on February 28, 2022.

   The Stormwater Pollution Prevention Plan (SWPPP) submitted on March 28, 2022 was also reviewed. Based on its April 8, 2022 review of these documents, the Engineering Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on March 28, 2022 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of March 8, 2022 and the Planning Department in their review of March 31, 2022 has reviewed the application documents, and determined that the subject project has or will have met all International Building Code – 2018 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. The NYS Office of Parks, Recreation and Historic Preservation has reviewed the project and, as stated in their letter of January 11, 2022 determined that there will be no impact on these resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the Research and Development (RD) zoning district; neighboring uses are industrial and also zoned RD; therefore, the project is consistent with surrounding land use.

6. The proposed subject development will include a self-storage facility which will not cause a major change in the use of either the quantity or type of energy.

7. The project will not create any hazard to human health. The Fire Chief's Association on April 7, 2022 has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency have or will have been met.

Attachment: SP-2022-01_signed_neg_dec_042122 (25330 : Sp-2022-01)

APR27'22 AM10:00 RCVD

8. The project will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The 19,000 s.f. of commercial space will be consistent with the scale of surrounding land uses.

9. The function of the proposed self-storage facility will not significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated March 2, 2022, indicates that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on February 2, 2022, Assessor on March 2, 2022, Plumbing Division on February 2, 2022 and Right-of-Way Agent on March 31, 2022. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: Gill; Seconded by: Chmiel Ayes 6; Noes 0; Absent 1 (Gilmour)

Gary Palumbo, Associate Planner 4-25-2022
signature & title of preparer Date

4-27-22
FOR Robert J. Gilmour, Planning Board Chair Date

GP/ac
X:\Current_Planning\Files\Site Plans\2022\SP-2022-01_(321_Commerce_Dr)_2022\SP-2022-01_neg dec_042122.doc.docx
cc: Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDEC
321 Commerce LLC, 6885 Campbell Blvd., N. Tonawanda, NY 14120
Advanced Design Group, 761 Cayuga St., Lewiston, NY 14092

Attachment: SP-2022-01_signed_neg_dec_042122 (25330 : Sp-2022-01)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-01

APR27'22 AM10:30 RCVD

PETITIONER

321 Commerce, LLC
6885 Campbell Blvd.
N. Tonawanda, NY 14120

PROPERTY LOCATION

321 Commerce Drive

WHEREAS, the Town of Amherst Planning Board on Thursday, April 21, 2022 held a public hearing on a Site Plan for a 19,400± square foot self-storage facility, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

BE IT FURTHER RESOLVED that the Planning Board, in accordance with Part II, Chapter 83, Part IX, Section 1-2 of Town Law waives sidewalks required along the Commerce Drive frontage of the parcel until required at some future time by the Town Board, and

Attachment: SP-2022-01_signed_resolution_042122 (25330 : Sp-2022-01)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-01

APR27'22 AM10:00 RCVD

PETITIONER	PROPERTY LOCATION
321 Commerce, LLC	321 Commerce Drive

BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance approves said Site Plan subject to the following conditions:

1. That the comments of the Zoning Enforcement Officer in the officers letter dated March 31, 2022 be addressed to the officer's satisfaction.

2. That the comments of the Planning Department in their letter dated March 31, 2022 be addressed to the Department's satisfaction.

3. That the comments of the Fire Chiefs' Association in their letter dated April 7, 2022 be addressed to their satisfaction.

4. That the comments of the Stormwater Management Officer in the officers letter dated April 8, 2022 be addressed to the satisfaction of the officer.

5. That the comments of the Town Right-of-Way Agent in the agent's letter dated March 31, 2022 be addressed to her satisfaction.

6. That the comments of the New York State Department of Environmental Conservation in their letter dated February 17, 2022 be addressed to their satisfaction.

7. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

8. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

9. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

Attachment: SP-2022-01_signed_resolution_042122 (25330 : Sp-2022-01)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-01

APR27'22 AM10:00 RCVD

PETITIONER

321 Commerce, LLC

PROPERTY LOCATION

321 Commerce Drive

The foregoing resolution was adopted by the Town of Amherst Planning Board, April 21, 2022; moved by Chmiel; seconded by Gill; ayes 6, noes 0; absent 1 (Gilmour).

FOR Robert J. Gilmour, Chair — 4-27-22 Date

GP/ac
X:\Current_Planning\Files\Site Plans\2022\SP-2022-01_(321_Commerce_Dr)_2022\SP-2022-01_resolution_042122.doc
cc: Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDEC
321 Commerce LLC, 6885 Campbell Blvd., N. Tonawanda, NY 14120
Advanced Design Group, 761 Cayuga St., Lewiston, NY 14092

Approved Plan: Advanced Design Group
Received: March 28, 2022

Attachment: SP-2022-01_signed_resolution_042122 (25330 : Sp-2022-01)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

Meeting: 04/21/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Bryan Fadel
Initiator: Dan Howard
Sponsors:
DOC ID: 25490 A

TABLED

PLANNING BOARD ITEM (ID # 25490)

Proposed Dentistry School and Parking Lot Expansion, SP-2022-02

Property located at 2525 Kensington Avenue
Philipps Bros Supply Inc., Petitioner

April 21, 2022
No comments were heard on this proposal. The Petitioner requested an adjournment. Ms. Penberthy moved to adjourn until the May Planning Board meeting. The motion was seconded by Mr. Chmiel and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

ATTACHMENTS:

- SP-2022-02 application 042122 (PDF)
- SP-2022-02 drawings 042122 (PDF)
- SP-2022-02_adjournment_042122 (PDF)
- SP-2022-02 application 051922 (PDF)
- SP-2022-02 drawings 051922 (PDF)
- SP-2022-02_draft neg dec_051922 (PDF)
- SP-2022-02_draft resolution_051922 (PDF)
- SP-2022-02_adjourned_051922 (PDF)

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 5/19/2022 6:30 PM**
MOVER:	Brittany Lee Penberthy, Board Member	
SECONDER:	Michael Chmiel, Board Member	
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn	
ABSENT:	Robert J. Gilmour	

TOWN OF AMHERST

APPLICATION & REVIEW PROCEDURE

MAJOR SITE PLAN

MATERIALS MUST BE PROVIDED IN AN ELECTRONIC FORMAT THAT CONTAINS PDF FILES OF THE APPLICATION, EAF, SITE PLAN DRAWING SET SURVEY, LANDSCAPE PLAN, PRELIMINARY BUILDING FLOO PLANS / ELEVATIONS & ANY OTHER SUPPORTING INFORMATION. THIS MUST BE SUBMITTED WITH YOUR APPLICATION. APPLICATIONS WILL NOT BE TRANSMITTED WITHOUT THIS ELECTRONIC INFORMATION.

THIS ALSO APPLIES TO REVISED MATERIALS THAT AR SUBMITTED.

This application package includes the following:

- Application Procedures
- Application Form & Checklist
- Stormwater Pollution Prevention Plan Checklist
- Appendix A Town of Amherst EAF Addendum
- Appendix B Criteria for Required 8½" x 11" Sketches
- Appendix C Erie Sewer District No. 5 – Commercial / Industrial New & Existing Buildings Requirements

- IMPORTANT-

1. A pre-submittal consultation with Planning Department staff is *strongly recommended* prior to submitting an application. The pre-submittal meeting gives the applicant an opportunity to discuss with staff such items as:
   - classifying the action as a major site plan, minor site plan, or minor site plan adjustment;
   - determining what specific information will be required to be submitted with the application;
   - identifying and discussing issues that must be addressed as part of the SEQR review;
   - identifying any potential variances required to implement the project as proposed.

   An appointment is required for all meetings with Planning Department staff.

2. This site plan petition is subject to the requirements of 6 NYCRR Part 617, State Environmental Quality Review Act (SEQR), and Chapter 104 of the Town of Amherst Code, as amended. The Planning Board cannot make a SEQR determination unless a complete Environmental Assessment Form (EAF), including Town of Amherst EAF Addendum, and any required supplementary information such as traffic impact studies, archaeological reports, wetland delineations or geotechnical reports, are submitted. SEQR issues may be discussed with Planning Department staff at a recommended pre-submittal meeting. Unlisted Actions require a Short EAF; Type I Actions require a Full EAF. The following is a link to the NYSDEC website and fillable forms with instructions*:*
   http://www.dec.ny.gov/permits/6191.html.

3. **Review by the Town Design Advisory Board (DAB) is required for Major Site Plans located in the following Mixed-Use zoning districts:**

   Traditional Infill 2.5 (TI-2.5)
   Traditional Infill 4 (TI-4)
   Shallow Corridor 3 (SC-3)
   Deep Corridor 3 (DC-3)
   Deep Corridor 5 (DC-5)
   Center 2.5 (CTR-2.5)
   Center 5 (CTR-5)
   Center 8 (CTR-8)

   The application for DAB review is required to be filed in conjunction with the major site plan application.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

4. The application shall be executed or consented to in writing by the owner of the property.

5. **Any variances from the Zoning Board of Appeals, or any decision from the Town Board (e.g. removal of deed restrictions) must be obtained prior to action by the Planning Board on a Site Plan application.**

6. Submittal of an application grants permission to Town staff and Planning Board members to access the parcel(s) under consideration.

7. All site plan drawings must be prepared by a Registered Architect, Professional Engineer, Landscape Architect, or Land Surveyor (as applicable) licensed to practice in New York State.

8. If you wish to include a Coordinated Sign Plan application with the site plan petition, a separate application must be completed. Contact the Planning Department for a copy of a Coordinated Sign Plan application package.

9. All drawings should be no larger than 24 in. x 36 in. If site characteristics warrant larger plan sheets, they may be accepted subject to Planning Department concurrence. All drawings must also reserve a 4 in. x 6 in. area in the lower right hand corner for official Town use.

APPLICATION PROCEDURES

1. Applicant secures application package from the Planning Department, 5583 Main Street, Williamsville, NY 14221. (716) 631-7051. Forms are also available online at: www.amherst.ny.us, (keyword: Planning).

2. Applicant prepares information as required on the Site Plan Submittal Checklist, attached. NOTE: Some proposals may not require all items on the checklist; please verify with the Planning Department.

3. Applicant schedules an appointment with the Planning Department to review the following:
   - a complete set of site plan drawings, preliminary building elevations and floor plans (no larger than 24" x 36" in size)
   - Environmental Assessment Form (EAF) & Town EAF Addendum
   - any supporting reports and materials
   - verification from the Town Assessor that the address in the application is correct

4. Applicant schedules an application submittal appointment with the Planning Department. NO SITE PLAN WILL BE ACCEPTED FOR REVIEW WITHOUT A PRE-SET SUBMITTAL APPOINTMENT.

5. At the submittal appointment, applicant provides fourteen (14) complete and collated sets of drawings and application information to the Planning Department **(materials will not be accepted unless folded into 9" x 12" in size),** including**:**
   - application form
   - Environmental Assessment Form (EAF)
   - supporting reports / materials
   - complete set of site plan drawings, preliminary building elevations and floor plans (**at least one (1) set of drawings must bear a raised or wet seal and signature of the design professional** who prepared the plans; the remaining copies may be submitted with a facsimile of the seal and signature)
   - digital files of all materials in pdf format
   - an 8½" x 11" reduction of the sketch plan or plat drawing (see Appendix B)

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

6. After approval for filing by the Planning Department, applicant submits all necessary fees to the Town Clerk. **(See Schedule of Fees on first page of application and make checks payable to: Town of Amherst.)**

7. The applicant returns a copy of the filing receipt to the Planning Department.

8. The Planning Department transmits remaining thirteen (13) copies of the application and supporting materials to:
   - Assessor
   - Commissioner of Building
   - Town Engineer
   - Superintendent of Highways
   - Traffic/Safety Board
   - Fire Chiefs' Association
   - Plumbing Division
   - Right-of-Way Agent
   - Police Department (if applicable)
   - Zoning Enforcement Officer
   - Other Town and outside agencies, as applicable

9. Within 30 days of its receipt of the complete application for Site Plan approval, each agency completes its review and notifies the Planning Department in writing of its comments or recommendations as required by Ordinance.

10. The applicant may be required to submit revised plans, reports, or materials to address review agency comments. The procedures for submittal of revised plans are as follows:

    - A cover letter addressing all comments received to date is required.
    - "Highlight" the area of change on the drawings and provide a notation describing the change.
    - Revised plans/materials are required. Planning staff should be contacted to determine the number of sets needed.
    - All revised plans and materials must also be provided in an electronic format that contains pdf files of the revised information.

11. The Planning Board reviews the EAF to determine whether a Draft Environmental Impact Statement (DEIS) is required. The petitioner will be advised in the event that a DEIS is required and afforded the opportunity to prepare it. If the petitioner declines, the Planning Board will prepare the DEIS at the petitioner's expense. The public hearing will be held on the DEIS concurrently with the Planning Board hearing on the application.

12. Planning Board Meeting Procedures:

    The applicant or representative presents the project at the public hearing before the Planning Board and is available to answer any questions. The Planning Board may take any of the following actions:

    - Adjourn the hearing to a future Planning Board meeting (hearing remains open).
    - Close the hearing and table action on the site plan to a future Planning Board meeting. (The Planning Board may remove the item from the agenda until such time as all required information is provided.)
    - Close the hearing and make a decision on the site plan.

    All determinations on matters before the Planning Board are made after all public hearings on that meeting's agenda are completed.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

13. A copy of the Planning Board's determination will be provided to the applicant, his / her representative, the Building Commissioner and the Town Clerk approximately 1 week following the Planning Board meeting at which it was heard.

14. If the Planning Board approves a Site Plan with conditions, the Planning Department will work with the applicant to ensure that all conditions of the approval are satisfactorily addressed. When all conditions are satisfied, the applicant submits **seven (7) final copies** of the complete set of all site plan drawings, folded into 9" x 12". For site plans in the Mixed-Use zoning districts, building elevations will also be required.

    All 7 sets must have original wet seals and include the required 4 in. x 6 in area in the lower right hand corner for official Town use. These drawings will be stamped and signed "Approved" by the Planning Director and transmitted to Town Departments for their files and use.

15. A building permit will not be issued by the Building Department until the stamped and signed Site Plan is issued by the Planning Director.

NOTE: Please check with the Planning Department to determine the deadline date for filing applications. Due to the public hearing notice requirements and department reviews, no site plan application will be placed on the Planning Board agenda after the deadline for filing has closed. Scheduling may be delayed if an application is incomplete.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: _____ **Acreage** _____ **Fee $** _____

Address Verified by Assessor's Office _____ VERIFIED BY DATE

Materials Received by Planning Department _____ RECEIVED BY DATE

Fee Paid to Town Clerk _____ RECEIVED BY DATE

Site Plan Review		**Fill In Applicable Fees**
1 acre or less	$1,250.00	_____
Each additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Site Plans	$1,200.00	_____
Request for Relief of / Change to Conditions of Site Plan Approval	$1,200.00	_____
Request for Extension of Site Plan Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1 - 4.99 Acres	$ 500.00	_____
5 - 10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
	TOTAL FEE:	**$**_____

To Be Completed By Applicant

Petitioner:

Name: Philipps Bros Supply Inc.

Address: 2525 Kensington Ave

Amherst (city) NY (state) 14226 (zip code)

Phone: 716-839-4800 Fax: 716-839-4051

E Mail: pphilipps@philippsbros.com

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

MAJOR SITE PLAN APPLICATION (con't) ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney)**:**

Name: Joseph Molek

Address: 425 Franklin Street

Buffalo (city) NY (state) 14202 (zip code)

Phone: 716 - 222-3752 Fax: _____

E Mail: jmolek@stieglitzsnyder.com

Project Location (must be verified by Town Assessor's Office)**:**

Address: 2525 KENSINGTON AVE

SBL No(s): *Deed Reference: Liber 11117, Page 3180*
Tax ID: 80.11-1-6.2

Project Name: SHATKIN SCHOOL OF DENTISTRY AT DAEMEN COLLEGE / IMIT

Project Description:

MULTI-TENANT BUILD-OUT AND PARKING LOT EXPANSION ONTO RIDGEWOOD DRIVE

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

	existing	proposed	total
Gross Floor Area (non-residential):	29,350	4,400	33,750
Gross Floor Area Residential:			
Number of Residential Units:			
Number of Parking Spaces:	26	46	72

Acreage of Parcel: 1.24 AC

(list each parcel separately)

Frontage on Public Roads: 165.18'+333.61'+280.01'=778.8'

(list each road separately)

Existing Zoning District(s) GB - GENERAL BUSINESS

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Site Plan Submittal Requirements and Checklist

The following checklist outlines the information required by the Planning Department to accept a Site Plan application for review. ***It is strongly recommended that you make an appointment with Planning Staff to determine which items apply to your application***.

Item No.	Item	Submitted	Official use
I Basic Drawing Information			
1.0	**Drawing size not to exceed 24" x 36"**		
2.0	**Title of Drawing**		
3.0	**Name and address of Applicant**		
4.0	**Name of person preparing drawing**		
5.0	**Wet seal/raised seal and signature of NYS licensed architect, engineer, landscape architect, or surveyor (as applicable)**		
6.0	**Project address**		
7.0	**Zoning of subject property and adjacent parcels**		
8.0	**North point, scale, date, and revision date(s)**		
9.0	**4" x 6" reserved area in lower right hand corner for official Town use**		
II Structures, Paved Areas, & Open Space			
1.0	**Existing and Proposed Streets**		
1.1	Names of all existing and proposed streets		
1.2	Width and radii of proposed curb-cuts		
1.3	Existing curb-cuts on adjacent and opposite properties		
1.4	Show ROW width, pavement dimensions, lane widths, pavement markings, and proposed signage on proposed streets		
1.5	Show proposed ROW consistent with planned NYSDOT, Erie County, or Town road projects (if applicable)		
1.6	Show location of proposed cross access to adjacent parcels along with a draft easement		
1.7	Designation of Fire Lanes (if applicable)		
1.8	Fire apparatus access roads		
1.9	Label any proposed roads as public or private		
1.10	Location and dimensions of sidewalks		
1.11	Typical cross sections and profiles of proposed streets, pedestrian walkways, and bikeways		
2.0	**Proposed Structures**		
2.1	Location and complete dimensions of proposed structures		
2.2	Setback dimensions of structure(s) to all property lines		
2.3	Proposed use of structures		
2.4	Gross square feet area of each structure		
2.5	Location of all building entrances		
2.6	Indicate type of roof construction/materials		
2.7	Location, height, and design detail of existing and proposed fences and walls		
2.8	Location of light standards and building mounted lights		
2.9	Location of dumpster and detail of dumpster enclosure with gate		
2.10	Layout and dimensions of the lot(s) proposed for development		

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.	Item	Submitted	Official use
II Structures, Paved Areas, & Open Space (cont'd)			
3.0	**Floor Plans with individual rooms and spaces labeled** (fully dimensioned)		
4.0	**Building elevations with height dimensions from finished grade to the highest point of the roof and to midpoint of gable or hip of a pitched roof.** (fully dimensioned)		
4.1	Show screening of mechanical equipment		
5.0	**Parking/Loading/Stacking Areas**		
5.1	Location and complete dimensions of all paved areas		
5.2	Setback dimensions of all paved areas to property lines		
5.3	Dimension of typical parking space and drive aisles		
5.4	Location and layout of handicapped parking spaces & access aisles		
5.5	Detail of vertical signage for handicapped parking and access aisles		
5.6	Indicate minimum parking requirement & number of spaces provided		
5.7	Proposed signage for directing and guiding traffic		
5.8	Curb cut permits from NYS, Erie County, or Town (if applicable)		
5.9	Pedestrian connections (from proposed structures to public sidewalk network)		
6.0	**Location and proposed development of all open spaces, including parks, playgrounds, and open reservations**		
III Utilities and Drainage			
1.0	**Engineers Report** (bound separately from the Stormwater Pollution Prevention Plan [SWPPP])		
1.1	Stamped/sealed and signed by NYS licensed architect or professional engineer		
1.2	Proposed water service sizing, RPZ pressure and fire safety flow and pressure calculations		
1.3	Proposed sanitary sewer facility load calculations (avg. & peak flows) including calculation of the peaking factor		
1.4	Proposed storm drainage facility calculations (see information included with this application)		
2.0	**Grading Plan**		
2.1	Existing and proposed grades indicated (proposed grades may not exceed 1 on 3)		
3.0	**Water Service**		
3.1	Location, size and material of existing and proposed facilities		
3.2	Location of existing and proposed fire hydrant location(s)		
3.3	Indicate use of sprinklers, location of Fire Department connection, and proposed fire protection systems		
3.4	Existing and proposed meter/RPZ size and location		
3.5	Applicable construction details		
4.0	**Sanitary Sewers**		
4.1	Locations, sizes, slopes, inverts, and materials of all existing and proposed facilities		

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.		Submitted	Official use
III Utilities and Drainage (cont'd)			
4.2	Applicable construction details		
4.3	Proposed water/oil/grease interceptor sizing calculations by a professional engineer (if applicable)		
5.0	**Storm Drainage**		
5.1	Locations, sizes, slopes, inverts, and materials of existing and proposed storm drainage facilities		
5.2	Connection of roof drains to proposed drainage system		
5.3	Applicable Town Standard construction details		
5.4	Existing and proposed swales and ditches		
5.5	Detention area cross-section and high-level elevations		
5.6	County and State approval for tie-in to existing sewers		
6.0	**Stormwater Pollution Prevention Plan (SWPPP) as applicable** (bound separately from the Engineer's Report) **See attached checklist.**		
7.0	**Natural Gas Service**		
8.0	**Location of transformers, generators and other mechanical equipment; include detail drawings (if applicable)**		
9.0	**Downstream Sanitary Capacity Analysis (DSCA) Report** (must be submitted if proposed average flows are greater than 2,500 gallons per day)		
9.1	The DSCA Report must include a detailed downstream sewer capacity analysis and the calculations of and commitment to (via Developer commitment letter) the required financial contribution to the Town's I/I mitigation fund based on peak flow conditions. The contribution must be based on $250 per gallon per minute of mitigated flow		
IV Lighting Plan			
1.0	**Photometric plan showing light spread in foot candles at property lines**		
1.1	Detail of all light standards, including dimension of height from finished grade		
1.2	Detail of all exterior lighting fixtures		
V Landscape Plan			
1.0	**Wet/raised seal and signature of a licensed Landscape Architect**		
2.0	**Provide a calculation of the total Parking area and a calculation of interior parking area in square feet and as a percentage**		
3.0	**Indicate location, size, number and type of proposed landscape materials**		
4.0	**Indicate location, type and size of <u>all</u> existing trees 4" caliper or larger and indicate which will be removed or retained**		
VI Other Required Information/General Requirements			
1.0	**Complete boundary survey that includes all existing structures, acreage, legal description with reference to a property line, street, or other known feature, and easements plotted to scale by a NYS licensed land surveyor**		

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.		Submitted	Official Use
VI Other Required Information/General Requirements (cont'd)			
1.1	Copies of all easements, reciprocal access agreement or similar leag documents		
2.0	**Topographic Survey with a 30 ft. buffer outside all property lines by a NYS licensed land surveyor**		
3.0	**Draft of any deed restrictions, covenants, provisions for home associations and common ownership, and reciprocal easement agreements (as applicable).**		
4.0	**For assessment purposes, state intent to apply for condominium status (if applicable).**		
5.0	**Completed and signed Environmental Assessment Form**		
5.1	Soil boring report and geotechnical report prepared by a qualified Professional Engineer (if applicable)		
5.2	Traffic Impact Study (if applicable)		
5.3	Archaeological survey (if applicable		
5.4	Wetland Delineation report (if applicable)		
6.0	**Show existing zoning(s) of both the subject property and adjacent parcels on the Site Plan and the Landscape Plan**		
7.0	**Location of NYSDEC wetlands (including buffer area) and/or federal wetlands; indicate jurisdictional status**		
8.0	**Location of Floodway and floodplain** (if applicable)		
9.0	**Documentation pertaining to any conditions of zonings, including copies of required deed restrictions; indicate date of rezoning and the parcel address under which it was rezoned (if applicable)**		
10.0	**Documentation related to any required variances granted by the ZBA**		
11.0	**For residential site plans, provide a statement from the appropriate school district that adequate school sites and facilities are available.**		
12.0	**8 1/2" X 11" reduction of primary site plan drawing (see appendix "B" of application package for specifications)**		
13.0	**A CD containing a PDF of all site plan drawings (Must also be provided with revised drawings)**		
VII Additional Required Information for Projects in the Mixed Use Districts			
1.0	**Design Advisory Board Application**		
1.1	Required for Major Site Plan		
1.2	Required at the Planning Directors Discretion for Minor Site Plans		
2.0	**Block & Street Network Plan**		
2.1	Designation of Core, Local & Alley streets		
2.2	Dimensions of Blocks		
3.0	**Block Usage Plan (as applicable)**		
3.1	Designation of site usage for each block including open space areas		
4.0	**Phasing Plan**		

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

For official use only:

_____
Approved/Date

X:\Current_Planning\Application Forms 2013 Working Doc\Major Site Plan\Site Plan Submittal Requirements and Checklist (3).doc

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

TOWN OF AMHERST
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
-- ADDENDUM --

1. For each applicable category of proposed <u>new</u> structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Urban Soil	severe	severe	severe	severe	severe

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   ____ Geotechnical report attached _____ Not applicable

3. Is your property located: On Youngs Road between Dodge and Klein Roads? □ Yes X No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? □ Yes X No
   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? □ Yes X No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   No

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: □ Yes X No
   Describe_____
   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project Reference traffic study
   Source: _____

8. Will blasting occur during construction? □ Yes X No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? X Yes □ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    _1120_____ average flow _4400_____ peak flow.
    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? □ Yes X No

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:
Shatkin School of Dentistry / Philipps Bros Supply

Project Location (describe, and attach a location map):
2525 Kensington Ave at Bentham Pkwy and Ridgewood Drive

Brief Description of Proposed Action:
Shatkin School of Dentistry at Daemen College & Institute for Mobility and Technology on 1.2 acre existing developed parcel -plus- redevelopment of Ridgewood Drive into a new private paved surface parking lot.

Name of Applicant or Sponsor:	Telephone: 716-839-4800
Pat Philipps	E-Mail: pphilipps@philippsbros.com

Address:
2525 Kensington Avenue

City/PO:	State:	Zip Code:
Amherst	NY	14226

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: Amherst Site Plan, building permit	☐	☑

3. a. Total acreage of the site of the proposed action? 1.24 acres
   b. Total acreage to be physically disturbed? 0.50 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 1.24 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☑ Commercial ☑ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☐	☑
b. Consistent with the adopted comprehensive plan?	☐	☐	☑

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?	NO	YES
If Yes, identify: _____	☑	☐
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☐	☑
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☐	☑
9. Does the proposed action meet or exceed the state energy code requirements?	NO	YES
If the proposed action will exceed requirements, describe design features and technologies:		
REFER TO ARCHITECTURAL SET	☐	☑
10. Will the proposed action connect to an existing public/private water supply?	NO	YES
If No, describe method for providing potable water: _____	☐	☑
11. Will the proposed action connect to existing wastewater utilities?	NO	YES
If No, describe method for providing wastewater treatment: _____	☐	☑
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐	
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☐	☑	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☑	☐	
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐	
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____			

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional
☐ Wetland ☐ Urban ☑ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☐	☑
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☑
If Yes, briefly describe: EXISTING PUBLIC DRAINAGE IN RIDGEWOOD DRIVE		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☑	☐
If Yes, explain the purpose and size of the impoundment:		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe:		
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☑	☐
If Yes, describe:		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: joseph molek Date: March 28 2022

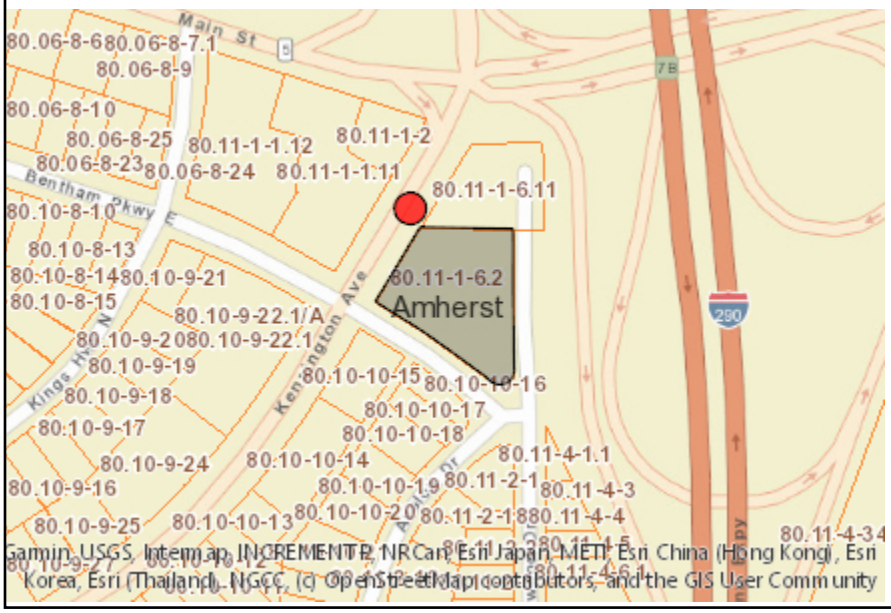
Signature: Title: Architect

PRINT FORM

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

EAF Mapper Summary Report

Monday, February 14, 2022 1:50 P.M.



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	No
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	No

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

March 28 2022

5583 Main Street Williamsville NY 14221
Town of Amherst Planning Department

STIEGLITZ SNYDER ARCHITECTURE

RE: 2525 Kensington Avenue – Philipps Bros. Supply / The Shatkin School of Dentistry and Parking expansion.

Dear Mr. Gary Palumbo,

We are submitting to the Planning Department our response to Major Site Plan review comments submitted by the following Departments:

Amherst Fire Chief Comments March 16 2022:

1. What fuel is used for generator? If diesel, provide specs on tank and quantity.

Fuel type is Diesel. See accompanying documents for tank specifications.

2. fire lane no parking signs are required on north side of the building

Signage will be provided.

3-Show location of fire department connection. Should be located on street side of building

Fire department connection will be provided at northwest corner of the building just north of the loading doc.

Engineering Department Comments March 9 2022:

1.An executed copy of the proposed access easement from the adjacent parcel to the north must be copied to this office prior to issuance of any town of Amherst plumbing permits for this project.

To be resolved with Town Board.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

2. An executed copy of the Town of Amherst License Agreement / Land lease regarding the use and improvement of Ridgewood drive must be copied to this office prior to the issuance of any Town of Amherst Plumbing permits for this project.

To be resolved with Town Board.

Planning Department comments March 7 2022:

Zoning Enforcement Officer Review:

Item #1

Owner/applicant to pursue 0 feet setback at proposed canopy addition location. We are requesting an Area Variance from the Ridgewood Drive Right-of-way.

Item #2

Owner/applicant to pursue 0 feet area setback for paved parking at the right-of-ways and north property line. We are requesting an Area Variance.

Item #3

Existing parking lot modified to comply with minimum size and spacing of car-parks and including a new curbed and landscaped end cap.

Item #4

Owner/applicant to pursue 0 feet setback at proposed trash enclosure location. We are requesting an Area Variance from the Ridgewood Drive and Bentham Pkwy Right-of-way.

Item #5

Landscape plan is sealed by NYS licensed Landscape Architect.

Item #6

Additional landscape screening is provided to screen Transformer and Generator. See accompanying transformer photo (similar size transformer will be used) and diesel fuel generator and tank.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Item #7

A foundation planting bed is now shown cut-out from the existing sidewalk fronting the west wall of the existing facility. Shrubs are added in the planting schedule.

Item #8

Site Lighting Plan – the intent is to illuminate Ridgewood Drive parking lot for safety. See accompanying revised drawing for lighting at south end of parking.

Item #9

Alternative parking analysis – See accompanying Traffic Study prepared by SRF Associates.

Planning Department Staff Review:

Item #1

Owner/Applicant will work with the Town of Amherst Board to remove parking restriction on Ridgewood Drive.

Item #2

Owner/Applicant will provide a license agreement for maintenance and use of Ridgewood Drive right of way.

Item #3

Boulders stones in the Kensington Avenue Right- of- way are shown to be removed.

Item #4

Northerly curb cut and driveway on Kensington Ave. is required for Fire Truck access along the north side of the building therefore we do not suggest removing this curb cut. We would agree to remove the southerly curb cut if deemed necessary however, we did not receive comment from NYSDOT to determine what concerns they may have, and therefore have not modified the site plan for such.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Item #5

See accompanying transformer photo (similar size transformer will be used) and diesel fuel generator and tank.

Item #6

See accompanying cut sheets for site and building mounted lighting fixtures.

Item #7

No other site features are anticipated.

Item #8

We hereby request a waiver for the sidewalk requirement along Ridgewood Drive. The area of concern contains proposed foundation plantings instead to augment the façade treatment.

Item #9

Signage will be submitted under separate cover for review by the Town of Amherst.

Item #10

SEAF – see accompanying document with applicant's name.

Item #11

See accompanying Application complete with Item #1, #5 and #7.

Item #12

We have provided 4"x6" in the lower right hand corner of all drawings that did not have the space available for Town use.

Item #13

An 8 1/2" x11" reduction of the modified site plan is included.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Landscape Architect Review:

Item #1

Bollards surrounding explosive mechanical equipment will contain a plastic covering *color safety yellow* for visible warning to motorists to avoid impact. Disguising bollards in this application is not recommended.

Item #2

Ridgewood Drive right-of-way contains various underground utilities, including ECWA water on each side of the roadway, that must remain as-is. We do not recommend planting trees atop these public utilities.

Item #3

Additional landscaping screening is shown on the south side of the transformer and west side of the generator to further restrict view from the public roadway.

Item #4

We do not intend to install landscaping on Thruway property. There is approximately 4-ft between the right-of-way/edge of pavement and the Thruway fence remaining that is shown re-planted as lawn.

Item #5

Existing trees or shrubs are shown with a legend for removals, if any. Brush shall be cleared from along the Thruway fence.

Item #6

See Item #5 – note on plan indicates where contractor is to protect or remove existing plantings.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Highway Dept. Review March 24 2022:

Item #1 – Applicant has requested abandonment of the portion of Ridgewood Drive running north of Bentham Pkwy. However, the underlying utilities including storm sewers, shall remain owned and maintained by the Town of Amherst.

End of comments.

If you would like to discuss these comments further, please don't hesitate to contact me at 716-222-3040 or via e-mail at jmolek@stieglitzsnyder.com.

Sincerely,

STIEGLITZ SNYDER ARCHITECTURE



Joseph Molek, RA

Project Architect

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Engineer's Report

for

SHATKIN SCHOOL OF DENTISTRY/IMIT
2525 KENSINGTON AVE
TOWN OF AMHERST, NY

February 22, 2022

Prepared By:

tredo
ENGINEERS

CIVIL | STRUCTURAL | ENGINEERING

755 Seneca Street, Suite 202
Buffalo, New York 14210
716.876.7147 ph



Seal

For:

Stieglitz Snyder Architecture
Buffalo, NY

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

tredo
ENGINEERS

I. SUMMARY

This project includes a mixed-use redevelopment and internal expansion in an existing 1-story retail/warehouse facility to include a dental school on a 1.2± acre parcel located at Kensington Avenue, Bentham Pkwy. and Ridgewood Drive in the Town of Amherst, New York. The GB-zoned site is located adjacent to the north terminal end of Ridgewood Drive, to which the applicant is requesting abandonment, and proposed replacement with a paved parking lot in a land-lease. The subject parcel is currently fully developed with replacement utility services planned for the uprated occupancy.

Sanitary wastewater is currently conveyed by 4-inch gravity piping from the building to an 8-inch public sewer found in Ridgewood Drive. New interior plumbing and partial replacement of the existing 4inch PVC lateral is planned.

New water service for domestic and fire-protection use of the multi-tenant build-out shall replace the existing tap and connect to the 6-inch main found in Kensington Ave. A new 6-inch tap with 4-inch DIP tee reducing to 3-inch and running to the water meter room and 6-inch DIP fire protection runs together in the same trench. The Erie County Water Authority (ECWA) regulates the water main. Metering and backflow prevention for the private services are contained within the facility mechanical room with application made by others.

Currently, storm water runoff generated by the site flows overland towards and into the existing surrounding roadway drainage systems. Replacement receivers are proposed for redevelopment of Ridgewood Drive from a roadway to a perpendicular car-park. New storm piping shall connect to existing manholes. One manhole rim is proposed to be raised-up to new grade of the proposed parking lot.

This development will not result in an increase in impervious surfaces on this site and does not involve soil disturbance greater than one (1) acre, thus stormwater detention is not provided. The site is not located within a 100-year floodplain. The site is currently fully developed and does not contain wetland.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

755 Seneca Street, Suite 202
Buffalo, New York 14210
716.876.7147 ph

www.tredoengineers.com

II. SANITARY SEWER SERVICE

The existing public 8-inch gravity sanitary sewer located on the west side of Ridgewood Drive will provide a sanitary sewer connection point. All public utilities within Ridgewood Drive shall remain operational and accessible for maintenance during and after reconstruction. One public sewer manhole rim is proposed to be raised-up to new grade of the proposed parking lot.

A replacement for the private 4-inch PVC (SDR35) sewer lateral will be installed to the proposed building sanitary sewer entry point at the north wall of the building from the existing tap per the building plumbing plans. The proposed facilities will generate a calculated 1120 gal/day (gpd) average of residential wastewater load* as per the following:

Day School: (30 empl x 15 gpd)+(52 students x 10 gpd) ~ 970
Existing retail/warehouse: (10 empl x 15 gpd) ~ 150

*Reference "NYS Design Standards for Intermediate Sized Treatment Works, March 2014"

III. WATER SERVICE

A new 6-inch water line for domestic and fire-protection will be connected to the existing 6-inch public main located on the east side (near side) of Kensington Ave. The following data pertains to the public watermain and private demands:

- Subsurface investigations indicates a somewhat shallow, till overburden on weathered shale bedrock. The presence of bedrock measurement approx. 7-ft below grade is indicated.
- The static pressure of the existing 6-inch public main is reported by ECWA as __ psi, and a residual (open hydrant) reading of __ psi. (Note that a recent pressure test is not available and a new test cannot be made at this time and until spring thaw)
- New domestic demand is limited to the proposed uses as a day school and retail/warehouse facility. New fire-protection demand design shall be by the building fire-protection engineer which may include a booster pump as required.

Erie County Water Authority (ECWA) governs the proposed tap and backflow prevention. ECWA provides the tapping sleeve and valve and the 4-inch gate valve and 6-inch gate valve installed at the property line. Metering and backflow prevention is contained within the facility. Meter set is also provided by ECWA. A Backflow Prevention Application shall be provided under separate cover on behalf of the water customer.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

IV. STORMWATER MANAGEMENT

I. Existing (Pre-Development) Conditions

The subject parcel is currently built-out with building and pavements. No on-site stormwater receivers were found. Ridgewood Drive contains curb inlets and storm piping conveyances owned and maintained by the Town of Amherst.

II. Proposed (Post-Development) Conditions

The proposed development includes the construction of a new canopy entry structure and associated paved parking in a land-lease agreement to use Ridgewood Drive as a car-park. Storm water receivers are replaced, existing piping abandoned, with new piping connections made to existing manholes. Storm pipe sizing for conveyance of the 10-year storm event is included in Appendix A for new drainage in Ridgewood Drive.

V. PERMITS

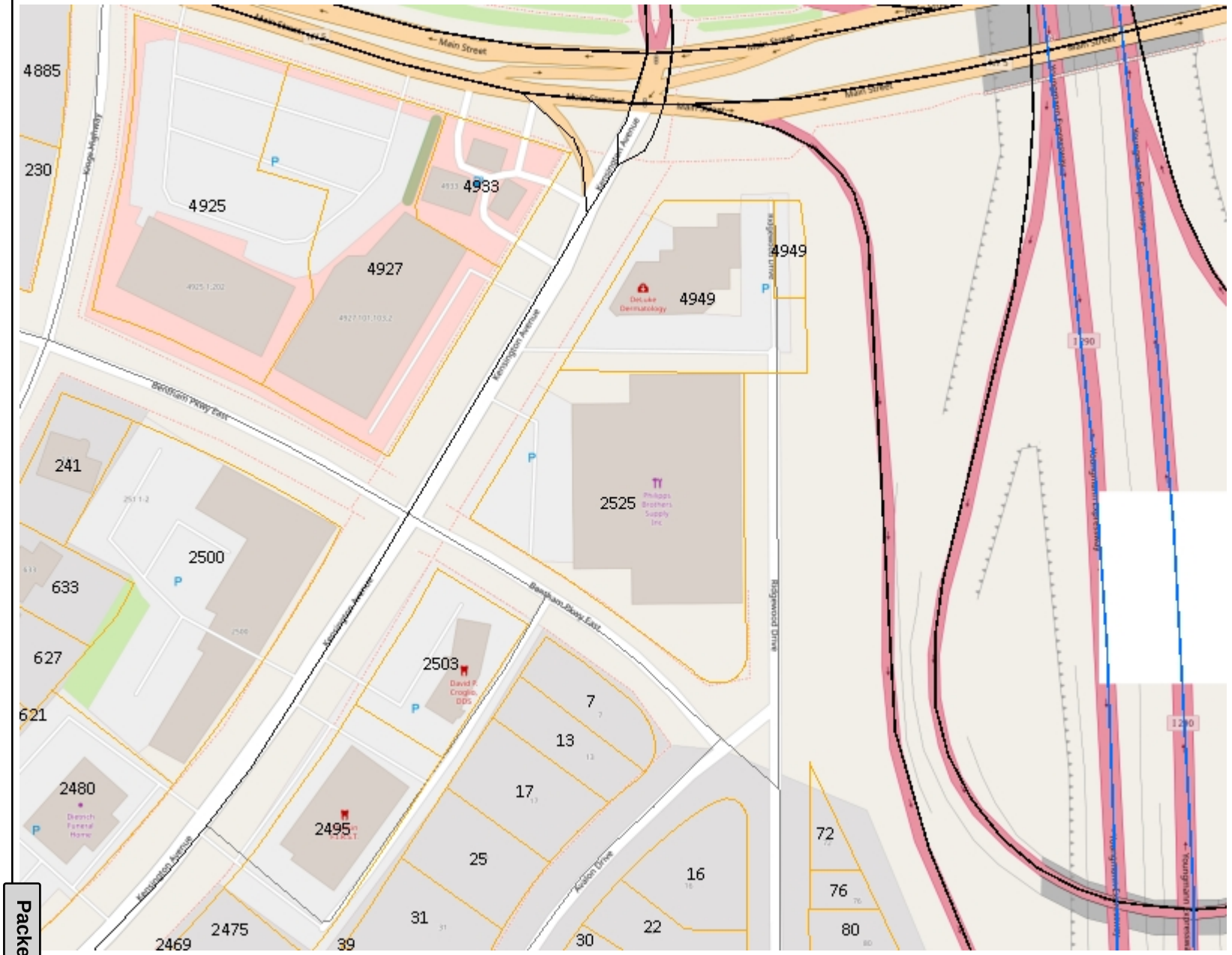
The proposed construction of the building addition, abandonment of public rights-of-way, new parking areas and drainage must receive approval from the Town of Amherst. An application for backflow prevention for private service must be made to the Erie County Water Authority (ECWA).

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

APPENDIX A

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Erie County On-Line Mapping Application





Legend

- Parcels
- Streets and Highways
  - Interstate
  - Primary State Road
  - Secondary State Road
  - County Road
  - Local Road

0.04 0.1 Miles

VGS_1984_Web_Mercator_Auxiliary_Sphere

HIS MAP IS NOT TO BE USED FOR NAVIGATION

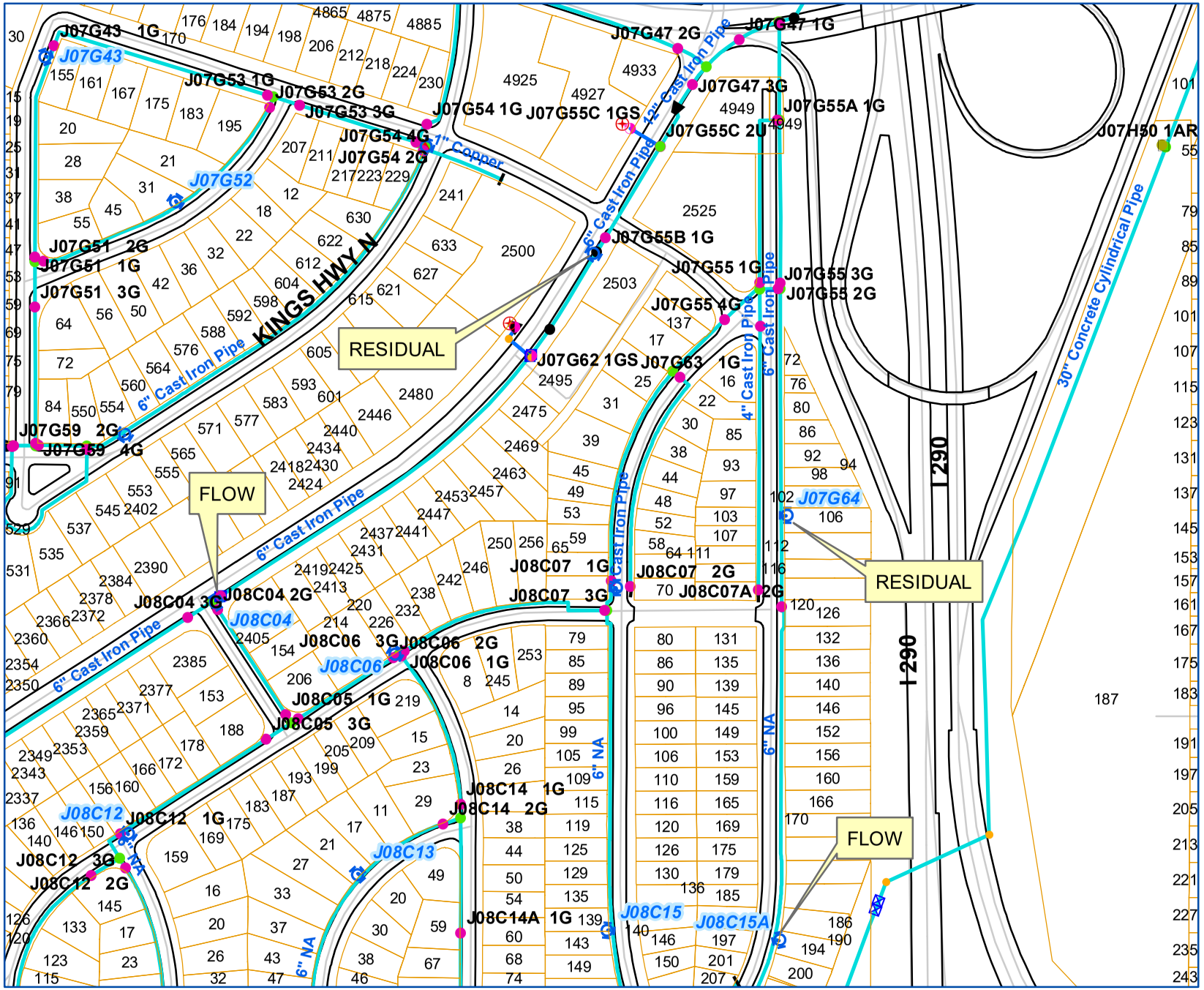
ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

1: 2,257

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

2525 KENSINGTON



STORM SEWER COMPUTATIONS (10 yr)

	RUNOFF AND FLOW																
	SEWER LOCATION			TRIBUTARY AREA (acres)		RUNOFF COEFFICIANT C									TIME OF CONC. T_c (min)	INTENSITY I (in/hr)	FLOW Q (cfs)
	area	from	to	A	SUM A	c	cA	SUM cA	LENGTH	SLOPE	PREV. Tc	T. of conc. c	RUNOFF Tc				
43.49																	
7.75																	
0.78	1	CB-1	ex mh1	0.10	0.10	0.90	0.09	0.09	70.00	1.50		0.90	2.63	2.63	10.00	4.6	0.43
	2	CB-2	CB-3	0.10	0.10	0.90	0.09	0.09	70.00	1.50		0.90	2.63	2.63	10.00	4.6	0.41
	3	CB-3	CB-4	0.32	0.41	0.90	0.28	0.37	70.00	1.50	10.57	0.90	2.63	10.57	10.57	4.5	1.67
	4	CB-4	ex mh2	0.13	0.54	1.90	0.24	0.61	70.00	1.50	10.83	1.90	10.52	10.83	10.83	4.5	2.72
					0.51												

	DESIGN								
	MANNING n	SLOPE S (%)	DIAMETER D (in)	CAPACITY Q (cfs)	CAPACITY VELOCITY V (ft/sec)	% capacity	peak factor	FLOW VELOCITY V (ft/sec)	LENGTH L (ft)
1	0.012	0.50	6	0.43	2.19	0.99	1.16	2.55	40
2	0.012	0.50	6	0.43	2.19	0.94	1.15	2.52	70
3	0.012	0.50	10	1.68	3.09	0.99	1.16	3.58	85
4	0.012	0.50	12	2.74	3.48	0.99	1.16	4.04	40

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APPENDIX B

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

APPENDIX C

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

BARRON & ASSOCIATES, P.C.
Geotechnical Consulting and Special Inspections
10440 Main Street (716) 759-7821
Clarence, NY 14031 www.barronandassociatespc.com

October 18, 2021 Job No: 21-599

Shatkin School of Dentistry
2500 Kensington Avenue
Amherst, New York 14226

ATTN: Dr. Todd Shatkin, DDS

RE: Geotechnical Engineering Report
Proposed Mezzanine & Canopy at
Shatkin School of Dentistry
2525 Kensington Avenue
Town of Amherst, Erie Co., New York 14226

Dr. Shatkin:

This report presents the findings of the subsurface investigation program and geotechnical engineering recommendations for the above referenced project. The geographic orientation of the project site is illustrated on the U.S. Geologic Survey (USGS) site location map in Figure No. 1. The project site is illustrated in Figure No. 2, entitled "Test Boring and Concrete Core Location Plan", which includes: the approximate location of one exterior test boring and two interior concrete floor slab cores that were drilled by Buffalo Drilling Company, Inc. (BDC); relative ground surface elevations; and additional site details.

EXPLORATION METHODS

Sampling Method: A truck-mounted CME 55 rotary drill rig was used to drill one boring to shallow auger refusal by using 4-1/4 inch inside diameter (ID), continuous flight hollow stem augers. Samples were recovered by driving a standard split-spoon sampler (2-foot long by 1-3/8 inch inside diameter) 24 inches with a 140-pound hammer falling 30 inches per blow per the American Society of Testing and Materials (ASTM) Standard D1586. The number of blows from six to 18 inches of penetration is defined as the Standard Penetration Test (SPT) N-value. Auger refusal, which may infer the top of bedrock, was encountered approximately seven feet below ground surface. Inside the existing structure, an electric core machine with six-inch ID, diamond impregnated bit was used to core through the concrete floor slab to gain access to subsurface soils at two locations, C-1 and C-2. Subsurface samples were retrieved via hand sampler beneath concrete floor slab.

Bedrock was confirmed by coring boring B-1 to a depth of approximately five feet below auger refusal. Bedrock coring efforts were done with an Nx-sized (2-1/8-inch I.D.) core barrel and impregnated diamond bit in accordance with ASTM Method D2113.

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Any encountered groundwater conditions are documented in the field on the driller's logs for each test boring. If indicators of groundwater are observed on the sampling equipment, the depth to groundwater is also checked and measured through the hollow stem augers at the completion of the sampling efforts.

Classification: The retrieved soil samples were initially logged in the field by the driller, and a portion of each sample was placed and sealed in a glass jar. The boring logs, which are included in Appendix A, were based upon the field logs and a second visual classification of recovered samples in the laboratory by a geologist. Classification/identification of samples, as noted on the boring logs, is based on the Unified Soil Classification System (USCS) in ASTM D2487/D2488. Refer to Appendix B entitled, "Geotechnical Reference Standards", for an explanation of the terminology that is used for soil and rock descriptions.

Each rock core was examined on a run-by-run basis to determine the percentage of core recovery and Rock Quality Designation (RQD). Core recovery percentage is the ratio of the sample length recovered divided by the length of the core run times 100 percent. RQD is defined as the total length of all pieces of core that are greater than four inches divided by the length of the core run times 100 percent. Core recovery and RQD percentages are noted on the boring logs.

Each core sample of the existing concrete floor slab was observed, measured, and photographed for review. Details can be found on the test boring/core logs C-1 and C-2 in Appendix A and the photographs are available in Appendix C, entitled "Floor Slab Core Photographs".

SITE AND SUBSURFACE CONDITIONS

General: The proposed site for development is the existing Phipps Brothers Supply, Inc. building addressed as 2525 Kensington Avenue, in the Town of Amherst, Erie County, New York. The project will include the construction of an interior mezzanine and an exterior canopy over the drop off area along the east side of the building. The site topography is generally flat across test boring locations.

Subsurface Soil Conditions: In general, subsurface conditions, underlying the exterior asphalt pavement or interior concrete floor slab, consist of one to two feet of granular fill material atop naturally deposited cohesive/fine-grained glacial till that extends to auger refusal.

Beneath the asphalt at B-1, granular fill material was encountered and extends two feet below ground surface. This fill consists of fine to coarse-grained sand to gravel sized crushed limestone and is believed to be the aggregate base course for the asphalt pavement. Relative density of the granular fill is medium dense with moisture contents of retrieved samples noted to be in a moist state. Beneath interior concrete floor slab at boring/cores C-1 and C-2, the granular fill is a loose to medium dense silty sand with trace quantities of gravel. This fill is described as a spent foundry sand typical of the metal casting industry which has a historic common reuse in this region as concrete slab/rigid pavement base layers.

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Beneath the fills, a naturally deposited cohesive/fine-grained glacial till exists and extends to auger refusal at B-1 and the remain depths advanced at C-1 and C-2. The till generally consists of slightly to moderately plastic, silt and clay with lesser amounts of sub-rounded fine-sized to coarse-sized sand and gravel. The consistency of this soil is primarily stiff to hard with moisture contents of retrieved samples noted to be moist. Spoon refusal conditions are also noted in the lower depths of the unit closer to soil bedrock interface. The proposed footing bearing grades for the proposed structures are assumed to be within this soil.

Bedrock: Auger refusal, which is generally inferred to be the top of the apparent bedrock surface, was encountered at B-1 approximately seven feet below ground surface. Confirmatory rock coring was advanced five feet beneath the refusal condition and bedrock samples collected. The bedrock type is the Onondaga Limestone, which is described as hard, slightly weathered, medium dark gray, thinly bedded, porous and calcareous limestone. Percent recovery is lightly more than 50 percent with rock quality designations (RQD) noted as 30 percent. These RQD values suggest that the rock is poor quality.

Groundwater: Groundwater was not encountered during subsurface exploration efforts. Note that the groundwater readings were taken at the completion of drilling efforts and, therefore, an adequate amount of time for the groundwater level to recharge to static conditions was probably not allowed. Fluctuations in the groundwater level may occur due to other factors than those present during field operations.

EARTHQUAKE/SEISMIC CONSIDERATIONS

Site Class Definition: For the given site conditions, the most applicable site definition is Site Class C, in accordance with Section 1613.2.2 of Building Code of New York State © 2020 and listed in Table 20.3-1 of Chapter 20 of American Society of Civil Engineers (ASCE) Standard 7-16.

Liquefaction Potential: For the Site Class C, the design spectral response acceleration parameters S_{DS}, at 0.2 seconds, and S_{D1}, at one second, are 0.146g and 0.045g (g = 32.2 feet/sec^2), respectively, for this part of Erie County, New York (see Appendix D). These values have a two percent probability of being exceeded in 50 years. Based upon the above conditions and an approximate magnitude 6.0 earthquake on the Richter Scale, the potential for liquefaction or settlement of Site Class C soil is considered extremely low.

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FOUNDATION DESIGN AND CONSTRUCTION RECOMMENDATIONS

General: This section will present and discuss recommendations on foundation design and construction and placement of controlled fills, and subgrade and base layer requirements for concrete floor slabs.

As shown in Figure No. 2, a mezzanine will be constructed inside the northern warehouse portion of the existing building. Additionally, a canopy will be constructed to cover the drop off area at the rear of the structure. The existing ground surface is generally flat across the development area and final exterior grades are assumed to closely match the existing at relative elevation 100.00 ± feet. The maximum design exterior and interior column loads are not expected to exceed 100 kips. The maximum live floor load is taken as 100 pounds per square foot (psf).

Site Preparation and Earthwork: General site preparation will include the demolition and complete removal of any encountered foundations and floor slabs, and removing all unsuitable surficial material (i.e., asphalt pavement, concrete, brick, expansive slag, organic or topsoil layer, and construction and demolition-like fill) to a depth where firm, granular or cohesive fills or naturally occurring soils are encountered. It is recommended, particularly in the location of the proposed structure, that any slag and/or cinder/ash containing material, if encountered, should be tested to determine the expansion and corrosion characteristics (where applicable for direct or potential contact with foundation elements and buried utilities) of these materials prior to their use on-site. Any rubble-like and brick fill, boulders, or wood fill in particular, if encountered, will require undercutting. Building pad and paved areas are to be proof rolled with a fully loaded ten-wheel dump truck. All encountered soft and disturbed zones should be undercut and stabilized with granular fill that is placed in compacted lifts prior to placement of additional fill materials above. Refer to Appendix E entitled "General Earthwork Specification" for definition of the fill types and gradations, recommended minimum compaction requirements for various site developments, and placement and compaction methods. The NYS Department of Transportation (NYSDOT) specification numbers for typical aggregate subbase/base course components that are included in the select granular fill category as are as follows: Item No. 304.12 (Metric) Subbase Course, Type 2 (< 2-inch maximum size), which is preferred; or Item No. 304.14 (Metric) Subbase Course, Type 4 (< 2-inch maximum size).

It is unknown if any former residential/commercial structures existed at the project site for the proposed renovations and if any former footings and foundation walls may be buried at the proposed site. Septic tank and system locations and the abandonment conditions or practices are normally unknown. If encountered during site development, it is recommended that any tanks and systems should be properly removed/treated/remediated relative to the proposed development and under the applicable local and state regulations. The remaining cavities, from the aforementioned items, should be backfilled with select/approved granular fill that is placed in thin lifts and compacted to the minimum recommendation, as presented in this report, for the proposed development at that cavity location.

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Shallow Foundation: The recommended foundation type is shallow footings. Individual interior and exterior spread column footings would bear at an elevation of 42-inches or lower below final grade, at relative elevation 96.50 ± feet or lower. A 42-inches minimum footing depth (as required by local or New York State code) is needed to provide adequate protection from frost for exterior footings.

The exterior and interior footings are recommended to bear at the same relative elevation on stable, naturally deposited, stiff (Nvalues > 10 blows) cohesive/fine-grained glacial till or on thin layers of thoroughly compacted (minimum of 95 percent of the maximum dry density by ASTM D 1557) select/approved granular fill that is placed on approved subgrade. If needed, a geotextile strength and filter fabric (such as, Mirafi 600X) may be used to line the excavation bottom for the purpose of stabilizing the excavation and placement of the select/approved granular fill. Alternatively, in heated buildings the interior footings are recommended to bear two and one-half feet or lower below finish floor at relative elevation 97.50 ± feet and on the same soil/fill conditions as the exterior footings.

Undercut areas beneath proposed foundations must extend laterally beyond each vertically projected edge of the foundation by a minimum distance equal to one-half the total depth of the undercut or equating to a slope of two vertical to one horizontal from the bottom foundation corner. The undercuts and placement of compacted select/approved granular fill are required to ensure a suitable and more uniform bearing media for the footings, and to prevent unacceptable differential settlements.

Column footings should have a minimum three-foot width. Based on the above described conditions, the recommended maximum net allowable foundation bearing pressure is 2,500 pounds per square foot (psf) of bearing area. All footings for the proposed building are recommended to be designed near the same contact pressure. The recommended maximum net allowable foundation bearing pressure is based on generally accepted design methods for cohesive/fine-grained soil conditions. Based on the provisions of the above recommendations and estimated design requirements and utilization of proper construction procedures and experienced field supervision and testing personnel, total and differential settlements are estimated to be less than one inch and 3/4's inch, respectively. Refer to Appendix D for additional foundation design and construction details.

Additional Foundation Considerations: In addition to the above, the following recommendations will provide additional assurances with regard to proper foundation construction.

a) All fill placed beneath, adjacent, or above foundations must comply with the "General Earthwork Specification", included as Appendix E.

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b) Backfill of foundations with approved select granular fill must be completed prior to placement of substantial superstructure loads, except for basement walls or substructure areas that may additionally require superstructure loads and possibly internal bracing.

c) The upper silty materials may rut and “pump” if exposed to excessive surface water and repeated construction traffic. Proper site management and fill placement operations are needed to minimize costly undercuts and subgrade repairs prior to placement of concrete slabs and asphalt pavement. It is noted that construction during wet/rainy and/or Fall and Spring conditions may require added precautions and possibly a thicker base layer to maintain a stable subgrade condition.

d) Step footings, if utilized, should have a rise to run ratio of 1:2, with a two-foot maximum rise and a four-foot minimum run between steps or as recommended by the design structural engineer.

e) The recommended at rest (rigid wall), active, and passive static earth pressure coefficients for unsaturated, select granular sandy gravel fill against an earth retaining structure/wall are 0.76, 0.24, and 2.8 (with an ultimate value of 4.2), respectively. The respective equivalent static lateral fluid pressures are recommended to be 90, 30 and 330 (with an ultimate value of 500) pounds per square foot (psf) per foot depth which are based upon a moist, compacted unit backfill weight of 120 pounds per cubic foot (pcf). The at rest value would account for the average expected compaction induced stresses and/or the potential influences of hydrostatic pressure. The static lateral fluid pressures can be directly proportioned for other unit weights.

Stabilization of Excavations: The trench/excavation sidewall stability concerns can be addressed with the Occupational Safety and Health Act (OSHA) requirements as set forth in Subpart P of 29 CFR Part 1926, Sections 1926.650 to 1926.652. In lieu of a properly designed shoring system, side slopes of the trench excavation should be one on one (vertical to horizontal distance) or flatter in cohesive soils or one on one and one-half or flatter in the granular materials, as required by OSHA.

Water must not be allowed to accumulate or pond on exposed foundation bearing grades. Surface water and groundwater from within the excavation must be either pumped, diverted or channelized by gravity flow to effectuate the construction of the proposed foundation. Pockets of localized perched groundwater may seasonally be expected to be encountered at footing and/or footing undercut bearing grades. At these locations, dewatering with surface sumps may be required to maintain stable side slopes and excavation bottom.

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Concrete Interior Floor Slab(s)/Pad: A geotextile fabric (such as, Mirafi 600X or equal) that separates the subgrade and the approved/select granular base layer is recommended for sensitive cohesive/fine-grained/silty subgrade soil/fills. This approach will stabilize and provide a workable building pad condition with minimal required repairs. The approved subgrades will most likely consist of stiff or better/thoroughly compacted (i.e., minimum 92 percent of the maximum dry density by ASTM D 1557) cohesive silt and clay, and/or a thoroughly compacted imported select/approved granular fill.

Above the approved subgrades, a minimum eight-inch thick for lightly loaded areas and minimum 12-inch thick for heavily loaded areas select granular fill (i.e., number two crusher run stone or equal) layer is recommended as the base course for concrete floor slabs. The NYSDOT specification numbers for typical aggregate subbase/base course components are Item No. 304.12 (Metric) Subbase Course, Type 2 (< 2-inch maximum), which is preferred, or Item No. 304.14 (Metric) Subbase Course, Type 4 (< 2-inch maximum). This select granular base layer would be compacted to a minimum 95 percent of the maximum dry density by ASTM D 1557. The floor slabs in any lightly loaded areas are recommended to have a minimum four-inch thickness, while heavily loaded areas are recommended to have a minimum six-inch thickness or as determined by the design structural engineer. The floor slab reinforcement should be provided through placement of wire mesh or plastic fibers and is also as determined by the design structural engineer.

At the discretion of the design architect, a vapor barrier may be considered for use in the proposed structure. The use of a thin gravel cushion, as a capillary break, or a thin sand cushion over a vapor barrier that is placed beneath the concrete slab(s) are at the discretion of the design architect/engineer or as required by local code. Gradations of gravels that are satisfactory capillary breaks include 1 ¼-inch or ¾-inch crushed stone or aggregate per the ASTM D2321 Types IA, IB and II with less than 5 % fines. A number two crusher run stone may also be applicable, but the gradation and material property specifications must qualify.

At the assumed final site grade and based upon the thickness and character of the underlying natural soils, the subgrade modulus is recommended not to exceed 150 pounds per cubic inch (pci). A Poisson Ratio of 0.4 is recommended for design purposes. Isolation of the floor slabs from the footings-piers-columns and walls do appear to be warranted. Based upon the subgrade modulus and slab mechanical properties and thickness, the design structural engineer may accordingly adjust the granular aggregate base thickness.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Exterior Concrete Slabs-On-Grade/Pad/Parking and Roadway Facilities: The characteristics of the cohesive natural glacial till, and the known frost penetration in Western New York require that specific attention is provided to the design and construction of paved roadway and parking areas. For new pavement sections, isolated pockets of surficial silty/cohesive/fine-grained soil/fill may be encountered and may be too soft and wet in the proposed parking and roadway areas. These types of soil/fill may be adequately conditioned (i.e., dried and blended) and compacted (i.e., minimum 90 percent compaction) to support necessary construction equipment and normal pavement section. Otherwise, the removal/undercutting of the silty/cohesive/fine-grained soil/fill to a firm, approved subgrade and subsequent placement and compaction of select or approved granular fill will be required in order to accommodate the recommended pavement sections.

For new pavement sections, it is recommended that the subgrade surface is adequately graded and/or underdrains are installed to prevent water accumulation. Above the approved subgrade surface (i.e., minimum 90 percent compaction), a minimum eight-inch thick select granular layer is recommended as the base course for lightly traveled roadway and parking areas (standard duty section). A geotextile filter and strength fabric (such as, Mirafi 600X or equal) on silty/cohesive/fine-grained soil subgrades and minimum 12-inch thick base course are recommended for all truck routes and heavily traveled roadways (heavy duty section). If “pumping” of the silty/cohesive/fine-grained soil subgrade occurs or is difficult to stabilize during construction, an increase in the base thickness to that of the heavy-duty section and/or a geotextile filter and strength fabric is recommended to be placed on the prepared and approved subgrade for the standard duty section. The NYS Department of Transportation (NYSDOT) specification numbers for typical aggregate subbase/base course components are Item No. 304.12 (Metric) Subbase Course, Type 2 (< 2-inch maximum size), which is preferred, or Item No. 304.14 (Metric) Subbase Course, Type 4 (< 2-inch maximum size). The granular aggregate base layer is recommended to be compacted to at least 95 percent of maximum dry density by ASTM D1557.

The thickness of top and binder course layers should be determined in accordance with AASHTO methods. In summary, the minimum recommended asphalt thicknesses for the heavy-duty section and standard duty section are three and one-half inches and three inches, respectively. The top and binder course layers are recommended to be designed and constructed in accordance with New York State Department of Transportation Standard Specification.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

Limitations, Field Inspections and Monitoring: This report is based on the preliminary information that is provided by project representatives and the subsurface conditions that were encountered at the test boring locations. Due to the nature of the investigation method, test pit excavation will provide a greater level of delineation of the subsurface soil/fill/rock conditions than can be defined by the test boring data alone. As detailed in Appendix F "Limitations", modification regarding proposed building/structure locations and other site developments can result in changes to provided recommendations. It is recommended that the geotechnical engineer be provided the opportunity to generally review the final detailed design and contract specifications. Required earthwork and foundation construction should be done under the supervision of experienced construction personnel and in a manner consistent with proven methods. All site work should be carefully monitored and tested by experienced geotechnical personnel to assure compliance with earthwork and foundation construction specifications.

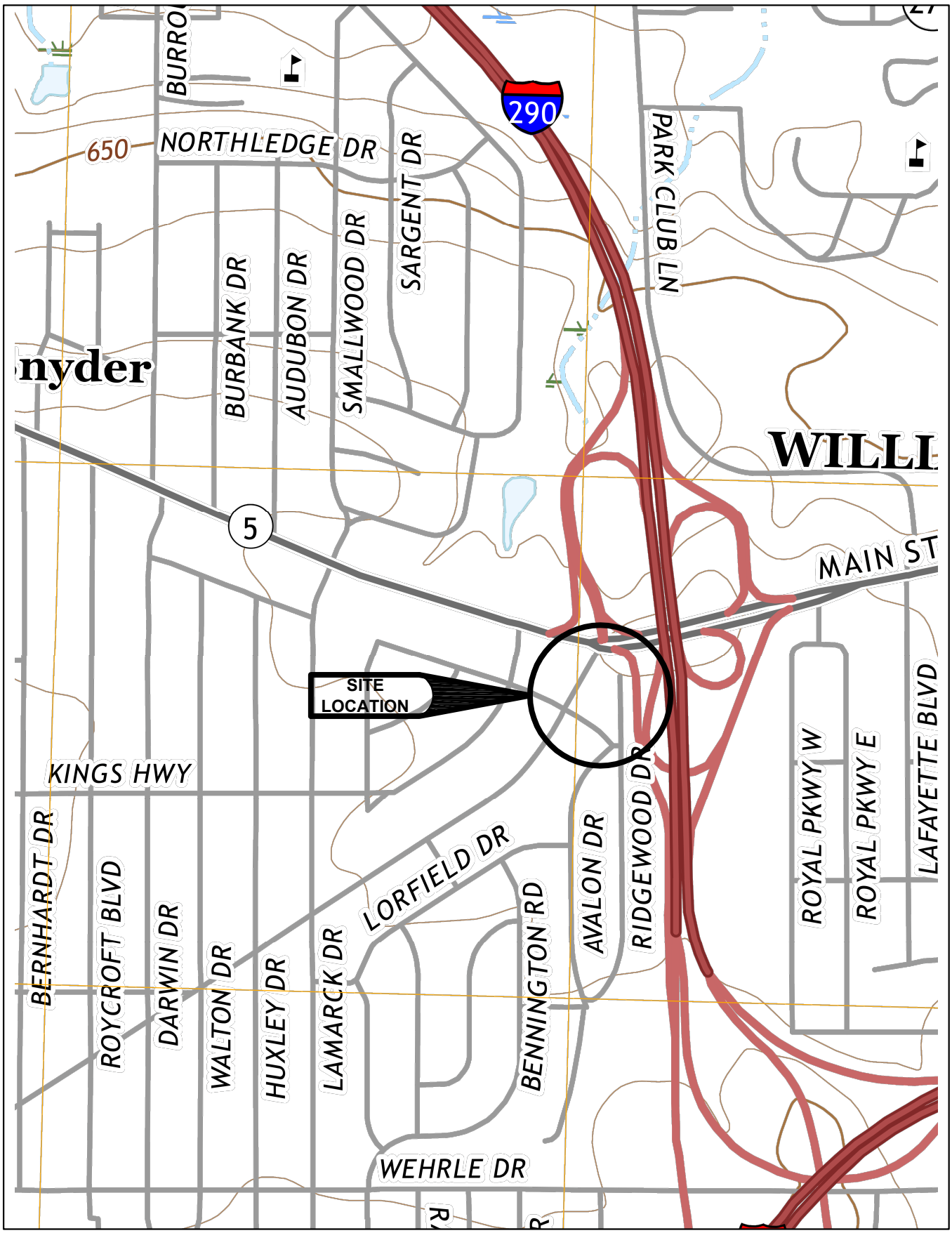
Thank you for the opportunity to assist on this project. If questions should arise, please call the undersigned at your earliest convenience.

Very truly yours,
BARRON & ASSOCIATES, INC.
and
BUFFALO DRILLING COMPANY, INC.

Andrew J. Camping, PG
Senior Geologist

James S. Barron, PE
President/Geotechnical Engineer

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)



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DRAWN: DAN KASPROWICZ

CLIENT: MR. TODD SHATKIN, D.D.S.
2500 KENSINGTON AVENUE
AMHERST, NEW YORK 14226

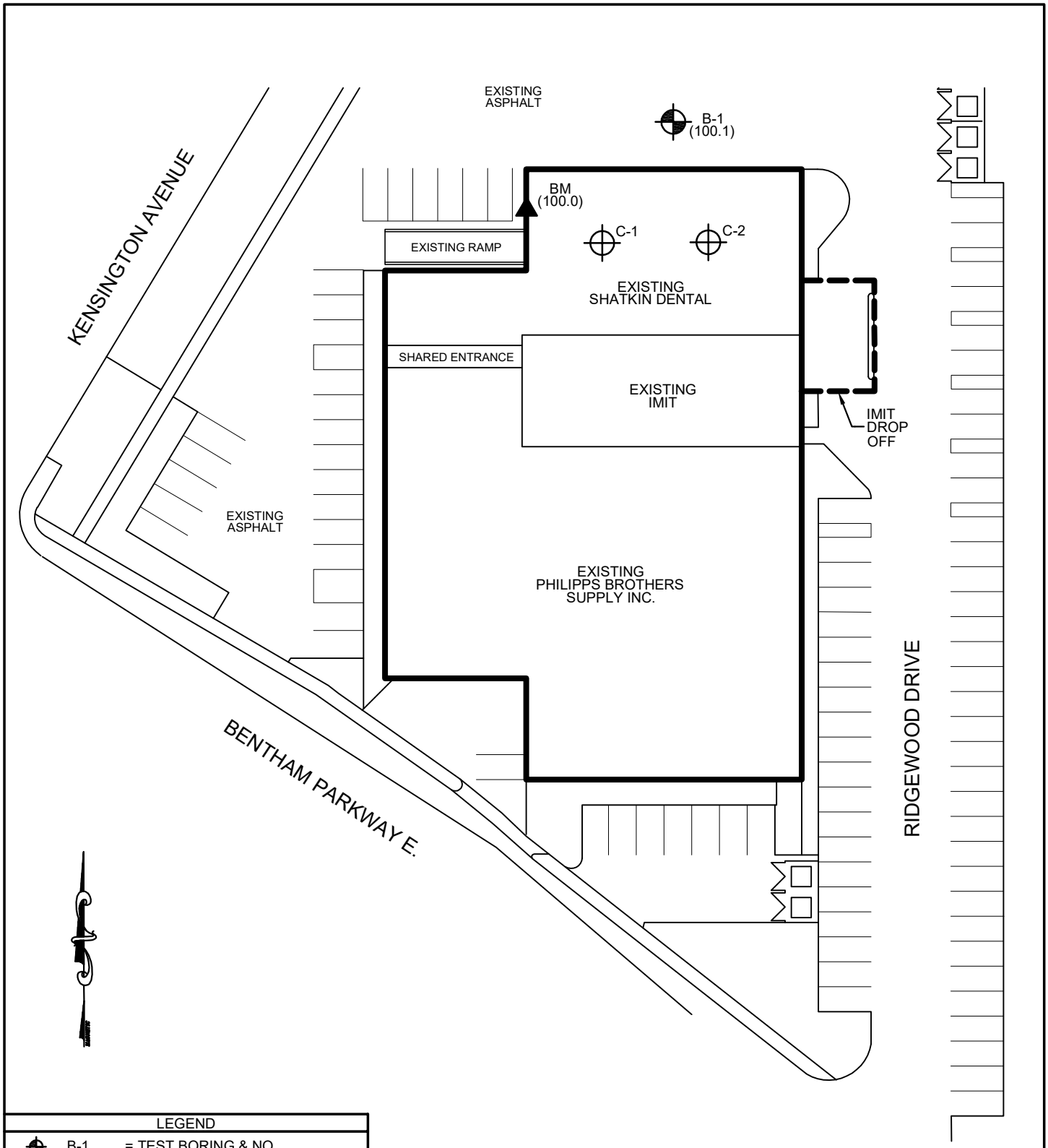
PROJECT: PROPOSED MEZZANINE AT
SHATKIN SCHOOL OF DENTISTRY
2525 KENSINGTON AVENUE
TOWN OF AMHERST,ERIE CO., NEW YORK 14226

NEW YORK STATE
SITE LOCATION

USGS SITE LOCATION PLAN
BUFFALO NE
2019

JOB NO.: 21-599 | SCALE: N.T.S.
DATE: 8/10/2021 | FIGURE NO. 1

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)



LEGEND

⊕	B-1	= TEST BORING & NO.
⊕	C-2	= CONCRETE CORE & NO.
	(100.1)	= RELATIVE GROUND SURFACE ELEVATION (FT.)
▲	BM	= BENCH MARK (FINISH FLOOR OF EXISTING BUILDING)

NOTES:

1. BORING, CONCRETE CORES, BUILDINGS, SITE FEATURES, PROPERTY LINE LOCATIONS, & SCALE OF DRAWING ARE APPROXIMATE.
2. BASE MAP REFERENCE PROVIDED BY STIEGLITZ SNYDER ARCHITECTURE, TITLED "SITE PLAN - SHATKIN SCHOOL OF DENTISTRY DAMEN COLLEGE - INSTITUTE FOR MOBILITY AND TECHNOLOGY", DATED 6/1/2021.

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PROJECT: PROPOSED MEZZANINE AT
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TEST BORING AND CONCRETE CORE LOCATION PLAN

0 25 50 100

JOB NO.: 21-599	SCALE: 1" = 50' ±
DATE: 8/10/2021	FIGURE NO. 2

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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APPENDIX A

TEST BORING AND CORE LOGS

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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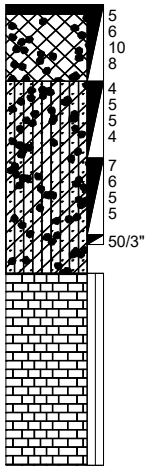
TEST BORING LOG

2.a

JOB No.: 21-599 **BORING No.:** B-1

PROJECT: Proposed Mezzanine and Drop-Off Canopy at Shatkin School of Dentistry
2525 Kensington Avenue, Town of Amherst, Erie Co., New York 14226

DRILLER:	D. Rimbeck	**TYPE OF DRILL RIG:**	CME 55 (Truck)
SAMPLING METHODS:	ASTM D1586 & D2113	**SIZE AND TYPE OF BIT:**	4 1/4" H.S.A. & Nx Core
DATE STARTED:	8/13/21	**SURFACE ELEVATION (ft.):**	100.0
DATE COMPLETED:	8/13/21	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None

Elevation/ Depth (feet)	Soil Symbols Sampler Symbols Field Test Data	Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
100 — 0					
		S-1 : 0.0'- 2.0'	16	30	Asphalt (3"+/-) Gray, m. dense f/c sand to gravel-sized Crushed Limestone, moist (GV Fill)
		S-2 : 2.0'- 4.0'	10	50	Brown, stiff CLAY, and SILT, little f/c Sand, tr. Gravel, sl. to mod. plast wet (CL-Till)
95 — 5		S-3 : 4.0'- 6.0'	11	0	Same as S-2 (No Recovery)
		S-4 : 6.0'- 6.3'	50+	0	...grade: hard (No Recovery)
90 — 10		C-1 : 7.0'- 12.0'	-	53 (30)	ONONDAGA LIMESTONE: med. dark gray, finely crystalline, thin bedded, LIMESTONE, porous, calcareous, sl. weathered, hard (ONONDAGA LIMESTONE) # pieces > 1": 8 # pieces > 4": 4 longest piece: 5" *(Vertical fracture observed in lower half of retrieved core sample.)*
85 — 15					Depth to Bottom of Hole: 12.0 feet
80 — 20					
75 — 25					
70 — 30					
65 — 35					

Logged by: B. Smith

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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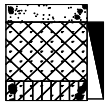
TEST BORING LOG

2.a

JOB No.: 21-599 **BORING No.:** C-1

PROJECT: Proposed Mezzanine and Drop-Off Canopy at Shatkin School of Dentistry
2525 Kensington Avenue, Town of Amherst, Erie Co., New York 14226

DRILLER:	D. Rimbeck	**TYPE OF DRILL RIG:**	Hand Sampler
SAMPLING METHODS:	ASTM D420	**SIZE AND TYPE OF BIT:**	2" I.D. Split Spoon
DATE STARTED:	8/13/21	**SURFACE ELEVATION (ft.):**	100.0
DATE COMPLETED:	8/13/21	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None

Elevation/ Depth (feet)	Soil Symbols Sampler Symbols Field Test Data	Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
100 — 0					Concrete Floor Slab (5.5")
		S-1 : 0.5'- 2.5'	-	70	Dk. gray, f. Sand, little to tr. Silt, tr. Gravel, moist (SM-Fill) *(Appears to be foundry sand.)*
					Brown, stiff CLAY and SILT, little f/c Sand, tr. Gravel, sl. to mod. plasti moist (CL-Till)
					Depth to Bottom of Hole: 2.5 feet
95 — 5					
90 — 10					
85 — 15					
80 — 20					
75 — 25					
70 — 30					
65 — 35					

1. Concrete floor slab approximately 5.5" thick with welded wire mesh 1.75 inches from bottom.
2. Manually advanced split spoon sampler into ground to retrieve samples after coring.

Logged by: B. Smith

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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10440 MAIN STREET
CLARENCE, NEW YORK 14031
(716) 759-7821 FAX: (716) 759-7823

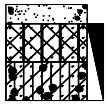
TEST BORING LOG

2.a

JOB No.: 21-599 **BORING No.:** C-2

PROJECT: Proposed Mezzanine and Drop-Off Canopy at Shatkin School of Dentistry
2525 Kensington Avenue, Town of Amherst, Erie Co., New York 14226

DRILLER:	D. Rimbeck	**TYPE OF DRILL RIG:**	Hand Sampler
SAMPLING METHODS:	ASTM D420	**SIZE AND TYPE OF BIT:**	2" I.D. Split Spoon
DATE STARTED:	8/13/21	**SURFACE ELEVATION (ft.):**	100.0
DATE COMPLETED:	8/13/21	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None

Elevation/ Depth (feet)	Soil Symbols Sampler Symbols Field Test Data	Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
100 — 0					Concrete Floor Slab (6")
		S-1 : 0.5'- 2.5'	-	65	Dk. gray, loose, f. Sand, little to tr. Silt, tr. Gravel, moist (SM-Fill) *(Appears to be foundry sand.)*
					Brown, stiff CLAY and SILT, little f/c Sand, tr. Gravel, mod. to sl. plasti moist (CL-Till)
					Depth to Bottom of Hole: 2.5 feet
95 — 5					
90 — 10					
85 — 15					
80 — 20					
75 — 25					
70 — 30					
65 — 35					

1. Concrete floor slab approximately 6" thick with welded wire mesh 0.5 inches from bottom.
2. Welded wire mesh is not fulling integrated within floor slab at this location.
3. Manually advanced split spoon sampler into ground to retrieve samples after coring.

Logged by: B. Smith

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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APPENDIX B

GEOTECHNICAL REFERENCE STANDARDS

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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Column Header Descriptions

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BUFFALO DRILLING COMPANY, INC.
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CLARENCE, NEW YORK 14031
(716) 759-7821 FAX: (716) 759-7823

TEST BORING LOG

JOB No.: BORING No.:

PROJECT:

EXAMPLE

DRILLER:
SAMPLING METHODS:
DATE STARTED:
DATE COMPLETED:

TYPE OF DRILL RIG:
SIZE AND TYPE OF BIT:
SURFACE ELEVATION (ft.):
GROUNDWATER DEPTH (ft.):
(measured at completion unless indicated below)

Elevation/ Depth (feet)	Soil Symbols Sampler Symbols Field Test Data	Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
100 — 0	1 1 1 2 / 6 8 11 14	S-1 : 0.0'- 2.0'	2	50	Dk. brown, soft, CLAY, some Silt, little f. Sand, tr. Gravel, tr. Roots, tr. Organic matter, mod. plastic, wet (CL)
		S-2 : 2.0'- 4.0'	19	50	Brown, m. dense f. SAND, some Silt, tr. Gravel, tr. Clay, tr. Roots, non-plastic, moist (SM)

Elevation/Depth: The depth column provides the vertical scale of the boring log in feet below ground surface.

Sample No. : Range: Disturbed samples are identified with “S” preceding the sample number. Undisturbed (Shelby-tube) samples are identified with “U” preceding the sample number. Rock core samples identified with “C” preceding the core run. The range of elevation/depth where the sample was taken is identified in one-tenth foot increments.

N-value: The Standard Penetration Test N-value, as specified by ASTM D1586, is defined as the number of blows required by a 140-pound hammer falling 30 inches, each blow, to drive a 2-in outside diameter split-spoon sampler 12 inches.

% REC (RQD): “Percent Recovery” is the length of samples recovered divided by the total length sampled. The result is numerically expressed as a percent. The Rock Quality Designation (RQD) is the total length of places >4 inches divided by the total length of core run.

Soil and Rock Description / Remarks: This column denotes the exact depth of recovery and general documentation of drilling efforts. Description and classification are based on visual inspection of samples and boring operations. The stratum lines shown on the boring logs are based upon interpretation and may not represent precise subsurface conditions. Water-level readings have been made in the drill holes at time under conditions stated on the boring logs. Fluctuations in the water level may occur due to other factors than those present the time measurement was taken. See attached sheet.

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Soil and Rock Description / Remarks: Terminology Used for Soil Description

Density Description of Granular Soil

Number of Blows per ft., N	*Relative Density*
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium
30 - 50	Dense
Over 50	Very Dense

Abbreviations Used in Soil Sample Classification

f - fine	v - very
m - medium	gr - gray
c - coarse	bn - brown
f/m - fine to medium	yel - yellow
f/c - fine to coarse	sl - slight
tr - trace	dk - dark

Consistency Description of Cohesive Soil

Number of Blows per ft., N	*Consistency*
Below 2	Very Soft
2 - 4	Soft
4 - 8	Medium
8 - 15	Stiff
15 - 30	Very Stiff
Over 30	Hard

Bedding

Parting	Less than 0.02 ft.
Band	0.02 - 0.2 ft.
Thin bed	0.2 - 0.5 ft.
Medium bed	0.5 - 1.0 ft.
Thick bed	1.0 - 2.0 ft.
Massive	Over 2.0 ft.

Grain Size

	Passing / Retained on
Boulder	LARGE / 12-in sieve
Cobble	12-in / 3-in sieve
Gravel	3-in sieve / No. 4 sieve
	No. 4 sieve / No. 10 sieve
Sand	No. 10 sieve / No. 40 sieve
	No. 40 sieve / No. 200 sieve
Silt	No. 200 sieve / 0.005 mm sieve
Clay	Smaller than 0.005 mm

Hardness

Very Soft or Plastic	Can be indented with thumb
Soft	Can be scratched with fingernail
Moderately Hard	Can be scratched with knife
Hard	Difficulty to scratch with knife
Very hard	Cannot be scratched with knife

Percentage Terminology Used in Soil Classification

Trace	0 - 10 %	Some	20 - 35 %
Little	10 - 20 %	And	35 - 50 %

Moisture

Dry	Absence of moisture, dusty, dry to the touch.
Moisture	Small quantity of moisture. Soil usually above groundwater level.
Wet	Moisture noticeable to the touch. Soil may be below groundwater level.
Saturated	Visible free water, usually soil is below groundwater level.

Plasticity

Non-plastic	An 1/8-in thread cannot be rolled at any water content.
Slight plasticity	Thread can be barley rolled.
Moderate plasticity	Thread is easy to roll and little time is required to reach the plastic limit (PL).
Plasticity	Considerable time is required to reach PL. Thread can be re-rolled several times after reaching the PL.

Crystallinity or Texture

Dense	Crystals are to small they cannot be distinguished with the naked eye.
Very Fine Crystalline	Crystals barely discernable with the naked eye.
Crystalline	Crystals are medium size, up to 1/8-in diameter.
Very Coarsely Crystalline	Crystals larger than 1/8-in diameter.

Voids

Porous	Smaller than pinhead. Their presence is indicated by the degree of absorbency.
Pitted	Pinhead size to 1/4 in. If thin walls separate the individuals pits, the core may be described as honeycomb.
Vug	1/4 inch to the diameter of the core. The upper limit will vary with core size.
Cavity	Larger than the diameter of the core.

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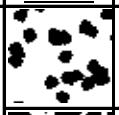
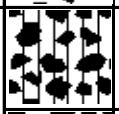
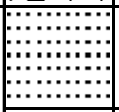
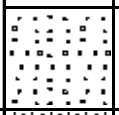
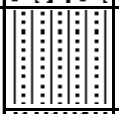
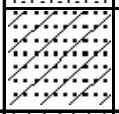
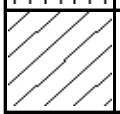
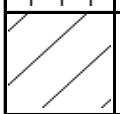
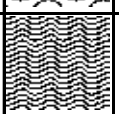
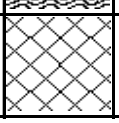
Soil Classification Chart: Unified Soil Classification System (USCS)

Major Divisions			Pattern	USCS ID	Typical Descriptions
Coarse-Grained Soils: More than 50% of material larger than No. 200 sieve	**Gravels**: More than 50% of coarse fraction larger than No. 4 sieve	Clean Gravels (little or no fines)		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		Gravels with appreciable amounts of fines		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-silt mixtures
	Sands: Less than 50% of coarse fraction larger than No. 4 sieve	Clean sands (little or no fines)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		Sand with appreciable amount of fines		SM	Silty sands, silt-sand mixtures
				SC	Clayey sands, sand-clay mixtures
Fine-Grained Soils: Less than 50% of material larger than No. 200 sieve	**Silts and Clays, Low plasticity**: Liquid Limit < 50%			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays, High plasticity: Liquid Limit > 50%			MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
Highly Organic Soils				Pt	Peat, humus, swamp soils with organic contents
Miscellaneous Fill				FILL	Miscellaneous fill may belong in any division but is identified as FILL

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Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

APPENDIX C

FLOOR SLAB CORE PHOTOGRAPHS

21-599 Floor Slab Core, C-1; Top View



Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

21-599 Floor Slab Core, C-1; Side View



Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

21-599 Floor Slab Core, C-2; Top View



Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)



21-599 Floor Slab Core, C-2; Side View

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

21-599 Floor Slab Core, C-2; Bottom View



Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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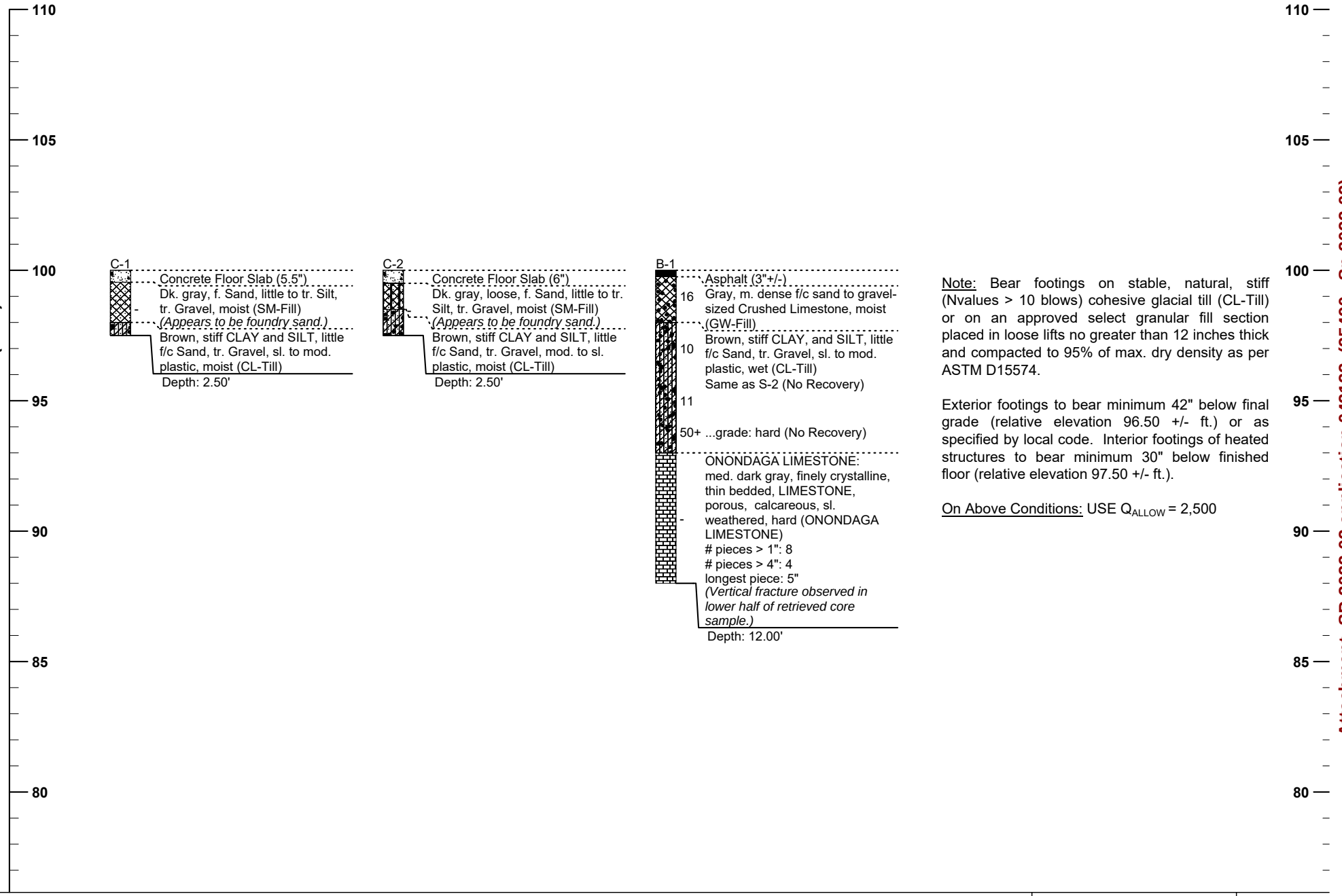
APPENDIX D

ENGINEERING COMPUTATIONS AND SCHEMATICS

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

"PROFILE OF BORINGS"



Note: Bear footings on stable, natural, stiff (Nvalues > 10 blows) cohesive glacial till (CL-Till) or on an approved select granular fill section placed in loose lifts no greater than 12 inches thick and compacted to 95% of max. dry density as per ASTM D15574.

Exterior footings to bear minimum 42" below final grade (relative elevation 96.50 +/- ft.) or as specified by local code. Interior footings of heated structures to bear minimum 30" below finished floor (relative elevation 97.50 +/- ft.).

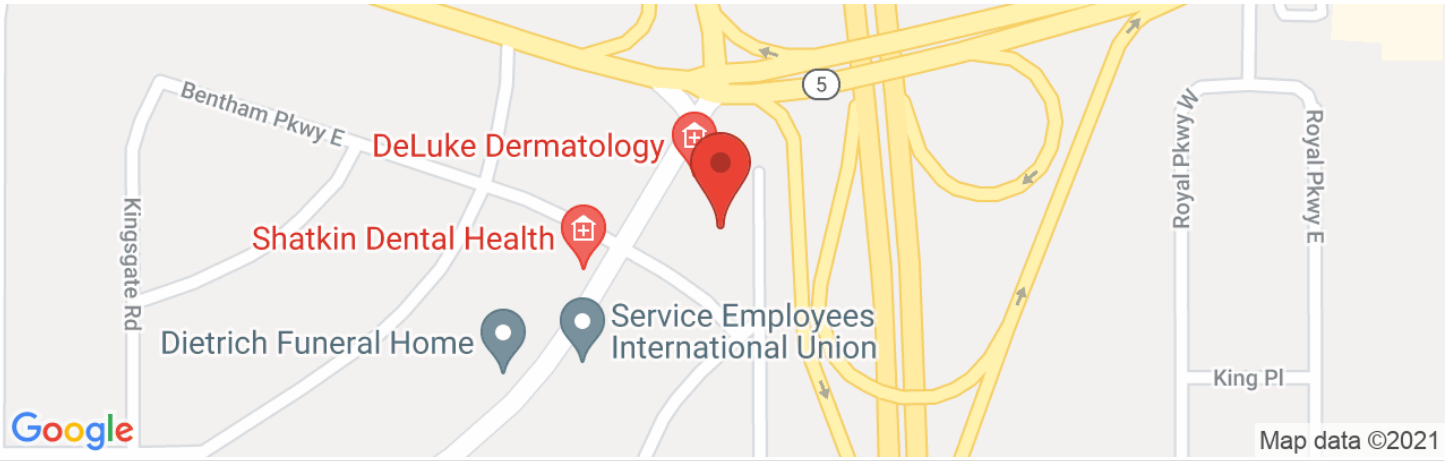
On Above Conditions: USE Q_{ALLOW} = 2,500

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

BARRON & ASSOCIATES, P.C. & BUFFALO DRILLING COMPANY, INC. 10440 MAIN STREET, CLARENCE, NEW YORK 14031	PLOTTED: 10/14/2021 BY: A. Camping	JOB NO.: 21-599
PROJECT: Proposed Mezzanine and Drop-Off Canopy at Shatkin School of Dentistry 2525 Kensington Avenue, Town of Amherst, Erie Co., New York 14226	PAGE NO.: 1 of 3	FIGURE NO.:

Mezzanine and Canopy, 2525 Kensington Ave., Amherst, NY 14226

Latitude, Longitude: 42.9580, -78.7680



Date	10/14/2021, 3:49:34 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	C - Very Dense Soil and Soft Rock

Type	Value	Description
S_S	0.169	MCE_R ground motion. (for 0.2 second period)
S_1	0.045	MCE_R ground motion. (for 1.0s period)
S_{MS}	0.22	Site-modified spectral acceleration value
S_{M1}	0.068	Site-modified spectral acceleration value
S_{DS}	0.146	Numeric seismic design value at 0.2 second SA
S_{D1}	0.045	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	A	Seismic design category
F_a	1.3	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.094	MCE_G peak ground acceleration
F_{PGA}	1.3	Site amplification factor at PGA
PGA_M	0.123	Site modified peak ground acceleration
T_L	6	Long-period transition period in seconds
SsRT	0.169	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	0.176	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.045	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.048	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.958	Mapped value of the risk coefficient at short periods

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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B&A JOB NO.: 21-599

DATE: 10/14/21

LATERAL EARTH PRESSURE ON GENERIC BLOCK FOUNDATIONS FOR SIGNS, FREE-STANDING RETAINING WALLS, OR BELOW GRADE/BASEMENT/TANK/POOL RETAINING WALLS (Less Than 20 Feet High)

a) Porous filter media, in contact with the basement/below grade foundation wall or retaining walls, protects and is in contact with a minimum 4 inch diameter perforated drainage pipes at the footing/base of the foundation/structural wall (exterior backfill side and interior basement side) and/or weep pipes through the wall, as needed and as applicable.

b) Where recommended, a geotextile filter fabric will protect the gravel filter media from the earth backfill. Overlap unsewn seams as per the manufacturer's recommendations.

c) Waterproof earth side of wall, as is customarily provided in practice.

d) Drainage pipes are connected to an appropriately designed collector pipe, conveyance, and/or sump pump system as is applicable for the intended purpose of the wall and as customarily provided/installed in practice.

e) For potential groundwater table conditions above the top of the basement slab-on-grade condition, install continuous waterstops (with no joints in stop) at wall and floor construction joints, as is customarily provided in practice. Interior intermediate drainage pipes beneath the slab, that are spaced on-center and in both directions, do appear to be needed.

f) Assume a uniformly graded, clean coarse sand or sandy gravel backfills:

* equivalent N-value in a dense state: $(N_1)_{60}$ = 40 blows/foot
* friction angle: ϕ' = 38 degrees {Teng, pg. 12}
* average in-place densities: moist - γ_m = 120 pcf
  saturated - γ_{sat} = 132 pcf submerged - $\gamma' = (\gamma_{sat} - \gamma_w)$ = 70 pcf

g) Assume at base of wall/footing, coefficient of friction against sliding (f_s) at base of wall (Refer to Teng, pg. 320-1):

f_s = tan (0.58 x ϕ') = 0.40 (AREA silty soil to silty coarse-grained soil)

h) Use equivalent fluid pressure design approach {Hough, pg. 249 and NAVFAC pg. 7-10-9}:

* at rest pressure coefficient - K_0 = 1 - sin (ϕ') = 0.38
* effective lateral pressure of soil - γ'_l = K_o x γ' = 26.6 pcf
* hydrostatic pressure - γ_w = 62.4 pcf
* equivalent fluid pressure with water level at the top of the grade at the wall - γ_{eo} = $\gamma'_l + \gamma_w$ = 89 pcf (say 90 pcf)
* equivalent fluid pressure with compaction induced lateral stress increase (W&F, pg 409) - γ_{eo} = 2 x K_o x γ_m = 91 pcf (say 90 pcf)
* active pressure case - K_a = [1 - sin (ϕ')] / [1 + sin (ϕ')] = 0.24
  γ_{ea} = K_a x γ_m = 29 pcf (say 30 pcf)
* passive pressure case - K_p = [1 + sin (ϕ')] / [1 - sin (ϕ')] = 4.2
  γ_{ep} = K_p x γ_m = 504 pcf (say 330 pcf with a F.S. = 1.5)

		Thoroughly Compacted ⇒⇒		Uniformly Graded & Clean Coarse Sand or Sandy Gravel Fill	Non-Plastic Silty Sand or Sandy Silt Fill	
USE:	Earth Pressure Coefficient	Static Active	=	0.24	0.33	
		Static At-Rest	=	0.76	1.00	
		Static Passive	=	2.80	2.00	(with F.S. = 1.5)
		Static Passive	=	4.20	3.00	(with F.S. = 1.0)
USE:	Equivalent Fluid Pressure	Static Active	=	30 pcf		
		Static At-Rest	=	90 pcf (for rigid walls)		
		Static Passive	=	330 pcf (with F.S. = 1.5)	[500 pcf with (with F.S. = 1.0)]	

[For earthquakes, structural engineer may elect to use the above Static Passive case instead of the below Earthquake Lateral Load for Non-Yielding Wall movement into the soil backfill.]

USE: Simplified Model for Earthquake Lateral Load/Ft. Wall Length @ 0.6 H_{bw} above base. Loads for Non-Yielding Wall.

H_{bw} = Earth Height Behind Wall (feet)

Reduce load by 33% for Yielding Wall (active case) = (6.8 psf / foot) x H_{bw}^2 (NYS, S_{ds} = 0.25 g)

(γ_m = 120 pcf for S_{ds} value. Add to Static At Rest/ Active Pressure/Load for unsaturated backfill case) = (13.5 psf / foot) x H_{bw}^2 (NYS, S_{ds} = 0.50 g)

= (17.5 psf / foot) x H_{bw}^2 (NEern NYS, $S_{ds} \leq 0.65$ g)

[Above for Site Class C to E soils. Interpolate for other S_{ds} values.
Use 1.75 x values for walls on Class B/A rock or on rigid foundation base. (FEMA NEHRP Guidelines)]

Saturated/Liquified Soil During Earthquake = 132 pcf
(Equivalent Fluid Pressure. Add to inertial hydrodynamic pressure, not presented here.)

{For looser/denser backfills, adjust above pressures by the ratio = new density / 120 pcf or / 132 pcf (for saturated case)}

USE:	Coefficient of Friction Against Sliding (f_s)	=	0.45	(on compacted NYSDOT Item #304.12 or #304.14 gravels)
	(use lowest f_s with no underlying weaker layers)	=	0.35	(on compacted granular soil & non-plastic silt)
		=	0.20	(slab-on-grade on polyethylene on granular fill)
	[with a F.S. = 1.0]	=	0.60/0.50	(on clean, rough, & sound bedrock/smooth bedrock)
	Min. Factor of Safety Against Sliding	=	1.5	*[Rev.9-30-09]*

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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APPENDIX E

GENERAL EARTHWORK SPECIFICATION

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

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GENERAL EARTHWORK SPECIFICATIONS

1. GENERAL

1.1. SITE AND SUBSURFACE CONDITIONS

1.1.1. Overview

This specification is included as a courtesy to the clients of *Barron & Associates, PC* and addresses earthwork site preparation. Additions and modifications are necessary to create a job-specific specification. This specification may serve as a basis for the development for a technical specification under Division 31 (Earthwork) and Division 32 (Exterior Improvements).

1.1.2. Site Conditions

The site-specific conditions are described under separate cover or may be available from the OWNER.

1.1.3. Subsurface Conditions

The site-specific subsurface conditions are described under separate cover or may be available from the OWNER.

1.2. REFERENCES

1.2.1. American Standard for Testing and Measurement (ASTM)

- ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- ASTM D6938 Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
- ASTM D7928 Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis
- ASTM D1140 Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing
- ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3))
- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

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- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D1883 Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils

1.2.2. Other

- 2018 International Building Code (IBC)
- 2020 Building Code of New York State
- 2020 Residential Code of New York State
- 2021 MasterSpec

1.3. DEFINITIONS

1.3.1. Unacceptable Material

Soil material containing debris, wood, scrap material, vegetation, refuse, soft unsound particles, and other organic, frozen, deleterious, or objectionable materials. Contaminated soils shall be properly documented and removed or remediated on site. If necessary, remediation procedure will be defined by the OWNER.

1.3.2. Unsuitable Material

Brown, organic topsoil and underlying soft pockets of organic silt or wet, reworked silty clay.

1.3.3. Ordinary Fill

Friable soil containing no stone greater than two-thirds loose lift thickness and no unacceptable or unsuitable materials. In general, existing random fill is expected to be acceptable for reuse as ordinary fill given proper sorting, blending, drying, and controlled placement methods.

1.3.4. Granular Fill

Ordinary fill meeting the designation of ASTM D2487 classification of GW with a maximum of 10 percent by weight passing ASTM D1140, No. 200 sieve.

1.3.5. Select Granular Fill

Clean, uncoated soil which contains no unacceptable materials and conforms to the gradation requirements defined in Table A: Select Granular Fill.

Table A: Select Granular Fill

Sieve Size	Percent Finer by Weight
⅔ of the loose lift thickness	100
No. 10	30 - 95
No. 40	10 - 70
No. 200	0 - 15

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1.3.6. Sand and Gravel

Clean, hard, durable, uncoated particle of sand and gravel, free from lumps of clay, containing no unacceptable matter, and conforming to gradation requirements of Table B: Sand and Gravel.

Table B: Sand and Gravel	
Sieve Size	Percent Finer by Weight
*	100
No. 4	50 - 85
No. 10	
No. 40	10 - 35
No. 100	
No. 200	0 - 8

* Job-Specific. To be determined by the ENGINEER

1.3.7. Crushed Stone

Clean, durable, sharp-angled fragments of rock or crushed gravel stone of uniform quality, containing no unacceptable matter, free from coatings, and conforming to gradation requirements of Table C: Crushed Stone.

Table C: Crushed Stone		
Sieve Size	Percent Finer by Weight	
	¾-inch Stone	1 ¼-inch Stone
1 ½-inch		100
1 ¼-inch		85 - 100
1-inch	100	
¾-inch	90 - 100	10 - 40
⅝-inch		
½-inch	10 - 50	0 - 8
⅜-inch	0 - 20	
No. 4	0 - 5	

1.3.8. Flowable Fill

Also known as Controlled Low Strength Material – Controlled Density Fill (CLSM-CDF), this material is available under a variety of producer names (e.g., K-Krete©, M-Crete, Flash Fill©, Flowable Mortar, Unshrinkable Fill, etc.). This non-settling backfill mixture is most commonly used for its flowable characteristics, its support strength under traffic loads, and its removability at a later date. The material may be produced on-site or off-site. In either case, the producer

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of such materials and the product must meet certain certification criteria. Such information is beyond the scope of this specification and will be considered on a site-specific basis.

Flowable fill may be acceptable for use as a backfill for utility trenches of other low-lying areas which require a compacted granular fill. Its use and warranty of performance is left to the CONTRACTOR in such applications.

The use of flowable fill under load-bearing structural components in place of properly placed and compacted granular fill is NOT common and is questionable. The localized use of such material may have profound effects on the performance of a foundation system. Site-specific conditions and the extent of anticipated use of flowable fill must be examined by geotechnical engineer. Cost of such consultation shall be borne by the CONTRACTOR unless specifically directed by the OWNER to seek such consultation. Without such consultation, warranty of performance for such use is left to the CONTRACTOR.

1.4. SUBMITTALS

The following submittals shall be provided in accordance with approved submittals procedures.

(1) Fill Source: Provide name and source locations of fill material.

(2) Field Test Reports: Field tests will be performed by OWNER's Representative as needed. CONTRACTOR may be required to perform such tests on proposed off-site fill materials.

(a) Fill material grain size analyses per ASTM C136, D7928, D1140, D2487

(b) Moisture/Density test results per ASTM D2216

(c) Liquid limit, plastic limit, and plasticity index per ASTM D4318

(d) Compaction/Density test results per ASTM D6938 and D1557

(3) Sample: Geotextile fabric

2. PRODUCTS

Geotextile Fabric: Mirafi 600X or equal. (Also referred to as synthetic fabric).

3. EXECUTION

3.1. PROTECTION

3.1.1. General

Manner of excavation shall minimize disturbance of underlying natural ground. If deemed necessary by the Engineer, alter construction procedures to reduce subgrade disturbance.

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Excavate areas which have been excessively disturbed to firm ground and backfill with properly compacted granular fill.

3.1.2. Roads and Walks

Keep roads and walks free of dirt and debris at all times.

3.1.3. Trees, Shrubs, and Existing Facilities

Protect from any damage all vegetation and facilities identified to remain.

3.1.4. Utility Lines

Locate all utilities within the area of disturbance prior to the start of work. Show locations on initial plans. Protect utility lines from damage. Notify the ENGINEER immediately of damage to or an encounter with an unknown utility. Damage to utility lines are to be repaired by the CONTRACTOR at no additional cost. The CONTRACTOR shall have underground utility owners stake out utility locations prior to the start of clearing and excavation operations.

3.2. VERIFICATION OF CONDITIONS / PROOF-ROLLING

Prior to placement of the initial layer of fill over the natural ground, proof-roll the exposed natural ground above the groundwater table elevation by making two passes with a fully-loaded ten-wheel truck. Excavate unstable areas detected by this process and replace with compacted granular fill.

3.3. PREPARATION

3.3.1. Surface Preparation

Within the site limits indicated on the drawings, excavate all unsuitable material to firm natural ground in the manner specified herein. Follow a construction procedure which permits visual identification of firm natural ground. In the even that groundwater is encountered, the ENGINEER may require that the size of the open excavation be limited to that which can be handled by open pumping to allow visual inspection of the excavation bottom and the performance of backfill operations to be conducted in a dry state.

Excavation of unsuitable material shall be limited to the greater of the following:

- A distance of 5 feet beyond building lines or
- The area defined by a one-horizontal to one-vertical line sloping down from the outside bottom edge of exterior footings to firm natural ground.

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3.4. PLACEMENT AND COMPACTION

3.4.1. General

Place fill in accordance with Table D: Compaction Alternatives. These alternatives are provided as minimum compaction standards only and in no way relieve the CONTRACTOR of his obligation to achieve any specified degree of compaction by whatever means may be necessary.

Grade to provide positive drainage and a smooth surface which will readily shed water. To the extent practicable, compact each layer to the specified density on the same day placed. Place fill in horizontal layers. Where horizontal layers meet a natural slope, key layer into slope by cutting a bench.

Fill that is too wet for proper compaction: Disc, harrow, or otherwise dry to proper moisture content for compaction to the required density.

Fill that is too dry for proper compaction: Uniformly apply water over the surface of the loose layer in sufficient quantity to allow compaction to the required density.

Table D: Compaction Alternatives

Compaction Method	Maximum Stone Size	Maximum Loose Lift Thickness (inches)		Maximum Number of Passes	
		Below Structure and Pavements	Less-Critical Areas	Below Structure and Pavements	Less-Critical Areas
Hand operated vibratory plate of light roller in confined areas.	3	4	4	4	4
Hand operated vibratory drum rollers weighing at least 1,000 pounds in confined areas.	4	6	8	4	4
Loaded 10-wheel truck or D-8 crawler.	6	10	12	4	2
Light vibratory drum roller; Min. weight at drum 8,000lbs; Min. dynamic force 10,000lbs.	8	12	12	6	2
Minimum vibratory drum; Min. weight at drum 10,000lbs; Min. dynamic force 20,000lbs.	8	18	18	6	4

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3.4.2. Dewatering

Provide adequate pumping and drainage facilities to keep excavated areas sufficiently dry of groundwater and surface run-off. Dewatering shall avoid adversely affection construction procedures or causing excessive disturbance of underlying natural ground. Drain all pumped water in such a manner as to avoid damage to adjacent property.

If requested by the ENGINEER, place a 6-inch to 12-inch layer of sand and gravel or crushed stone over the natural underlying soil to stabilize area which have been disturbed due to groundwater seepage pressures and to expedite dewatering operations. Particular attention shall be given areas under proposed foundations.

3.5. FIELD QUALITY CONTROL

3.5.1. Compaction Requirements

Allow the ENGINEER sufficient time to make necessary observations and tests. Base the degree of compaction on maximum dry density as determined by ASTM D1557. The minimum degree of compaction for placed fill shall be as indicated in Table E: Compaction Requirements.

Table E: Compaction Requirements

Area	Minimum Degree of Compaction (%)
Below foundation.	95
Pavement and building subbase and base courses.	95
Below building slab base course and above bottom of foundation.	92
Below pavement subbase and base courses.	90
Trench backfill outside of building.	90
Trench backfill inside of building.	Refer to one of the above- listed categories
Ordinary fill within 5 feet of grade.	90
Vegetated areas below 5 feet of grade.	85

3.5.2. Testing

Site work should be monitored and tested by geotechnical ENGINEER or his representative and in accordance with requirements of the design team to assure compliance with earthwork and foundation construction specifications.

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The owner will retain a geotechnical ENGINEER or his representative to perform on-site observations and testing during this phase of construction operations. The geotechnical ENGINEER or his representative will:

- Observe excavation and dewatering of building and controlled fill areas;
- Observe backfill and compaction within building and controlled fill areas;
- Laboratory test and analyze fill material; and
- Observe construction – and performing water content, gradation, and compaction tests.

On a timely basis, the CONTRACTOR will receive copies of test results submitted to the OWNER. In addition, during construction the geotechnical ENGINEER will advise the OWNER and CONTRACTOR in writing of conditions which fail to conform to the Contract Documents. The CONTRACTOR shall take immediate action to remedy indicated deficiencies.

The geotechnical ENGINEER or his representative will not supervise or direct the actual work of the CONTRACTOR or employees and representatives of the CONTRACTOR. The presence of, observations by, and testing performed by the geotechnical ENGINEER or his representatives shall not excuse the CONTRACTOR from defects discovered in the work.

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BARRON & ASSOCIATES, P.C.
Geotechnical Consulting and Special Inspections
10440 Main Street
Clarence, NY 14031
(716) 759-7821
www.barronandassociatespc.com

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APPENDIX F

LIMITATIONS

LIMITATIONS

1. This report is based on the data that was obtained from the subsurface explorations and on the design of the proposed interior mezzanine and exterior canopy as submitted to the geotechnical engineer. A geotechnical engineer, who is experienced in foundation construction and earthwork, should be engaged to review the final design and specifications in order to determine whether any change in concept may have any effect on the validity of the conclusions presented herein, and whether these conclusions have, in fact, been implemented in the design and specifications.

2. The subsurface conditions, including thickness, between the exploration locations are approximate and simplified representations of the strata and transitions. There is the possibility that variations in soil and rock conditions and boundaries will be encountered during construction. In order to permit correlation between the exploratory soil data and the actual soil conditions encountered during construction and so as to assess conformance with the plans and specifications as originally contemplated, it is recommended that a geotechnical engineer, who is experienced in foundation construction and earthwork monitoring, should be retained to perform continuous construction review during the site preparation and foundation construction operations.

3. The subsurface exploration logs and subsurface conditions may aid in estimating material quality and quantities, such as topsoil/organic matter, fills, natural soils, and rock, but are not to be relied upon as the exclusive means for bid preparation purposes. It is the responsibility of the contractor to perform any additional site examinations and explorations and to prepare an accurate bid.

4. Disclaimers:

   a. In the event that any changes in the nature, design or location of the structure are planned, the conclusions that are contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report are modified or verified in writing.

   b. The geotechnical engineering report has been prepared for this project by Barron & Associates, P.C. This report is for assistance in design only and is not a sufficient basis on which to prepare an accurate bid.

   c. This report has been prepared for the exclusive use of Dr. Todd Shatkin (Shatkin School of Dentistry), and their designated design representatives, for specific application to the construction of an interior mezzanine and exterior drop off canopy at 2525 Kensington Avenue, in the Town of Amherst, New York and in accordance with generally accepted geotechnical engineering practice. No other warranty, expressed or implied, is made.

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SRF ASSOCIATES
Transportation Planning / Engineering / Design

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

(585) 272-4660
www.srfa.net

Mr. Daniel J. Ulatowski, AICP
Principal Planner/ZEO
Town of Amherst Planning Department
5583 Main Street
Williamsville, New York 14221

February 22, 2022

RE: Proposed Shatkin School of Dentistry, Town of Amherst, NY
Shared Parking Demand Assessment Letter

Dear Mr. Ulatowski:

This technical letter provides a Shared Parking Demand Assessment related to the proposed project located at 2525 Kensington Avenue in the Town of Amherst, NY in connection with a request for the approval of an Alternate Parking Study per Section 7-1-7A of the Zoning Code.

When evaluating the parking supply needs for the proposed project, our firm projected the parking demand considering shared parking (mixed-use) principles using nationally accepted methodology developed, in part, by the Urban Land Institute (ULI), Institute of Transportation Engineers (ITE), International Council of Shopping Centers (ICSC), and National Parking Association (NPA). Specifically, the assessment includes an estimation of future parking demands for the proposed project using national standards for similar developments, as documented by the ITE Parking Generation Manual (5th Edition).

This evaluation then provides a comparison to Town requirements, as set forth within Section 7-1-6A of the Town of Amherst's Zoning Code.

All supporting materials are included as an attachment to this letter.

PROJECT DESCRIPTION

Currently, the ±29,350 square foot (SF) building is owned and occupied by Phillips Brothers Supply, a business that has been in operation for over 30 years. Under the proposed development Phillips Brothers Supply will have ±5,736 SF of retail space and ±12,019 SF of warehouse space.

Shatkin Dental Health is developing the remaining ±12,253 SF which includes a ±4,400 SF of a new mezzanine that will be constructed within part of the existing warehouse space for a total of ±16,653 SF. The Shatkin Dental Health space will be used for a new dental (±7,853 SF) school associated with Daemen College and an out-patient rehab center also associated with Daemen College (±4,000 SF).

The project will provide 75 surface parking spaces.

Relative to the proposed uses, the following information was obtained from the applicant:

Daemen College Dental School (8-hour day)
Employees: 8 general staff and 10 teaching staff.

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Students: 40 students for 8 hours each day. Each student will have four patients total throughout the day. (Many students will be bussed from the main campus.)

Daemen College IMIT (9-hour day)
Staff: 12 general staff, 12 students.
Visitors: Six patients per hour plus allow for an accompanying family member with each patient.

PARKING REQUIREMENTS IN THE TOWN OF AMHERST ZONING CODE

Section 7-1-6A of the Zoning Code sets forth the off-street parking requirements for different categories of land uses. Strict application of the parking requirements per Section 7-1-6A of the Zoning Code is depicted in **Table 1**.

TABLE 1: TOWN CODE PARKING REQUIREMENTS

USE TYPE	REQUIRED PARKING RATIO	SIZE	TOTAL REQUIRED PARKING SPACES
Retail Sales, >2,000 SF and <25,000 SF	5.5 per 1,000 SF of net floor area	±4,302 SF	24
Warehouse	1 per 1,000 SF of gross floor area	±12,019 SF	12
Medical Office	1 per 150 SF of net floor area	±8,889 SF	60
Total Parking Spaces Required			**96**

Notes:
1. Net Floor Area = For a multistory, multiple tenant building — 75 percent of gross floor area.

Strict application of the off-street parking standards in the Zoning Code results in a parking requirement of 96 spaces, as depicted in **Table 1**. The total number of parking spaces to be provided is 75 spaces. Thus, there is a deficit of 21 parking spaces per strict application of Section 7-1-6A of the Zoning Code.

SHARED PARKING PRINCIPLES

Shared parking studies are conducted to establish the total number of spaces necessary by mixed-use developments to effectively serve expected parking demands. The shared parking concept builds upon the premise that land uses in a mixed-use development often do not share the same peak demand period, so spaces can be shared between the different land uses during different peak periods. Each land use typically has a peak demand period where it would occupy the maximum number of spaces that the use requires and an off-peak period where a lesser percentage of the maximum spaces would be occupied; be it by time of day, day of week, or even month of the year. This allows for the project to provide fewer spaces than would be required if the land uses on a project site were to be treated separately with individual parking demands. The concept of shared parking is well recognized within the real estate and regulatory community and is proven to work.

SHARED PARKING METHODOLOGY

To estimate the number of parking spaces required for the proposed project, this assessment used ULI and ITE methodology for shared parking. This methodology is utilized by transportation engineers and planners when evaluating the parking demand for a mixed-use project. The ULI Shared Parking 3rd Edition includes state-of-the-art practice methodologies for determining parking demand in these types of projects. Accompanying the publication is an interactive Shared Parking Calculation Model (Model) that is used to estimate the shared parking demand. However, given that the Model does not

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

have a warehouse land use, parking accumulation percentages for each land use were obtained from the ITE Parking Generation Manual.

The peak hour demand is projected to occur at 10:00 AM on a typical weekday. The projected peak hour demand for the mixed-use project (i.e., the busiest hour of the busiest weekday) is ±77 spaces. Parking demand accumulations are presented in **Table 2**.

TABLE 2: SHARED PARKING DEMAND PROJECTIONS

LAND USE	SIZE	PARKING DEMAND	
		UNADJUSTED DEMAND	**SHARED DEMAND**
Warehouse (ITE LUC 150)	±12,019 SF	5	**4**
Hardware Supplies (ITE LUC 862)	±5,736 SF	19	**19**
Medical Office (ITE LUC 720)	±15,995 SF	54	**54**
Total Parking Spaces		78	**77**
Shared Parking Reduction		**1.28%**	

Note:
1. ITE LUC = ITE Land Use Code

When considering the site's 75 total parking spaces, there is a projected deficit of two parking spaces. However, it should be noted that the parking demands of the proposed land use may vary given that students may campus busing instead of private vehicles.

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

CONCLUSIONS AND RECOMMENDATIONS

This detailed analysis assessed the projected shared parking demands associated with the proposed mixed-use project. The following summarizes the findings of this assessment:

1. The proposed project consists of retail hardware supply, warehouse, and medical office space.

2. The proposed project will provide 75 total parking spaces.

3. Strict application of the unshared off-street parking standards in the Zoning Code results in a parking requirement of 96 spaces.

4. The peak hour demand is projected to occur at 10:00 AM on a typical weekday. The projected peak hour demand for the mixed-use project (i.e., the busiest hour of the busiest weekday) is ±77 spaces.

5. When considering the site's 75 total parking spaces, there is a projected deficit of two parking spaces. However, it should be noted that the parking demands of the proposed land use may vary given that students may campus busing instead of private vehicles.

6. Transportation Demand Management (TDM) strategies may be considered to reduce the parking demands during the peak period. They include, but are not limited to:

    a. Carpooling
    b. Off-site parking agreements
    c. Promoting non-motorized travel (e.g., install bike racks, NFTA transit)

If you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
SRF Associates, D.P.C.

David Kruse, AICP, PTP
Senior Transportation Planner

Attachments

Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)

ATTACHMENT

February 22, 2022

Letter to
Mr. Daniel J. Ulatowski, AICP
Town of Amherst

Proposed Shatkin School of Dentistry
2525 Kensington Avenue

Shared Parking Demand Assessment

Town of Amherst
Erie County, New York

SRF ASSOCIATES

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

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UNSHARED DEMAND

				Time																		
LAND USE	ITE LUC	SIZE	UNSHARED DEMAND	5a	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p	12a
Warehouse	150	12	5	3%	8%	27%	57%	79%	83%	87%	91%	91%	97%	100%	91%	74%	47%	26%	20%	17%	1%	1%	1%
Hardware Store	862	5.763	19	0%	0%	9%	55%	73%	100%	64%	95%	68%	91%	50%	45%	36%	5%	0%	0%	0%	0%	0%	0%
Medical Office	720	11.853	54	0%	0%	12%	43%	88%	99%	100%	83%	74%	94%	93%	86%	54%	0%	0%	0%	0%	0%	0%	0%
			78																				

SHARED DEMAND

				Time																		
LAND USE	ITE LUC	SIZE	UNSHARED DEMAND	5a	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p	12a
Warehouse	150	12	5	0	0	1	3	4	4	4	4	4	5	5	4	4	2	1	1	1	0	0	0
Hardware Store	862	5.763	19	0	0	2	10	14	19	12	18	13	17	9	8	7	1	0	0	0	0	0	0
Medical Office	720	11.853	54	0	0	7	23	48	54	54	45	40	51	51	47	29	0	0	0	0	0	0	0
Total Shared Demand			**78**	**0**	**0**	**10**	**36**	**65**	**77**	**71**	**67**	**57**	**73**	**65**	**60**	**40**	**3**	**1**	**1**	**1**	**0**	**0**	**0**

ITE PARKING RATES

Warehouse	0.39 spaces per 1,000 SF
Hardware Store	3.25 spaces per 1,000 SF
Medical Office	4.59 spaces per 1,000 SF

Note: Results may be affected by small rounding errors.

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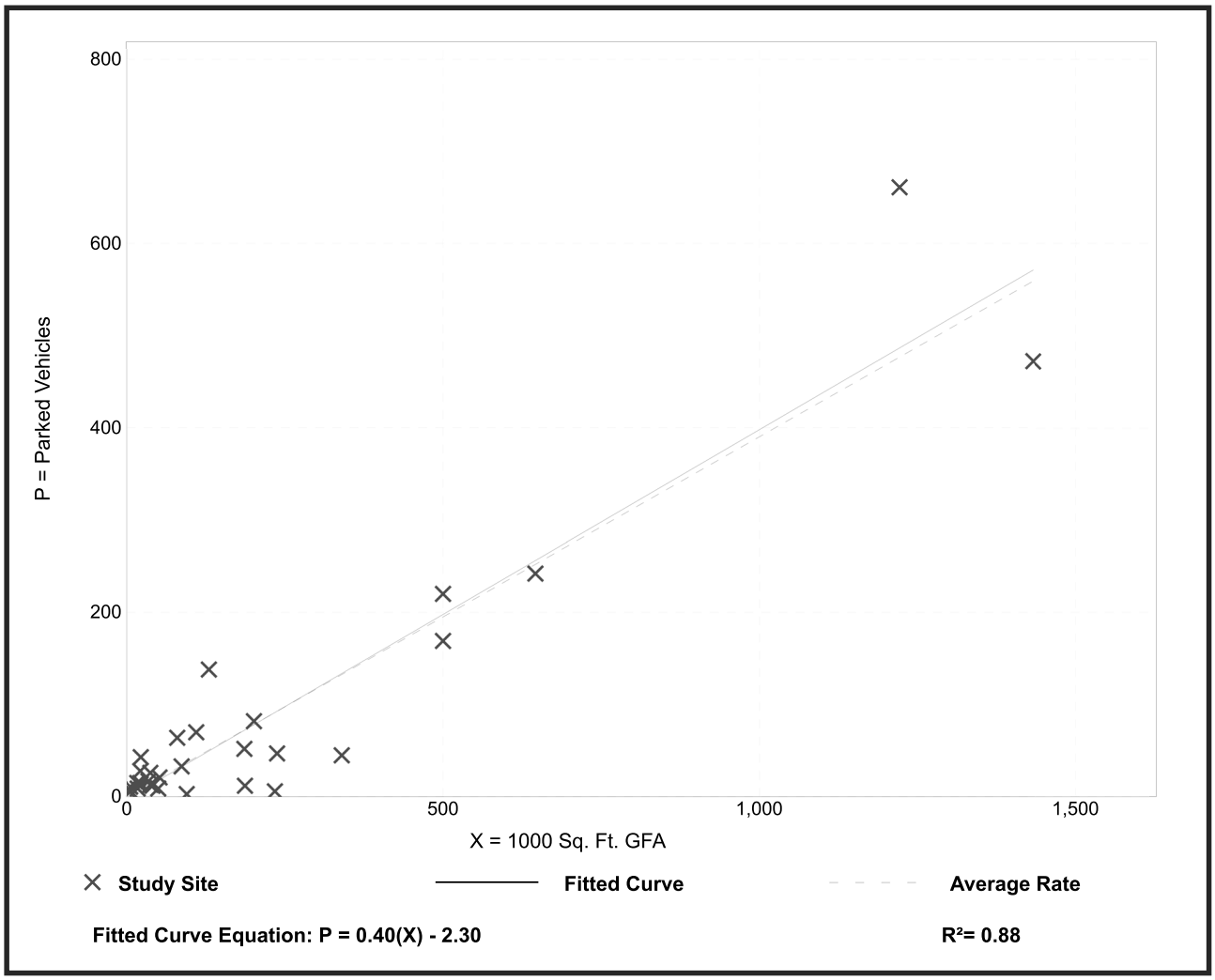
Warehousing
(150)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **11:00 a.m. - 4:00 p.m.**
Number of Studies: 31
Avg. 1000 Sq. Ft. GFA: 212

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.39	0.03 - 1.96	0.34 / 1.11	0.31 - 0.47	0.22 (56%)

Data Plot and Equation



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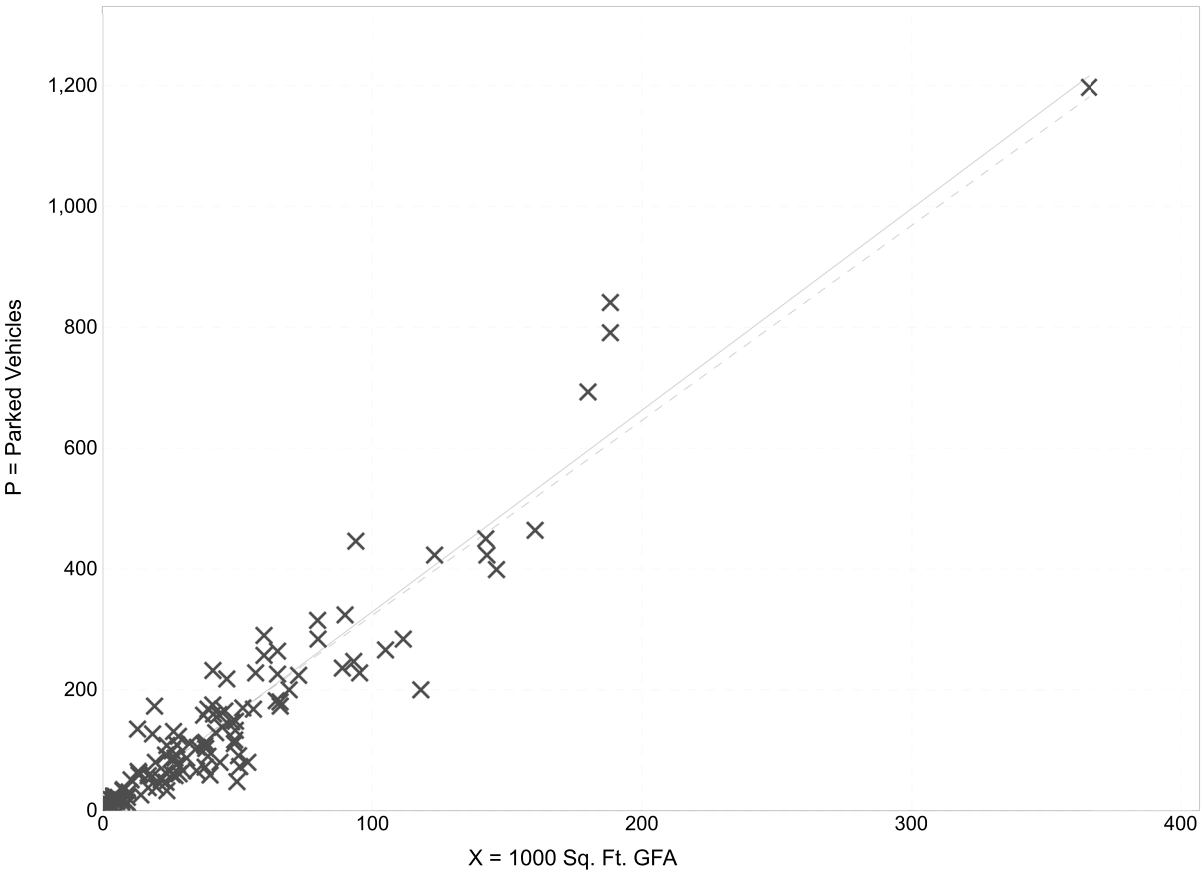
Medical-Dental Office Building
(720)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **9:00 a.m. - 4:00 p.m.**
Number of Studies: 117
Avg. 1000 Sq. Ft. GFA: 46

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
3.23	0.96 - 10.27	2.73 / 4.59	3.04 - 3.42	1.05 (33%)

Data Plot and Equation



Fitted Curve Equation: P = 3.34(X) - 5.21 **R^2= 0.91**

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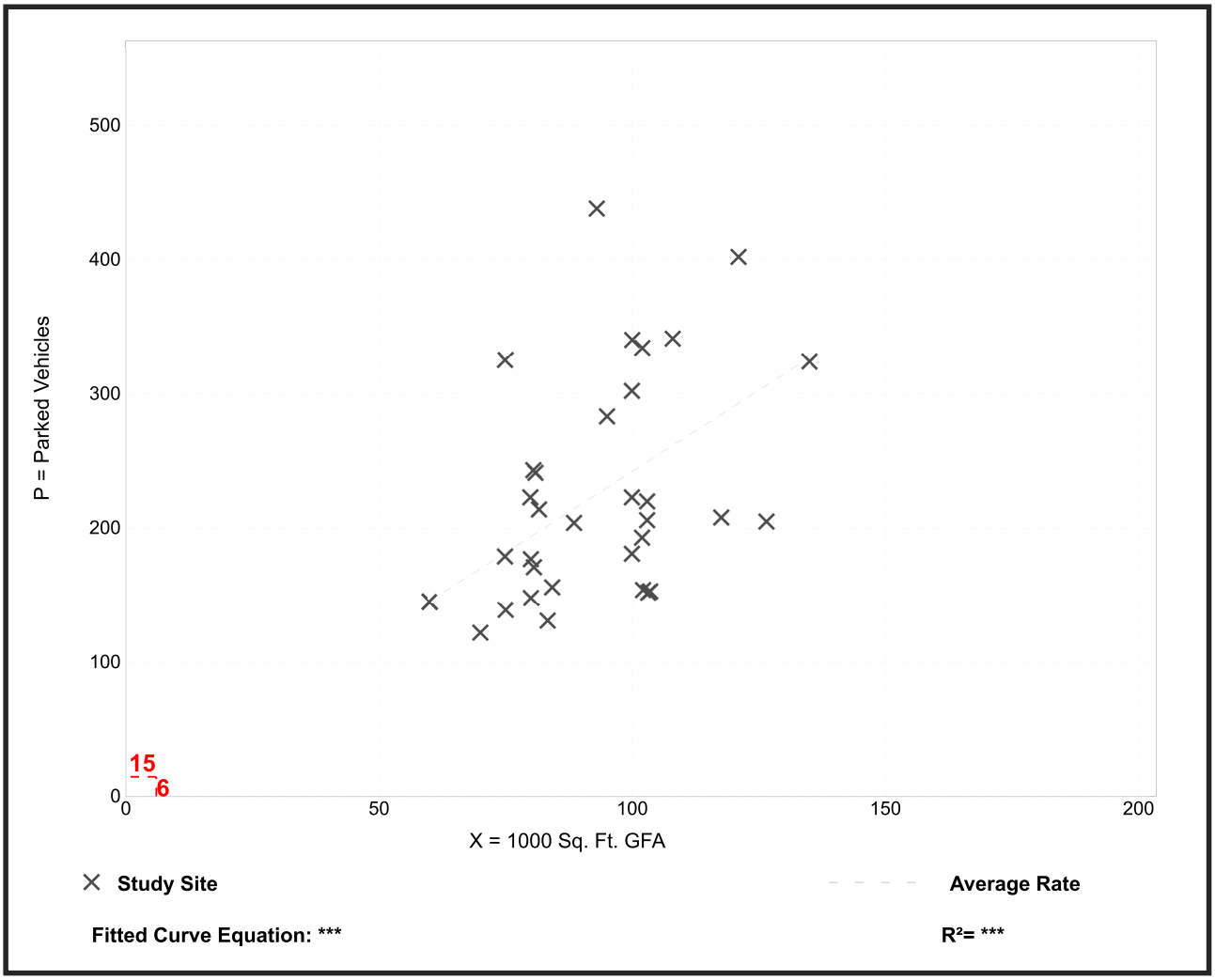
Home Improvement Superstore
(862)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Friday**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **10:00 a.m. - 4:00 p.m.; 8:00 - 9:00 p.m.**
Number of Studies: 34
Avg. 1000 Sq. Ft. GFA: 93

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
2.42	1.47 - 4.71	1.87 / 3.25	2.15 - 2.69	0.79 (33%)

Data Plot and Equation



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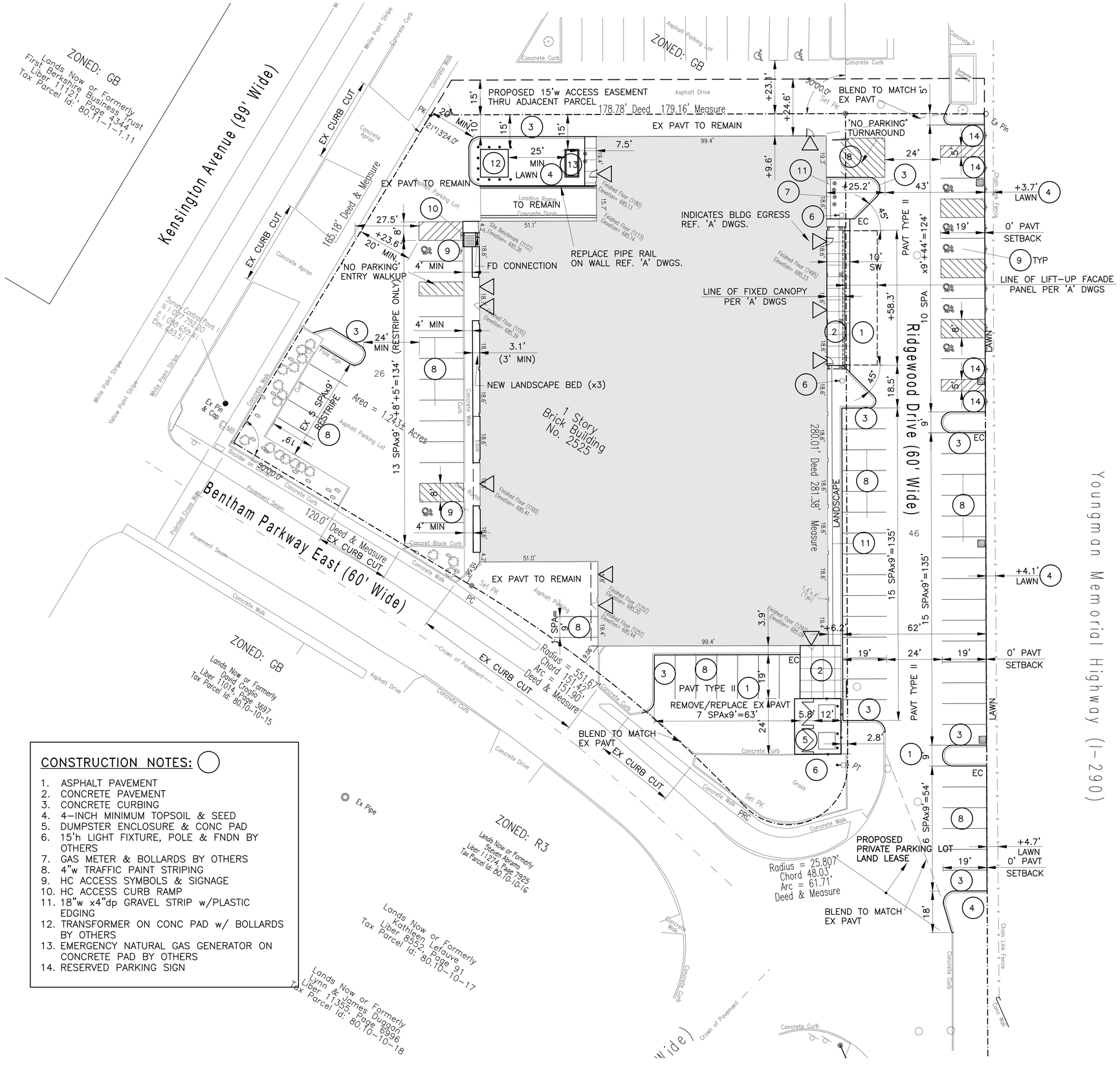
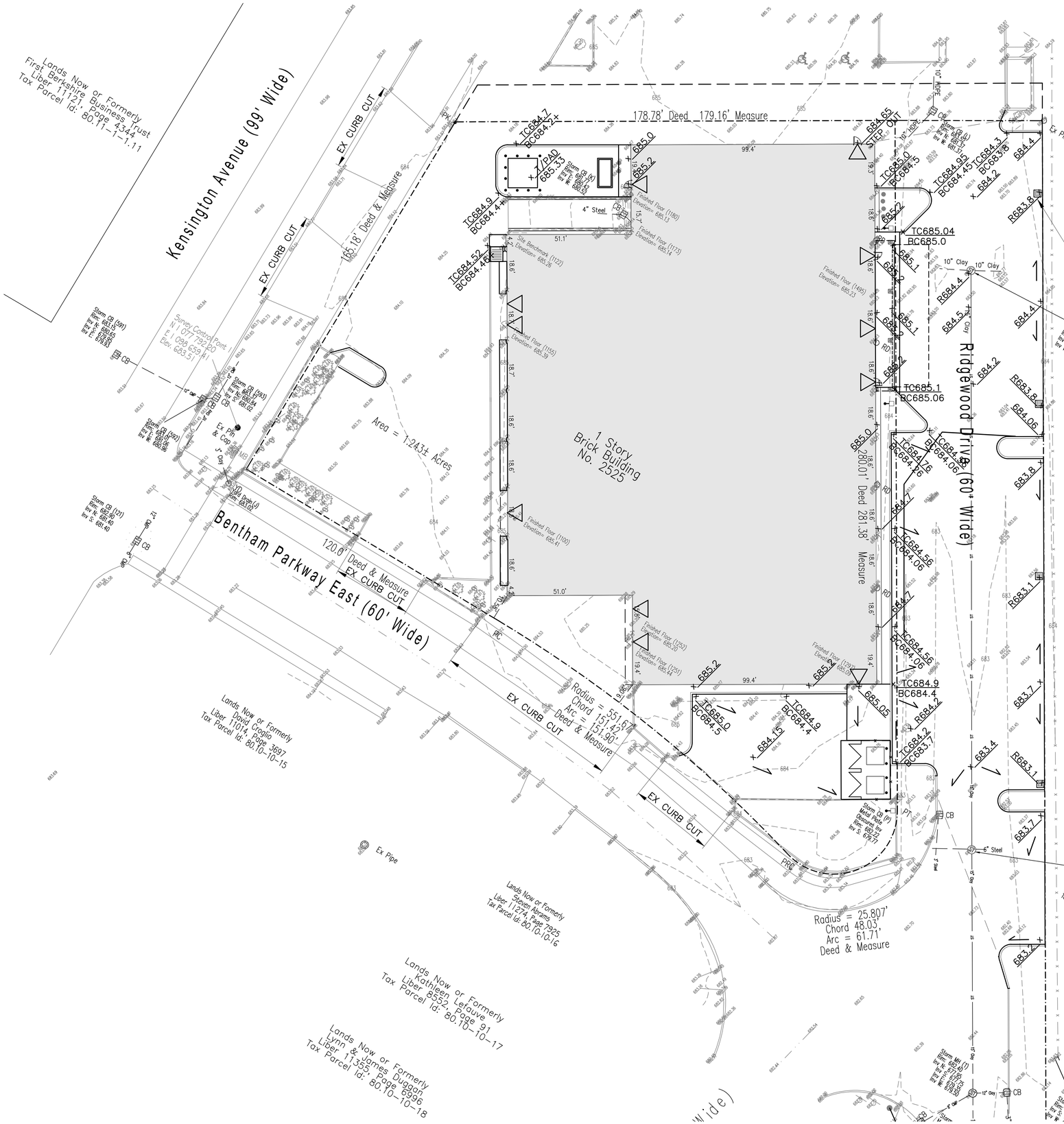
Attachment: SP-2022-02 application 042122 (25490 : Sp-2022-02)


ZONED: GB
Lands Now or Formerly
First Berkshire Business Trust
Liber 11121, Page 4344
Tax Parcel Id: 80.11-1-1.11
Kensington Avenue (99' Wide)
White Point Stripe
Concrete Curb
EX CURB CUT
Concrete Apron
165.18' Deed & Measure
Survey Control Point
N 1 077 792.60
E 1 060 539.41
Elev. 683.51
Yellow Point Stripe
Ex Pin & Cap
Boulder on Property Line
Bentham Parkway East (60' Wide)
Pavement Seam
Painted Cross Walk
120.0' Deed & Measure
EX CURB CUT
Concrete Walk
Asphalt Parking Lot
Asphalt Drive
Concrete Drive
Crown of Pavement
PROPOSED 15'w ACCESS EASEMENT THRU ADJACENT PARCEL
178.78' Deed 179.16' Measure
EX PAVT TO REMAIN
BLEND TO MATCH EX PAVT
Set PK
Ex Pin
Asphalt Drive
Concrete Curb
Pavement
Concrete Apron
Loading Ramp
Concrete Drain
Site Benchmark (1122) Elevation= 685.76
Finished Floor (1190) Elevation= 685.13
Finished Floor (1173) Elevation= 685.14
Finished Floor (1165) Elevation= 685.23
Finished Floor (1155) Elevation= 685.38
Finished Floor (1100) Elevation= 685.47
Finished Floor (1292) Elevation= 685.05
Finished Floor (1251) Elevation= 685.44
Finished Floor (1292) Elevation= 685.05
25' MIN LAWN
7.5'
27.5'
20' MIN
+23.6'
NO PARKING' ENTRY WALKUP
FD CONNECTION
REPLACE PIPE RAIL ON WALL REF. 'A' DWGS.
INDICATES BLDG EGRESS REF. 'A' DWGS.
LINE OF FIXED CANOPY PER 'A' DWGS
4' MIN
24' MIN (RESTRIPE ONLY)
3.1' (3' MIN)
NEW LANDSCAPE BED (x3)
13 SPAx9' RESTRIPE
Area = 1.24± Acres
EX SPAx9' RESTRIPE
Ridgewood Drive (60' Wide)
1 Story Brick Building No. 2525
280.01' Deed 281.36' Measure
LANDSCAPE
PAVT TYPE II
PAVT TYPE II x9'+44'=124'
10 SPA
15 SPAx9'=135'
6 SPAx9'=54'
+58.3'
18.5'
+9.6'
+24.6'
+23.1'
99.4'
51.1'
51.0'
3.9'
62'
24'
19'
10' SW
45°
EC
PC
PT
Set PK
PRC
Grass
Chain Link Fence
Retaining Wall
Concrete Curb
Concrete Walk
Curb Ramp
Boulder
Ex Pipe
Ex Pin
Ex Pin & Cap
Ex Drain Inlet
Ex Utility Pole
Ex Sign
Ex Light Pole
Ex Fire Hydrant
Ex Gas Valve
Ex Water Valve
Ex Water Meter
Ex Gas Meter
Ex Electric Box
Ex Telephone Box
Ex Cable Box
Ex Gas Line
Ex Water Line
Ex Electric Line
Ex Telephone Line
Ex Cable Line
Ex Overhead Wires
Ex Underground Electric
Ex Underground Telephone
Ex Underground Cable
Ex Underground Gas
Ex Underground Water
Ex Underground Sewer
Ex Underground Storm
Ex Underground Drain
Ex Underground Culvert
Ex Underground Pipe
Ex Underground Tank
Ex Underground Vault
Ex Underground Manhole
Ex Underground Catch Basin
Ex Underground Inlet
Ex Underground Outlet
Ex Underground Valve
Ex Underground Meter
Ex Underground Box



LEGEND:

×	DENOTES PROPOSED SPOT ELEVATIONS	·	DENOTES EXISTING SPOT ELEVATIONS
▣ ●	DENOTES PROPOSED CATCH BASIN/MANHOLE	D	DENOTES EXISTING STORM SEWER DROP INLET
CO	DENOTES PROPOSED CLEANOUT	ST	DENOTES EXISTING STORM SEWER MANHOLE
C	DENOTES CONNECTION TO EXISTING UTILITY	SA	DENOTES EXISTING SANITARY SEWER MANHOLE
			DENOTES EXISTING HYDRANT
	DENOTES PROPOSED LIGHT POLE		DENOTES EXISTING LIGHT POLE
RD	DENOTES PROPOSED ROOF DRAIN		DENOTES EXISTING WATER VALVE
ELEV	DENOTES NEW CONTOURS	ELEV	DENOTES EXISTING CONTOURS
X X X X		X X X X	DENOTES EXISTING CHAIN LINK FENCE
OHE		OHE	DENOTES EXISTING UTILITY POLE AND OVERHEAD UTILITIES
ST		ST	DENOTES EXISTING STORM SEWER LINE
SAN		SAN	DENOTES EXISTING SANITARY SEWER LINE
W		W	DENOTES EXISTING WATER LINE
E		E	DENOTES EXISTING ELECTRIC LINE
G		G	DENOTES EXISTING GAS LINE
ST			DENOTES PROPOSED STORM SEWER LINE
SAN			DENOTES PROPOSED SANITARY SEWER LINE
W			DENOTES PROPOSED WATER LINE

SITE GRADING PLAN

1" = 20'

N

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REVISIONS
1: REISSUED 3/28/22

DRAWN BY avm
CHECKED BY AVM

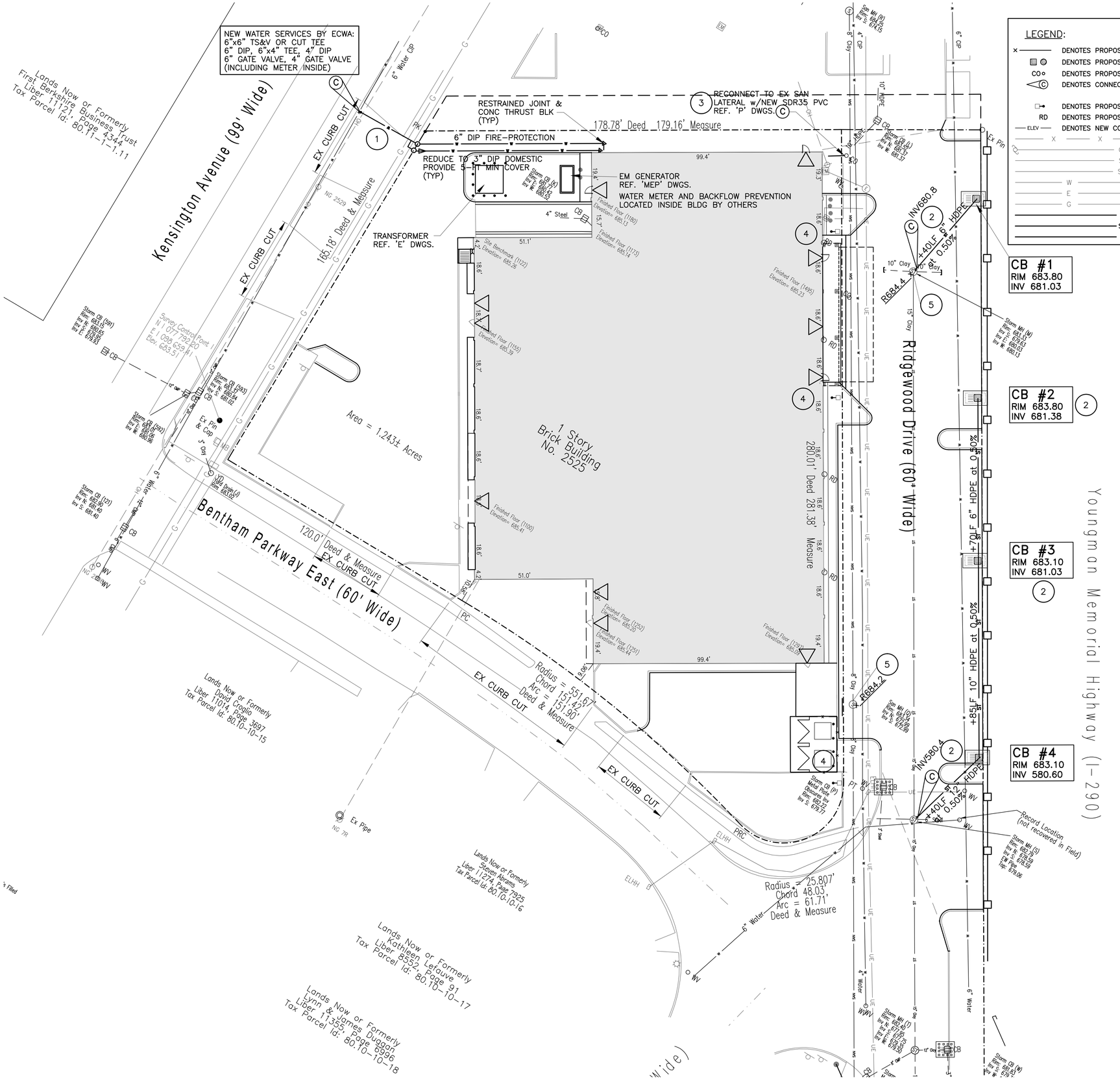
SCALE
AS NOTED

DATE
Feb 22, 2022

SITE GRADING PLAN

SP102

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)



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×	DENOTES PROPOSED SPOT ELEVATIONS	·	DENOTES EXISTING SPOT ELEVATIONS
▣ ●	DENOTES PROPOSED CATCH BASIN/MANHOLE	DI	DENOTES EXISTING STORM SEWER DROP INLET
CO	DENOTES PROPOSED CLEANOUT	ST	DENOTES EXISTING STORM SEWER MANHOLE
C	DENOTES CONNECTION TO EXISTING UTILITY	SA	DENOTES EXISTING SANITARY SEWER MANHOLE
			DENOTES EXISTING HYDRANT
	DENOTES PROPOSED LIGHT POLE		DENOTES EXISTING LIGHT POLE
RD	DENOTES PROPOSED ROOF DRAIN		DENOTES EXISTING WATER VALVE
ELEV	DENOTES NEW CONTOURS	ELEV	DENOTES EXISTING CONTOURS
		X X X X	DENOTES EXISTING CHAIN LINK FENCE
		OHE	DENOTES EXISTING UTILITY POLE AND OVERHEAD UTILITIES
		ST	DENOTES EXISTING STORM SEWER LINE
		SAN	DENOTES EXISTING SANITARY SEWER LINE
		W W	DENOTES EXISTING WATER LINE
		E E	DENOTES EXISTING ELECTRIC LINE
		G G	DENOTES EXISTING GAS LINE
	ST		DENOTES PROPOSED STORM SEWER LINE
	SAN		DENOTES PROPOSED SANITARY SEWER LINE
	W		DENOTES PROPOSED WATER LINE

SITE UTILITIES & EROSION CONTROL PLAN

1" = 20'

N

CONSTRUCTION NOTES:

1. NEW WATER SERVICE TO BLDG WATER ROOM –RPZ & METERING INSIDE FACILITY REF. 'P' & 'FP' DWGS
2. NEW STORM RECEIVER & HDPE PIPING –CORE–DRILL & GROUT NEW PIPING TO EXISTING MANHOLE (VERIFY CONDITIONS & NOTIFY ENGINEER OF CONFLICTS PRIOR TO PREPARING SHOP DRAWINGS AND ORDERING MATERIAL)
3. REPLACE WASTEWATER LATERAL CONN IN SAME LOCATION AS EXISTING (FIELD VERIFY) –REF. 'P' DWGS FOR NEW SAN PIPING & CONNECTION TO EXISTING.
4. SITE LIGHTING –REF. 'E' DWGS FOR POLE, FNDN, FIXTURE, CIRCUITING & CONDUIT
5. RAISE MH FRAME & COVER w/CONC RINGS TO ELEVATION SHOWN

SILT FENCE OR 12"DIA COMPOST FILTER SOCK

STONE & BLOCK DROP INLET PROTECTION STRUCTURE

EXCAVATED DROP INLET PROTECTION

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1: REISSUED	3/28/22
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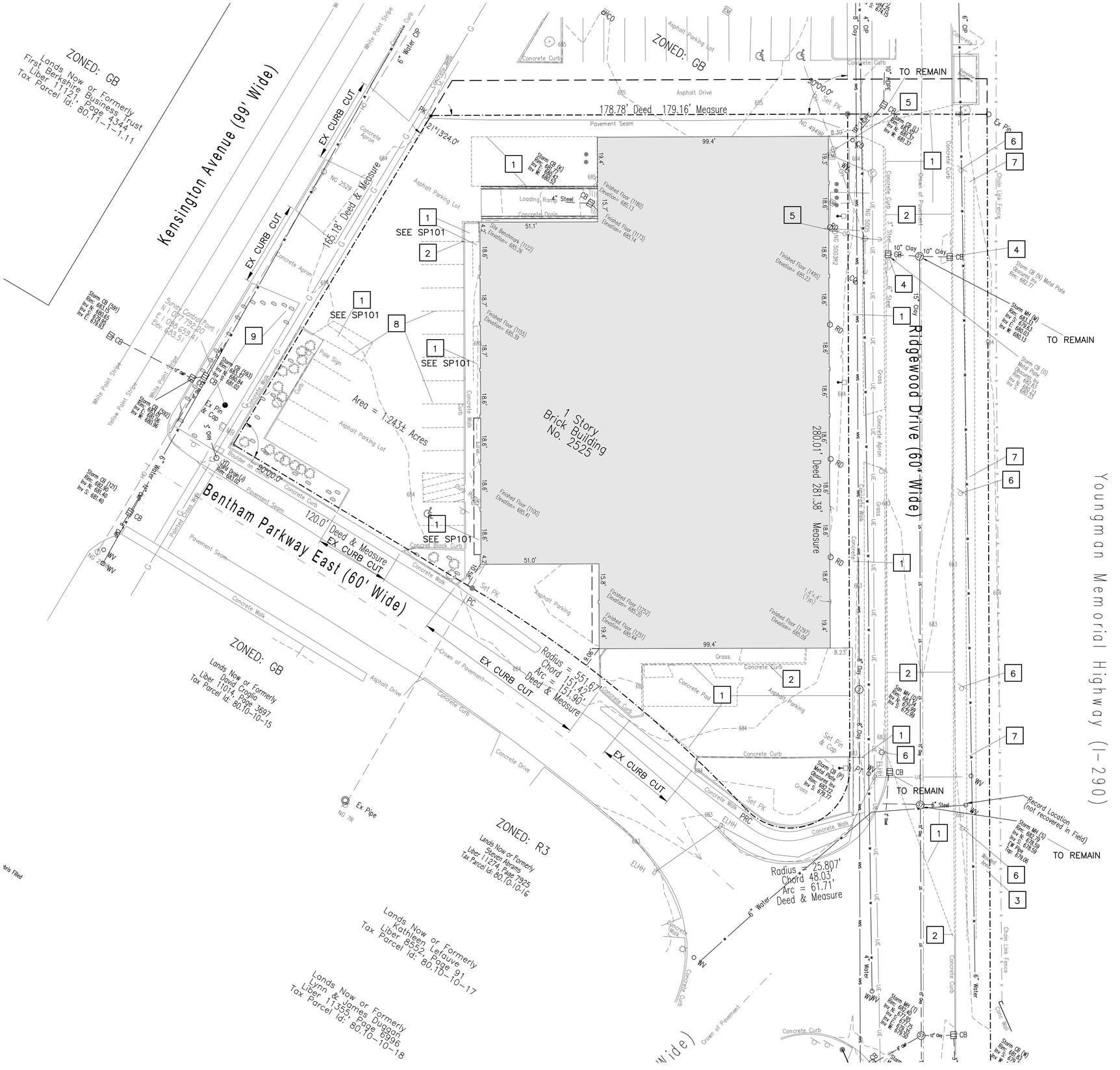
SCALE: AS NOTED	
DATE: Feb 22, 2022	

SITE UTILITIES & EROSION CONTROL PLAN

SP103

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)



SITE DEMOLITION PLAN

1" = 20'

N

SITE DEMOLITION NOTES:

1. SAWCUT & REMOVE EXISTING ASPHALT/ CONC PAVT AND SUBBASE STONE EXCEPT WHERE NEW PAVT OVER TO BE INSTALLED, SUBBASE TO BE PROOFROLLED & REUSED
2. SAWCUT & REMOVE CONCRETE CURBING
3. REMOVE TREES & BRUSH TO FENCELINE
4. DRAIN BODY TO BE REMOVED, PLUG EX PIPE END w/CONC
5. UTILITY POLE & OHE POWER TO BE REMOVED –COORD. w/SUPPLIER & 'E' DWGS.
6. SIGN OR LIGHT POLE & FNDN TO BE REMOVED
7. REMOVE REMAINS OF CONC SIDEWALK
8. REMOVE PAINT STRIPING THIS ROW BY INSTALLING SEALER OVER ROUGHENED EX ASPHALT\
9. REMOVE ALL BOULDER STONES FROM RIGHT–OF–WAY

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REVISIONS	
1: REVISED	3/28/22

DRAWN BY	CHECKED BY
avm	AVM

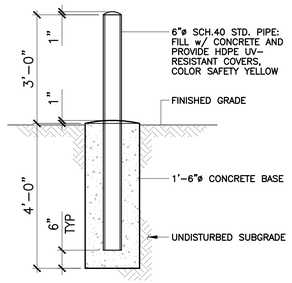
SCALE: AS NOTED

DATE: Feb 22, 2022

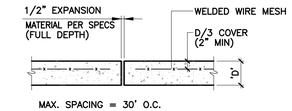
EXISTING CONDITIONS & SITE DEMOLITION PLAN

SP104

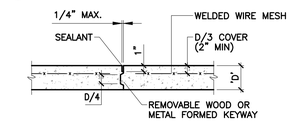
SP-2022-02 drawings 042122 (2549 : Sp-2022-02)
Attachment: SP-2022-02 (2549 : Sp-2022-02)



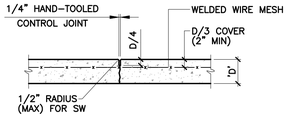
STEEL PIPE BOLLARD



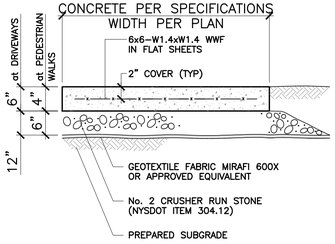
EXPANSION JOINT IN EXTERIOR CONC PAVEMENT



CONSTRUCTION JOINT IN EXTERIOR CONC PAVEMENT



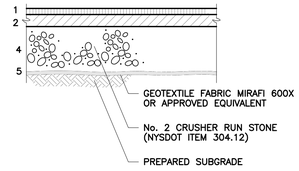
CONTROL JOINT IN EXTERIOR CONC PAVEMENT



NOTE: CONC. SHALL BE 4000 PSI at 28-DAYS, 6% AIR-ENTRAINED, 4" MAX. SLUMP-PROVIDE LT. BROOM FINISH PERPENDICULAR TO DIRECTION OF TRAFFIC

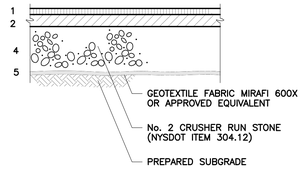
TYPICAL CONCRETE SIDEWALK

ITEM	DESCRIPTION	DEPTH
1	TOP COURSE 402.099803-9.5 F2-80	1-1/2"
2	BINDER 402.198203-19 F9-80	3"
3	NOT USED	
4	SUBBASE COURSE 304.12 (NYSDOT)	18"
5	GEOTEXTILE FABRIC (NONWOVEN/HEAT BONDED)	



TYPICAL TYPE II BITUMINOUS PAVEMENT SECTION DRIVEWAYS

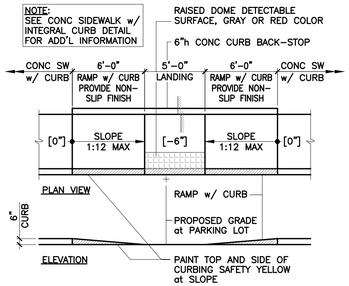
ITEM	DESCRIPTION	DEPTH
1	TOP COURSE 402.099803-9.5 F2-80	1-1/2"
2	BINDER 402.198203-19 F9-80	2"
3	NOT USED	
4	SUBBASE COURSE 304.12 (NYSDOT)	12"
5	GEOTEXTILE FABRIC (NONWOVEN/HEAT BONDED)	



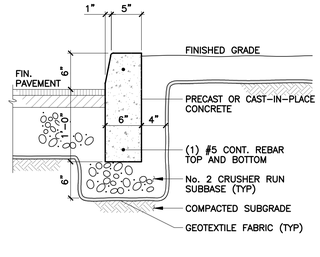
TYPICAL TYPE I BITUMINOUS PAVEMENT SECTION PARKING STALLS

GENERAL SITE NOTES

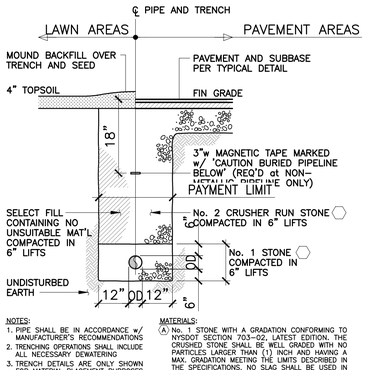
1. ALL WATERLINE, SANITARY SEWER AND OTHER WORK WITHIN THE R.O.W. SHALL BE IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE TOWN OF AMHERST, THE ERIE COUNTY WATER AUTHORITY AND NYSDOT SPECIFICATIONS.
2. INSTALL ALL MATERIALS TO THE MANUFACTURER'S RECOMMENDATIONS AND BEST STANDARDS OF THE TRADE INVOLVED.
3. SUBSTITUTIONS SHALL BE MADE ONLY WITH OWNER APPROVAL AND SHALL BE EQUIVALENT QUALITY TO WHAT IS SPECIFIED.
4. WORK SHALL BE COMPLETED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND OSHA SAFETY RULES AND REGULATIONS.
5. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE SITE. NOTIFY OWNER OF ANY DISCREPANCIES IN CONDITIONS SHOWN ON THE DRAWINGS PRIOR TO PROCEEDING WITH THE WORK.
6. CONTRACTORS SHALL BE RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING STRUCTURES TO REMAIN AND ANY FINISH MATERIAL INSTALLED WHILE WORKING ON OTHER COMPONENTS.
7. CONTRACTOR SHALL KEEP THE JOB SITE FREE OF DEBRIS AND MAKE FINAL CLEANUP TO THE SATISFACTION OF THE OWNER.
8. CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION SO THAT THIS WORK DOES NOT DISTURB EXISTING LINES AND/OR INSTALLATIONS. COORDINATE ALL WORK WITH THE APPLICABLE UTILITY COMPANIES.
9. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS NECESSARY TO PERFORM THE WORK.
10. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN CONTROL OF EROSION FROM THE SITE. SEE PROJECT EROSION CONTROL PLAN AND SWPPP MANUAL.
11. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS, FEATURES AND UTILITY CONNECTIONS.
12. ALL UTILITY TRENCHES UNDER PAVEMENT, CURBS, SIDEWALKS, AND DRIVEWAYS SHALL BE FULLY BACKFILLED WITH No 2 CRUSHER RUN STONE AND PROPERLY COMPACTED TO AVOID SETTLEMENT.
13. CONTRACTOR SHALL REPLACE IN KIND ANY EXISTING IMPROVEMENTS TO REMAIN THAT ARE DAMAGED DURING CONSTRUCTION. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, CURBS, ROAD PAVEMENTS, SIDEWALKS, AND EXISTING UTILITIES.



HANDICAP ACCESS RAMP



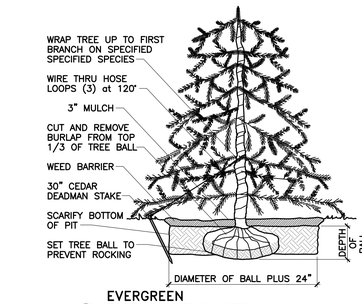
TYPICAL CONCRETE CURB



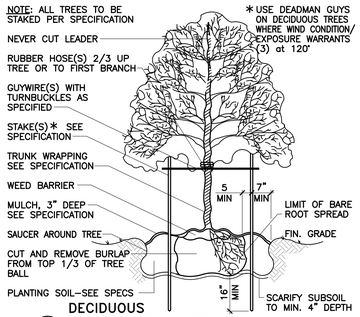
NOTES:
1. PIPE SHALL BE IN ACCORDANCE w/ MANUFACTURER'S RECOMMENDATIONS
2. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.
3. TRENCH DETAILS ARE ONLY SHOWN FOR MATERIAL PLACEMENT PURPOSES
4. AN OSHA APPROVED MOVEABLE PROTECTIVE TRENCH SHIELD MAY BE USED.

MATERIALS:
(A) No. 1 STONE WITH A GRADATION CONFORMING TO NYSDOT SECTION 703-02, LATEST EDITION. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN (1) INCH AND HAVING A MAX. GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. NO SLAG SHALL BE USED IN PLACE OF MATERIAL 'A'.
(B) No. 2 CRUSHER RUN STONE OR No. 2 RUN OF CRUSHED GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02 (COMPACTED IN 6" LIFTS TO 90% DENSITY). NO SLAG SHALL BE USED IN PLACE OF MATERIAL 'B'.

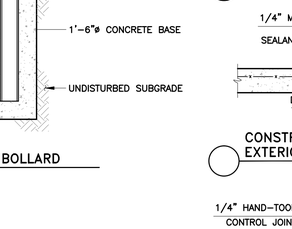
TYPICAL UTILITY TRENCH SECTION



EVERGREEN TREE PLANTING DETAIL

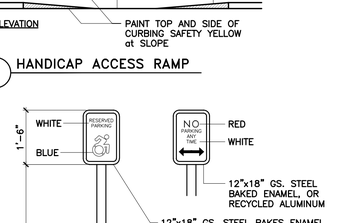


DECIDUOUS TREE PLANTING DETAIL



SHRUB PLANTING DETAIL

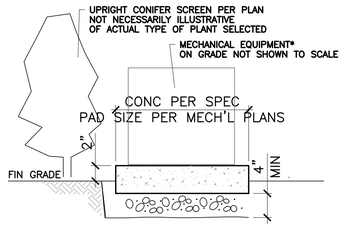
DUMPSTER ENCLOSURE WITH CONCRETE PAD



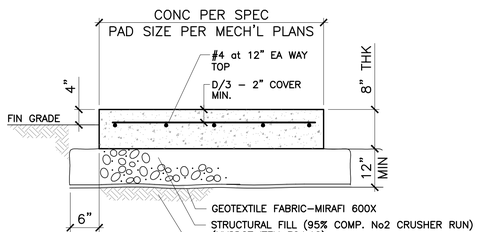
NOTES:
1. HANDICAPPED PARKING SIGNAGE SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS
2. A 'NO PARKING' SIGN SHALL BE PROVIDED at DISCHARGE AISLE BETWEEN HANDICAP PARKING STALLS

HANDICAPPED PARKING SIGNAGE
LOCATED IN LAWN AREAS

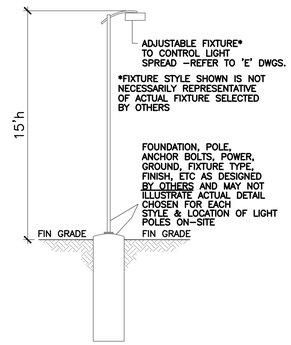
HANDICAP SYMBOL DETAIL



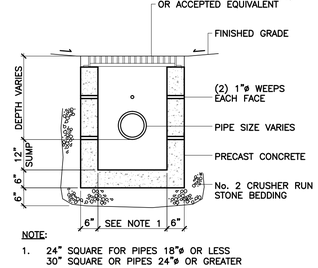
MECHANICAL EQUIP. SCREEN



GENERATOR PAD SECTION



LIGHT POLE HEIGHT DETAIL



NOTE:
1. 24" SQUARE FOR PIPES 18"ø OR LESS
30" SQUARE OR PIPES 24"ø OR GREATER

TYPICAL CATCH BASIN

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STATE OF NEW YORK
MATTHEW JOHN PETRILLI
082985
LICENSED PROFESSIONAL ENGINEER

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REVISIONS
1: REISSUED 3/28/22

DRAWN BY avm | CHECKED BY AVM

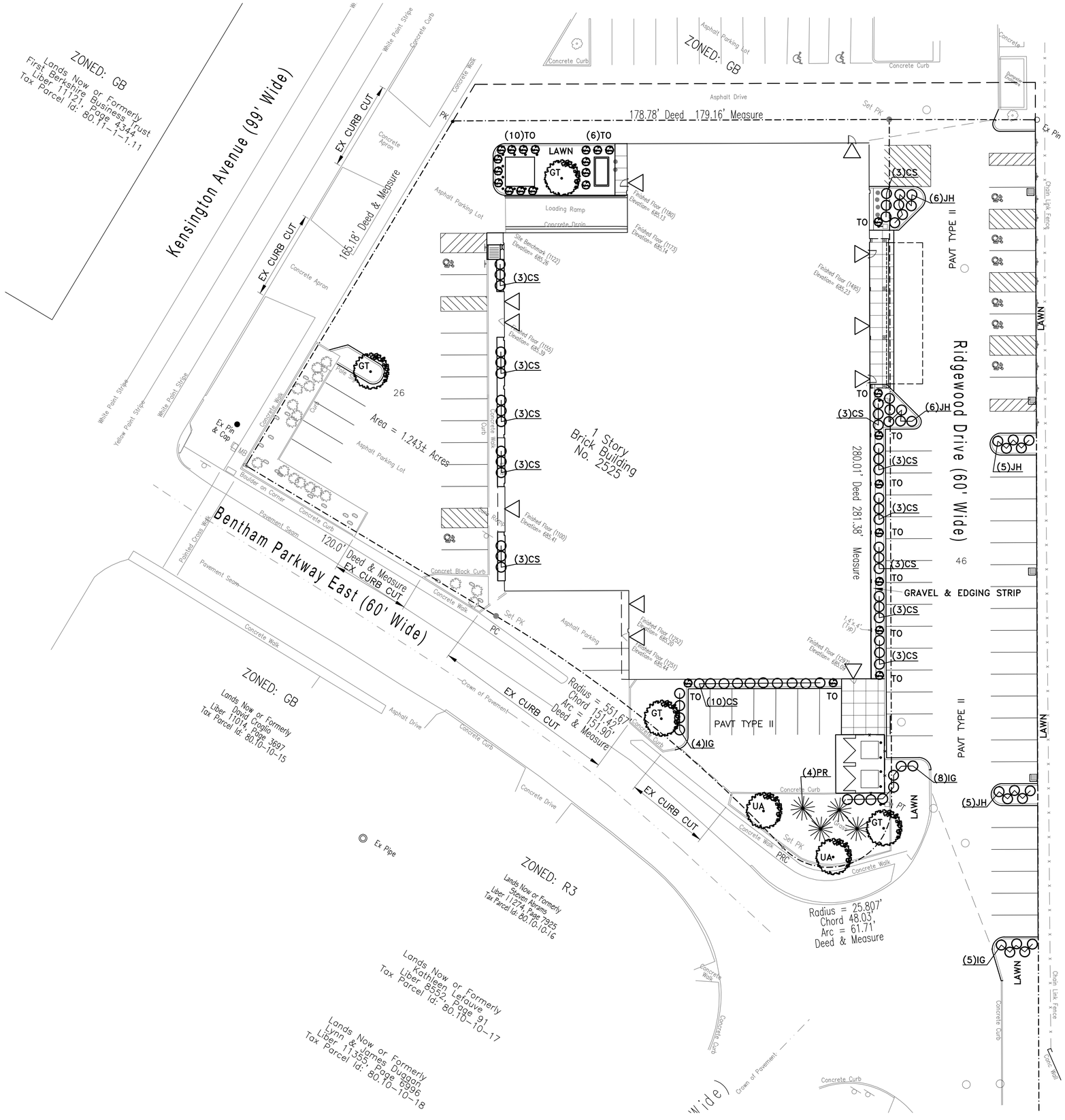
SCALE AS NOTED

DATE Feb 22, 2022

SITE DETAILS

SP201

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)



PLANTING SCHEDULE

MARK	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
SHRUBS/GRASSES					
TO	26	THUJA OCCIDENTALIS	EMERALD ARBORVITE	4'h MIN.	B&B
CS	46	CORNUS STOLONIFERA	ARCTIC FIRE DOGWOOD	24"h	CONT.
JH	22	JUNIPERUS HORIZONTALIS	BAR HARBOR JUNIPER	24"sp	CONT.
IG	17	ILEX GLABRA COMPACTA	SHAMROCK INKBERRY	24"h 5'OC	B&B
TREES					
GT	3	GLEDITSIA TRIACANTHOS INERMIS SUNBURST	SUNBURST LOCUST	2 1/2" CAL	B&B
UA	2	ULMUS AMERICANA 'PRINCETON'	AMERICAN ELM	2–1/2"CAL	B&B
PR	4	PINUS RESINOSA	RED PINE	6'h MIN.	

LANDSCAPE PLAN

1" = 20'

N

NOTES:

1. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING TREES AND PLANTINGS INDICATED TO REMAIN FROM ALL TYPES OF ROOT, TRUNK AND LIMB DAMAGE DURING DEMOLITION AND CONSTRUCTION.
2. EXISTING PLANTED AREAS SHALL REMAIN UNLESS OTHERWISE NOTED.
3. ALL DISTURBED AREAS SHALL RECEIVE 4" MIN. TOPSOIL AND GRASS SEED UNLESS OTHERWISE NOTED.
4. TREE AND SHRUB BEDS SHALL BE COVERED WITH 3" OF HARDWOOD MULCH. ALL ROOTS AND STONES OVER 1 1/2" SHALL BE REMOVED PRIOR TO SEEDING/ PLANTING.
5. ALL STREET AND ISLAND TREES SHALL HAVE FIRST BRANCHING at 6–FOOT MIN.
6. IF A CONFLICT EXISTS BETWEEN THE PLAN AND PLANTING SCHEDULE, THE PLAN SHALL GOVERN.
7. REFER TO ARCHITECTURAL DRAWINGS FOR ALL BUILDING DIMENSIONS, FEATURES & UTILITY CONNECTIONS
8. REFER TO GRADING AND UTILITY PLAN(S) FOR ADDITIONAL INFORMATION NOT SHOWN HEREIN.

LEGEND:

INDICATES NEW TREE PLANTING PER SCHEDULE

INDICATES NEW SHRUB PLANTING PER SCHEDULE

EXISTING TREE/SHRUB TO REMAIN & BE PROTECTED THRU–OUT CONSTRUCTION

EXISTING TREE/SHRUB TO BE REMOVED

LAWN SEED SCHEDULE

Mixtures		Rate per Acre (lbs)	Rate per 1,000 sq. ft. (lbs)
A.	Birdsfoot trefoil or ladino clover	8	0.20
	Tall fescue or mooth bromegrass	20	0.45
	Redtop	2	0.05
		30	0.70
OR			
B.	Kentucky bluegrass	25	0.60
	Creeping red fescue	20	0.50
	Perennial ryegrass	10	0.20
		55	1.30

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REVISIONS
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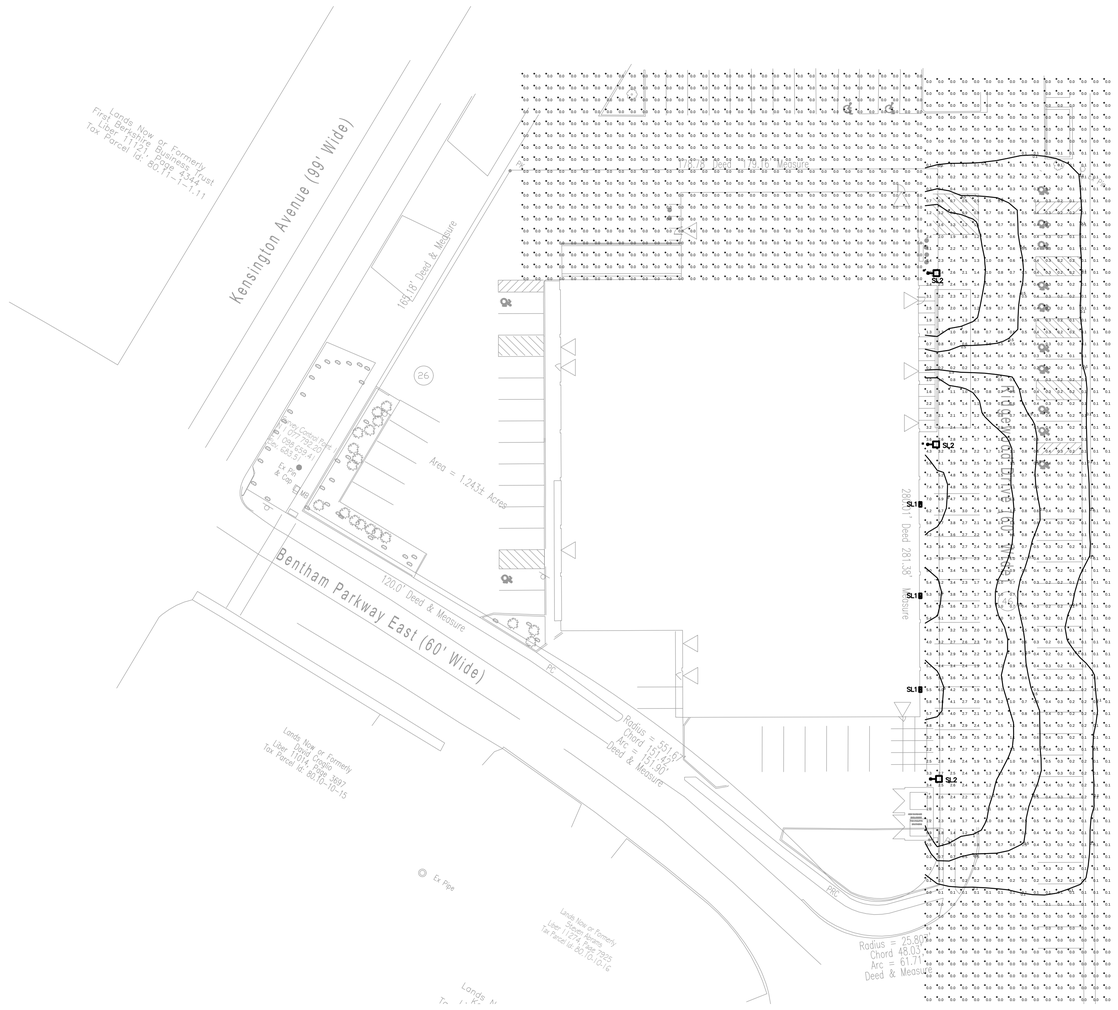
SCALE AS NOTED

DATE Feb 22, 2022

LANDSCAPE PLAN

L101

SP-2022-02 drawings 042122 (25490 : Sp-2022-02)
Attachment: SP-2022-02 (25490 : Sp-2022-02)



1 EL-100 ELECTRICAL SITE LIGHTING PLAN
SCALE: 1" = 20'-0"

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MOUNTING	LENS/DIFFUSER	VOLTAGE/ BALLAST	LAMPS/LUMEN PACKAGE	MANUFACTURER & CATALOG NO.
SL1	WALL MOUNTED LED SITE LUMINAIRE	WALL MOUNTED 10'-0" A.F.G.	LED OPTICS, TYPE 4 FORWARD THROW	UNV 120-277V	44W, 6019 LUMENS, 4000°K LED SYSTEM	MCGRAW EDISON 'GALLEON LED' #GLEON-SA1B-740-U-T4FT
SL2	POLE MOUNTED LED SITE LUMINAIRE	POLE MOUNTED 15'-0" A.F.G.	LED OPTICS, TYPE 4 FORWARD THROW	UNV 120-277V	44W, 6019 LUMENS, 4000°K LED SYSTEM	MCGRAW EDISON 'GALLEON LED' #GLEON-SA1B-740-U-T4FT

2.b

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Buffalo Engineering
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REVISIONS

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CHECKED BY

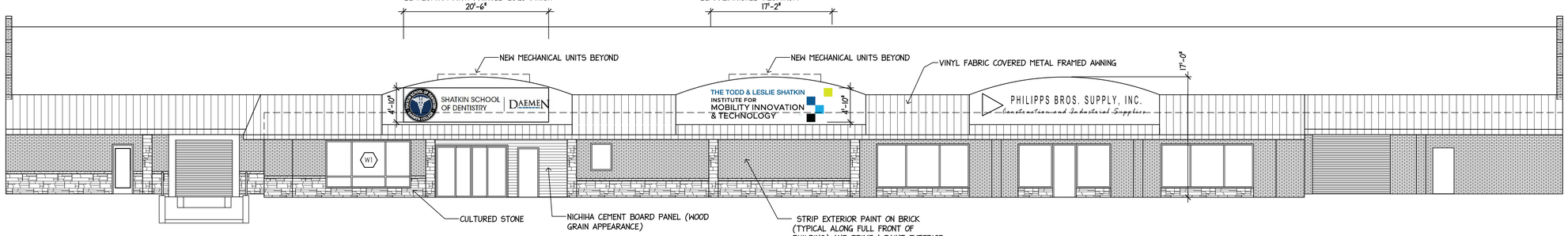
SCALE AS NOTED

DATE 03/24/22

ELECTRICAL SITE LIGHTING PLAN

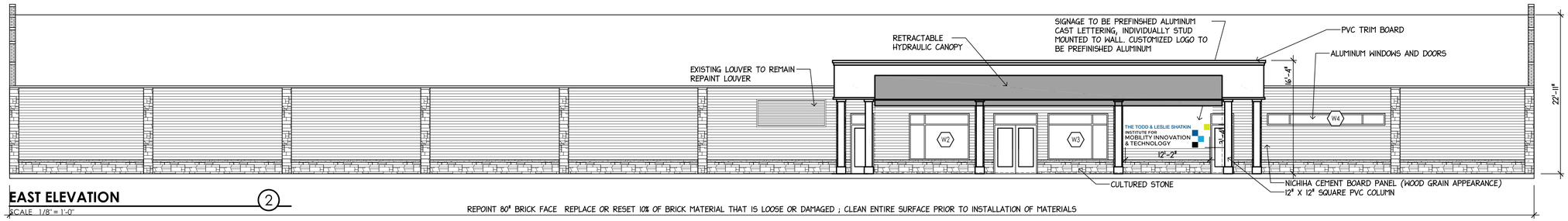
EL-100

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)
Packet Pg. 1515



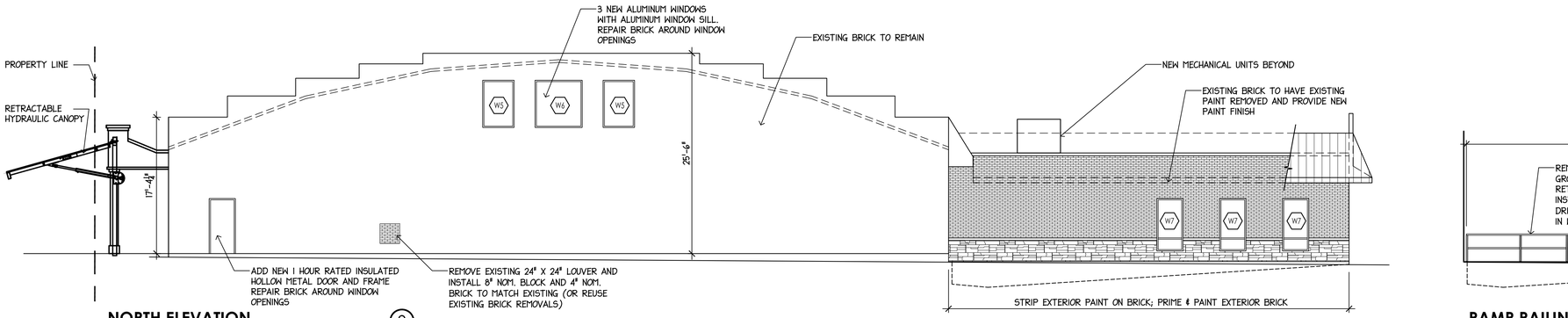
WEST ELEVATION ①

SCALE 1/8" = 1'-0"



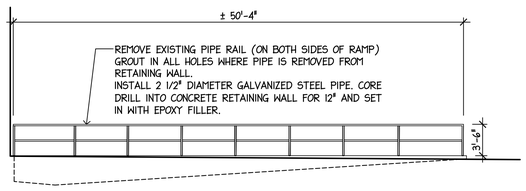
EAST ELEVATION ②

SCALE 1/8" = 1'-0"



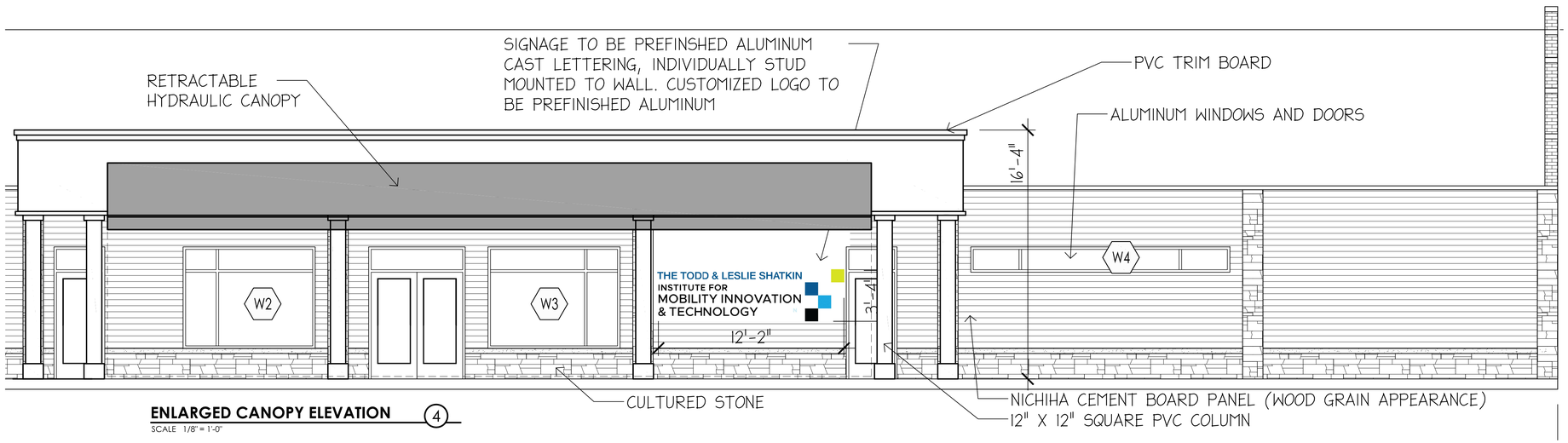
NORTH ELEVATION ③

SCALE 1/8" = 1'-0"



RAMP RAILING ELEVATION ⑤

SCALE 1/8" = 1'-0"



ENLARGED CANOPY ELEVATION ④

SCALE 1/8" = 1'-0"

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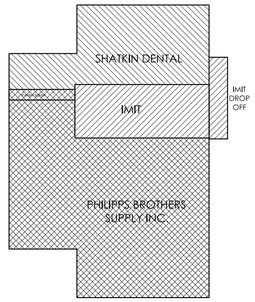
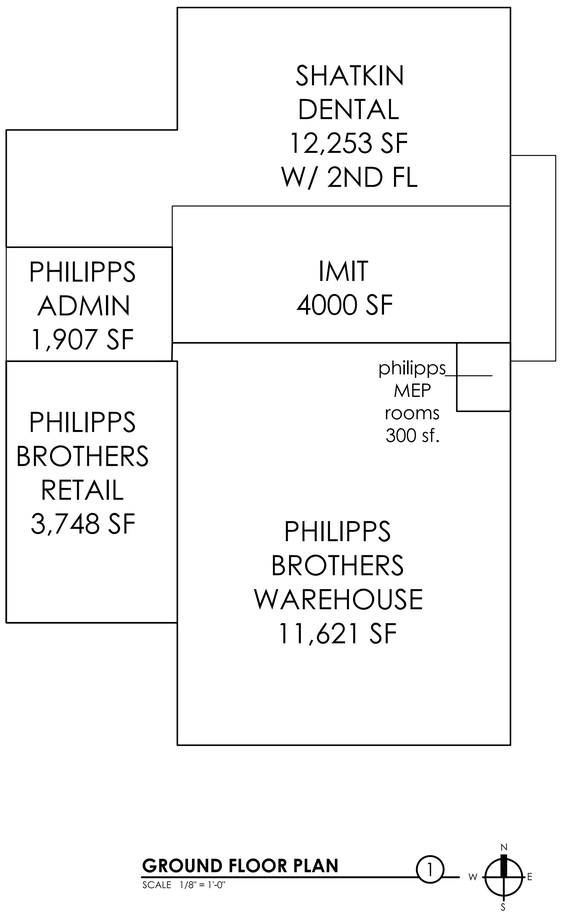
EXTERIOR ELEVATIONS

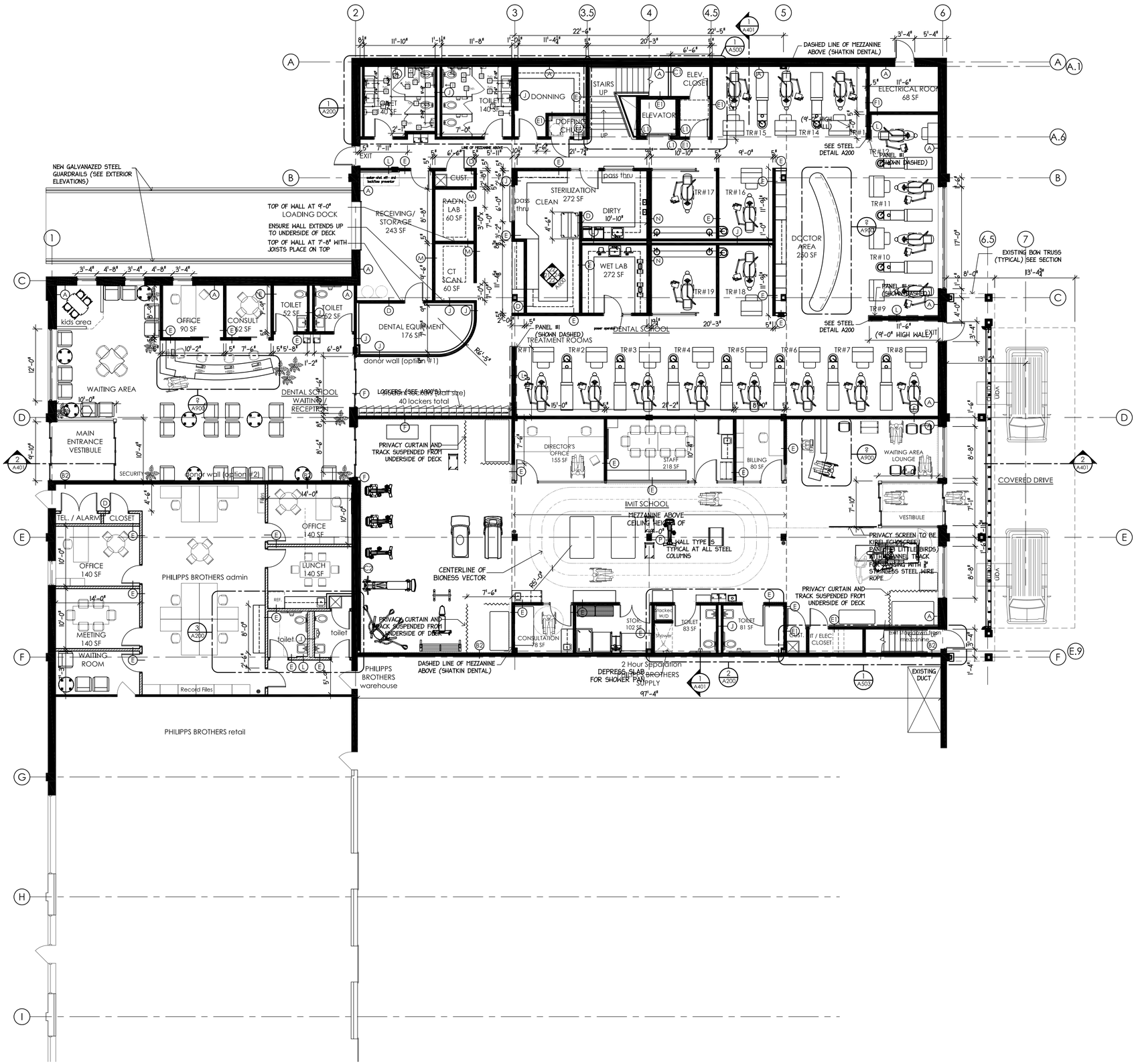
A300



KEY PLAN
SCALE NTS



GROUND FLOOR PLAN
SCALE 1/8" = 1'-0"



GROUND FLOOR PLAN
SCALE 1/8" = 1'-0"

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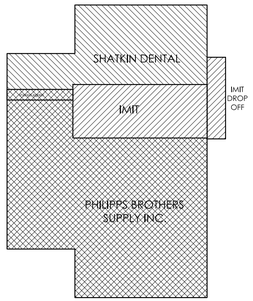
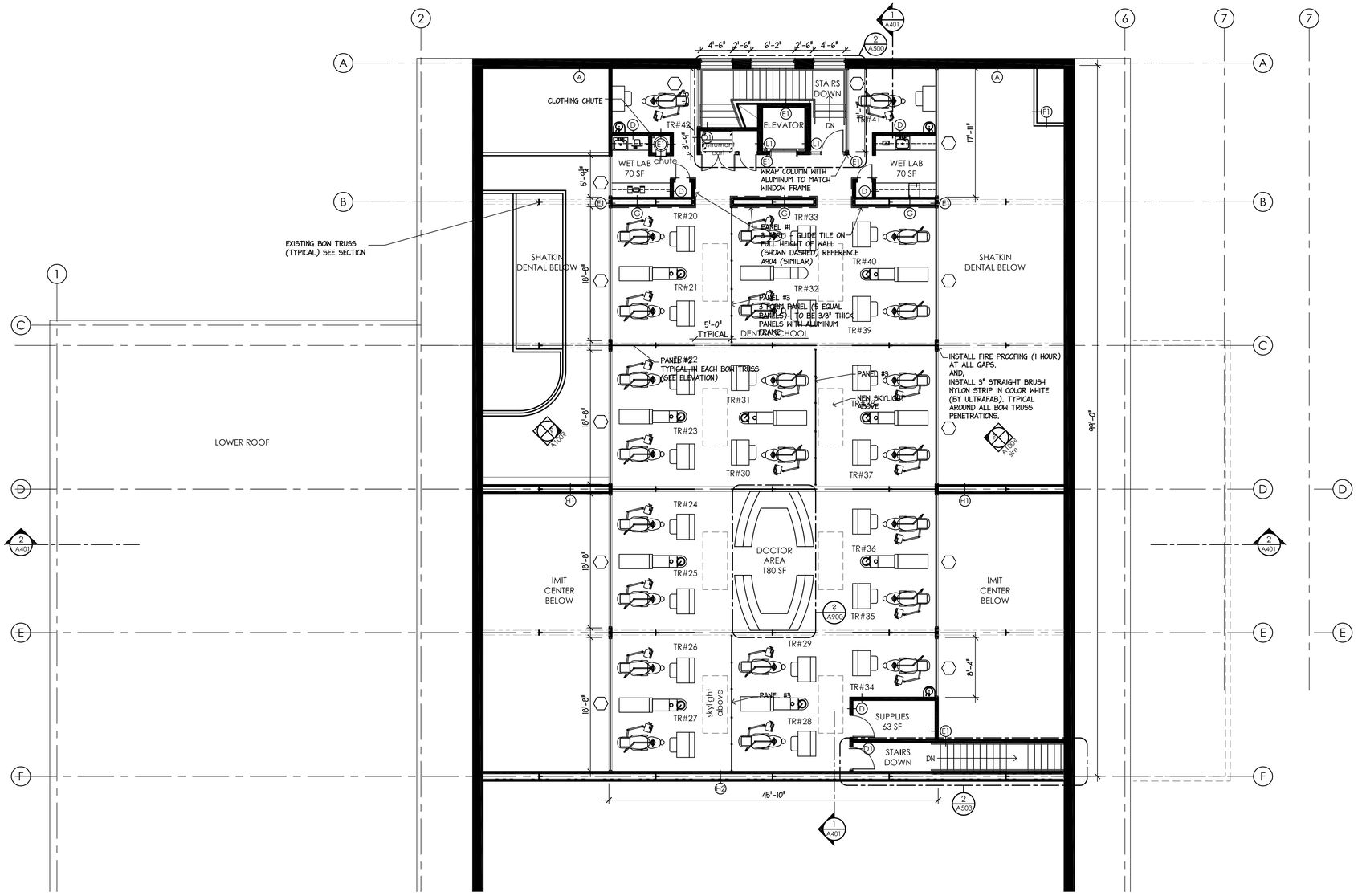
March 29 2022

GROUND FLOOR PLAN

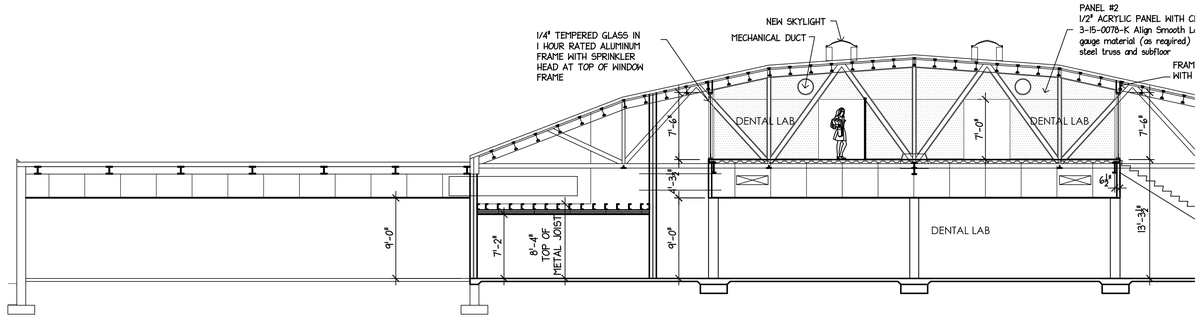
A101



KEY PLAN 1
SCALE NTS



UPPER FLOOR PLAN 1
SCALE 1/8" = 1'-0"



TYPICAL CROSS SECTION 2
SCALE 1/8" = 1'-0"

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SCALE
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SECOND FLOOR PLAN

A102

KOHLER®

Model: 200REOZJF

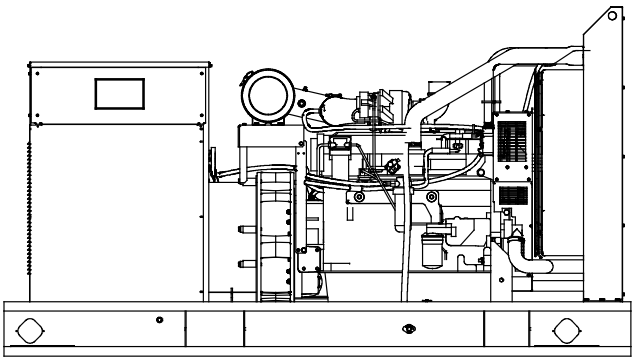
208- 600 V **Diesel**

ISO 9001 KOHLER® NATIONALLY REGISTERED

Tier 3 EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz
Standby:	**kW**	168- 200
	kVA	195- 250
Prime:	**kW**	158- 180
	kVA	175- 225



Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating kW/kVA	130°C Rise Standby Rating Amps	105°C Rise Prime Rating kW/kVA	105°C Rise Prime Rating Amps
4S13X	120/208	3	60	184/230	638	173/216	600
	127/220	3	60	194/243	636	180/225	590
	120/240	3	60	184/230	553	173/216	520
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	168/210	319	158/198	300
	277/480	3	60	200/250	301	180/225	271
4UA9	120/208	3	60	200/250	694	180/225	625
	127/220	3	60	200/250	656	180/225	590
	120/240	3	60	200/250	601	180/225	541
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	200/250	380	180/225	342
	277/480	3	60	200/250	301	180/225	271
	347/600	3	60	200/250	241	180/225	217
4UA13	120/208	3	60	200/250	694	180/225	625
	127/220	3	60	200/250	656	180/225	590
	120/240	3	60	200/250	601	180/225	541
	120/240	1	60	195/195	813	175/175	729
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	200/250	380	180/225	342
	277/480	3	60	200/250	301	180/225	271
	347/600	3	60	200/250	241	180/225	217

Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
  - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
    (4S13X alternator)
  - The unique Fast-Response® II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator.
    (4UA9 and 4UA13 alternators)
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
- Multiple circuit breaker configurations.
- Mount up to three circuit breakers to allow circuit protection of selected priority loads.

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. *Standby Ratings:* The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. *Prime Power Ratings:* At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	
4SX, 4UA	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Specifications		Alternator
Peak motor starting kVA:		(35% dip for voltages below)
480 V	4S13X (12 lead)	570
480 V	4UA9 (12 lead)	700
480 V	4UA13 (12 lead)	960

Application Data

Engine

Engine Specifications	
Manufacturer	John Deere
Engine model	6068HFG85A
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	6 Inline
Displacement, L (cu. in.)	6.8 (415)
Bore and stroke, mm (in.)	106 x 127 (4.19 x 5.00)
Compression ratio	17.0:1
Piston speed, m/min. (ft./min.)	457 (1500)
Main bearings: quantity, type	7, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	235 (315)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve material:	
Intake	Chromium-Silicon Steel
Exhaust	Stainless Steel
Governor: type, make/model	JDEC Electronic L14 Denso HP3
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m^3/min. (cfm)	42.8 (1510)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	527 (980)
Maximum allowable back pressure, kPa (in. Hg)	Min. 4 (1.2) Max. 10 (3.0)
Exhaust outlet size at engine hookup, mm (in.)	98 (3.86)

Engine Electrical

Engine Electrical System	
Battery charging alternator:	24 Volt
Ground (negative/positive)	Negative
Volts (DC)	24
Ampere rating	45
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each	Two, 925
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, fuel pump: type, m (ft.)	Mechanical, 1.8 (6.0)
Max. fuel flow, Lph (gph)	92.7 (24.5)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel prime pump	Manual
Fuel filter	
Primary	30 Microns
Secondary	2 Microns @ 98% Efficiency
Water Separator	Yes
Recommended fuel	#2 Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.) §	32.5 (34.4)
Oil pan capacity with filter, L (qt.) §	33.4 (35.3)
Oil filter: quantity, type §	1, Cartridge
Oil cooler	Water-Cooled

§ Kohler recommends the use of Kohler Genuine oil and filters.

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

Application Data

Cooling

Radiator System	
Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	11.3 (3.0)
Radiator system capacity, including engine, L (gal.)	27.6 (7.3)
Engine jacket water flow, Lpm (gpm)	230.9 (61)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	94.2 (5360)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	56.1 (3190)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	787 (31)
Fan, kWm (HP)	8.6 (11.5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)

* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

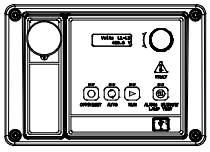
Air Requirements	
Radiator-cooled cooling air, m^3/min. (scfm)‡	368.1 (13000)
Combustion air, m^3/min. (cfm)	17.6 (620)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	46.9 (2670)
Alternator, kW (Btu/min.)	18.5 (1050)

‡ Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

Fuel Consumption

Diesel, Lph (gph) at % load	Standby Rating	
100%	58.0	(15.3)
75%	43.3	(11.4)
50%	31.4	(8.3)
25%	19.7	(5.2)
Diesel, Lph (gph) at % load	**Prime Rating**	
100%	50.1	(13.2)
75%	36.1	(9.5)
50%	25.7	(6.8)
25%	16.6	(4.4)

Controllers

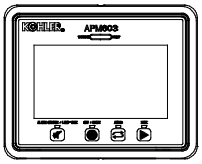


APM402 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.

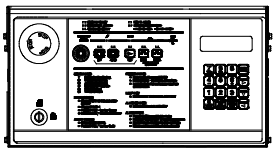


APM603 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.



Decision-Maker® 6000 Paralleling Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other Decision-Maker® 6000 controllers only
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-107 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

BACnet® is a registered trademark of ASHRAE.

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

KOHLER

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

Standard Features

- Alternator Protection
- Battery Rack and Cables
- Customer Connection (standard with Decision-Maker® 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Circuit Breakers

Type

- ❑ Magnetic Trip
- ❑ Thermal Magnetic Trip
- ❑ Electronic Trip (LI)
- ❑ Electronic Trip with Short Time (LSI)
- ❑ Electronic Trip with Ground Fault (LSIG)

Rating

- ❑ 80%
- ❑ 100%

Operation

- ❑ Manual
- ❑ Electrically Operated (for paralleling)

Circuit Breaker Mounting

- ❑ Generator Mounted
- ❑ Remote Mounted
- ❑ Bus Bar (for remote mounted breakers)

Enclosures for Remote Mounted Circuit Breakers

- ❑ NEMA 1
- ❑ NEMA 3R

Approvals and Listings

- ❑ California OSHPD Pre- Approval
- ❑ CSA Certified
- ❑ IBC Seismic Certification
- ❑ UL 2200 Listing
- ❑ Hurricane Rated Enclosure

Enclosed Unit

- ❑ Sound Enclosure (with enclosed critical silencer)
- ❑ Weather Enclosure (with enclosed critical silencer)

Open Unit

- ❑ Exhaust Silencer, Critical (kit: PA-354809)
- ❑ Flexible Exhaust Connector, Stainless Steel

Fuel System

- ❑ Flexible Fuel Lines
- ❑ Fuel Pressure Gauge
- ❑ Subbase Fuel Tanks

Controller

- ❑ Common Failure Relay (Decision-Maker® 6000 and APM603 controllers only)
- ❑ Decision-Maker® Paralleling System (DPS) (Decision-Maker® 6000 controller only)
- ❑ Dry Contact (isolated alarm) (Decision-Maker® 6000 controller only)
- ❑ Two Input/Five Output Module (APM402 controller only)
- ❑ Four Input/Fifteen Output Module (APM603 controller only)
- ❑ Lockable Emergency Stop Switch
- ❑ Remote Emergency Stop Switch
- ❑ Remote Serial Annunciator Panel
- ❑ Run Relay (standard with APM603, optional with others)
- ❑ Manual Key Switch (APM603 controller only)
- ❑ Manual Speed Adjust (APM402 controller only)

Cooling System

- ❑ Block Heater, 1800 W, 90- 120 V, 1 Ph
- ❑ Block Heater, 2000 W, 190- 240 V, 1 Ph Required for ambient temperature below 0°C (32°F)
- ❑ Radiator Duct Flange

Electrical System

- ❑ Generator Heater
- ❑ Battery
- ❑ Battery Charger, Equalize/Float Type
- ❑ Battery Heater

Miscellaneous

- ❑ Air Cleaner, Heavy Duty
- ❑ Air Cleaner Restriction Indicator
- ❑ Certified Test Report
- ❑ Crankcase Emissions Canister
- ❑ Engine Fluids Added
- ❑ Rated Power Factor Testing
- ❑ Rodent Guards

Literature

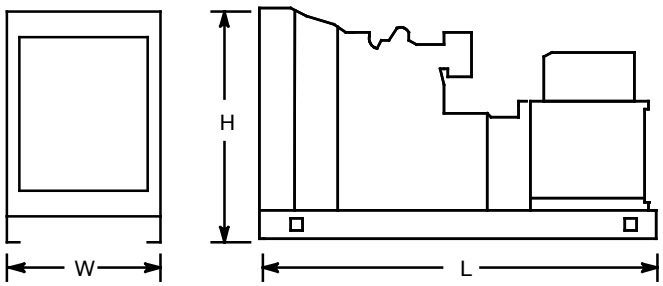
- ❑ General Maintenance
- ❑ NFPA 110
- ❑ Overhaul
- ❑ Production

Warranty

- ❑ 2-Year Basic Limited Warranty
- ❑ 5-Year Basic Limited Warranty
- ❑ 5-Year Comprehensive Limited Warranty

Dimensions and Weights

Overall Size, L x W x H, mm (in.):	3000 x 1300 x 1672 (118.1 x 51.2 x 65.8)
Weight (radiator model), wet, kg (lb.):	1923 (4240)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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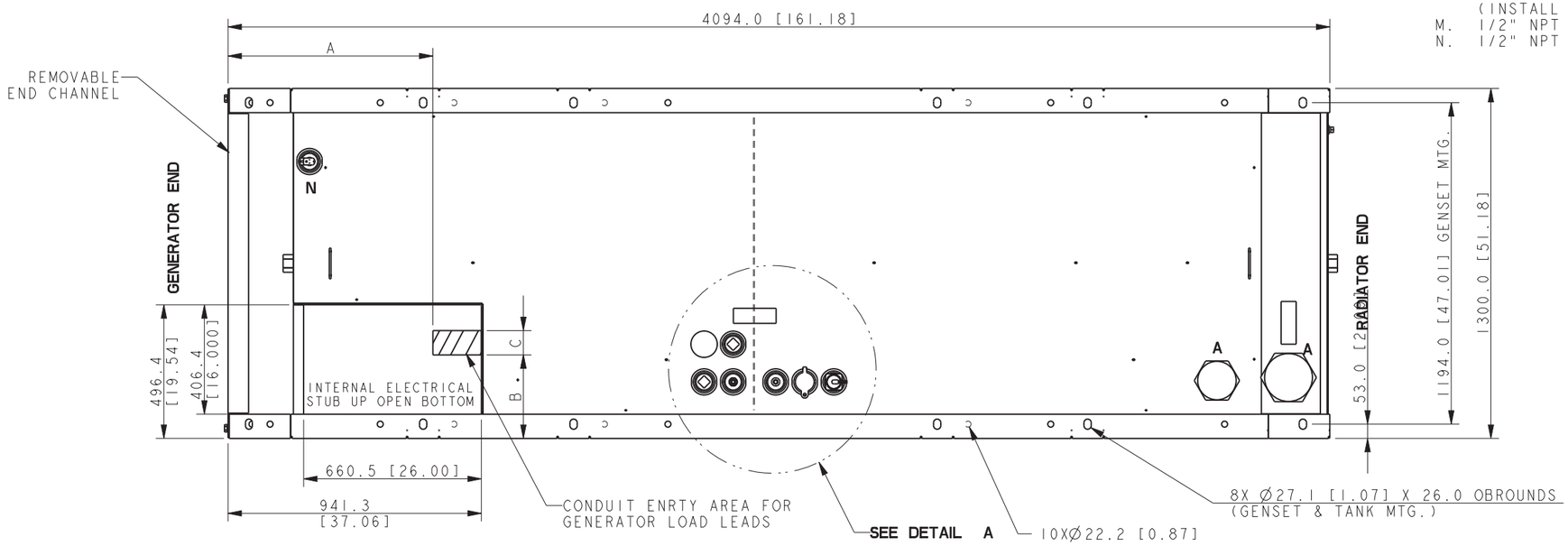
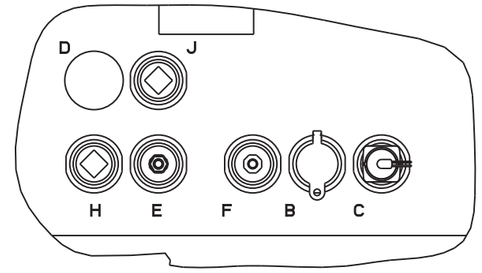
Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

MODEL	CAPACITY		WEIGHT		HEIGHT		E-Vent	
	LITERS	GAL	KG	LBS	MM	IN	SIZE (IN)	QTY
180/200kW	1514	400	933	2057	482.6	19.0	4.0	2.0
180/200kW	2871	758	1327	2926	889.0	35.0	5.0	2.0

TANK FITTINGS:

A. 'A' NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS
B. 2" NPT FUEL FILL FITTING WITH LOCKABLE CAP
C. 2" NPT FUEL LEVEL GAUGE FITTING
D. 2" NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE)
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE)
H. 2" NPT FOR LOW LEVEL SWITCH (SET AT 50% FULL, SILICONE PACKED)
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY (INSTALL STEEL 2" NPT PIPE PLUG)
M. 1/2" NPT BASIN DRAIN (INSTALL STEEL 1/2" NPT PIPE PLUG)
N. 1/2" NPT FOR FUEL IN BASIN SWITCH (INSTALL STEEL 1/2" NPT PIPE PLUG)





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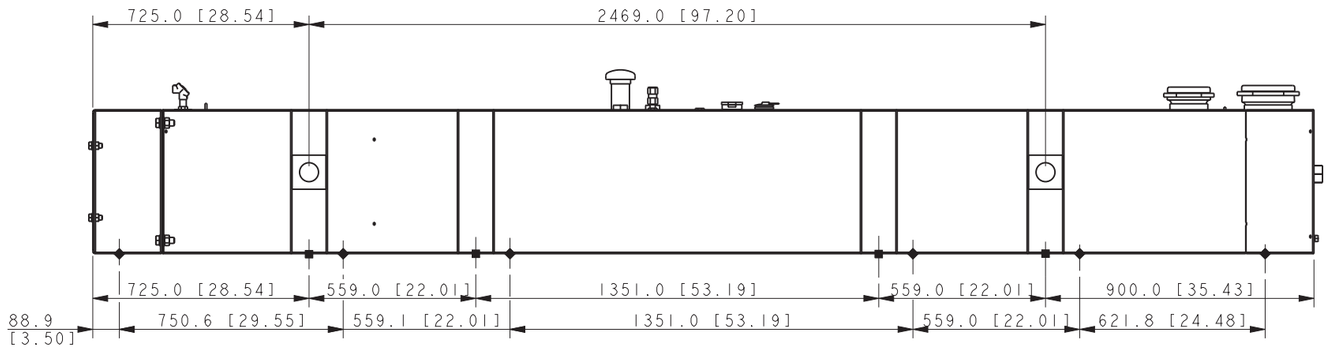

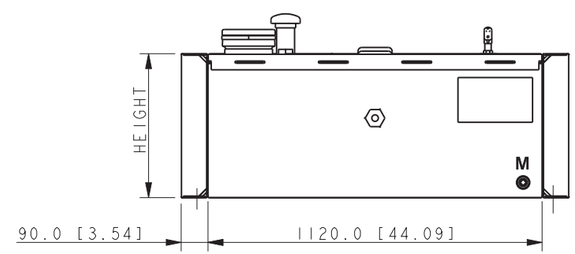

■ 8XØ25.4 [1.0] STANDARD MOUNTING

◆ 12XØ22.2 [0.88] IBC/WINDLOAD MOUNTING

STANDARD TANK

180 MODEL 60HZ 4S15, 4S12X & 4S13X
200 MODEL 4UA9, 4UA13 & 4S13X
RECONNECTABLE
IMPROVED MOTOR STARTING (IMS) &
600V ALTERNATOR
JOHN DEERE 6068HF485, TIER III

GENSET	A	B	C
180KW	761 [30.0]	310 [12.2]	90 [3.5]
200KW	561 [22.1]	303 [11.9]	100 [3.9]

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
F	08-11-14	(A-4) STANDARD TANK NOTE ADDED & SEE SHEET	
		2 [CT89102]	PAS
G	2-28-17	(A-8, A-7) 761 WAS 571, 303 WAS 195,	
		(8-D, C-7) DELETE 50.0 UPDATE CONDUIT AREA,	
		SEE SHEET 2, [CT170607]	RMJ
H	2-19-18	SEE SHEET 3 [CT184671]	PAS
J	2-26-19	(A-5) IBC/WINDLOAD MOUNTING WAS IBC MOUNTING;	
		SEE SHEET 2 & 3 [CT193852]	TKK
K	7-2-19	SEE SHEET 2 [CT196925]	JB2

UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

APPROVALS	DATE
DRAWN PKD	1-20-10
CHECKED AJD	1-20-10
APPROVED AJD	1-20-10

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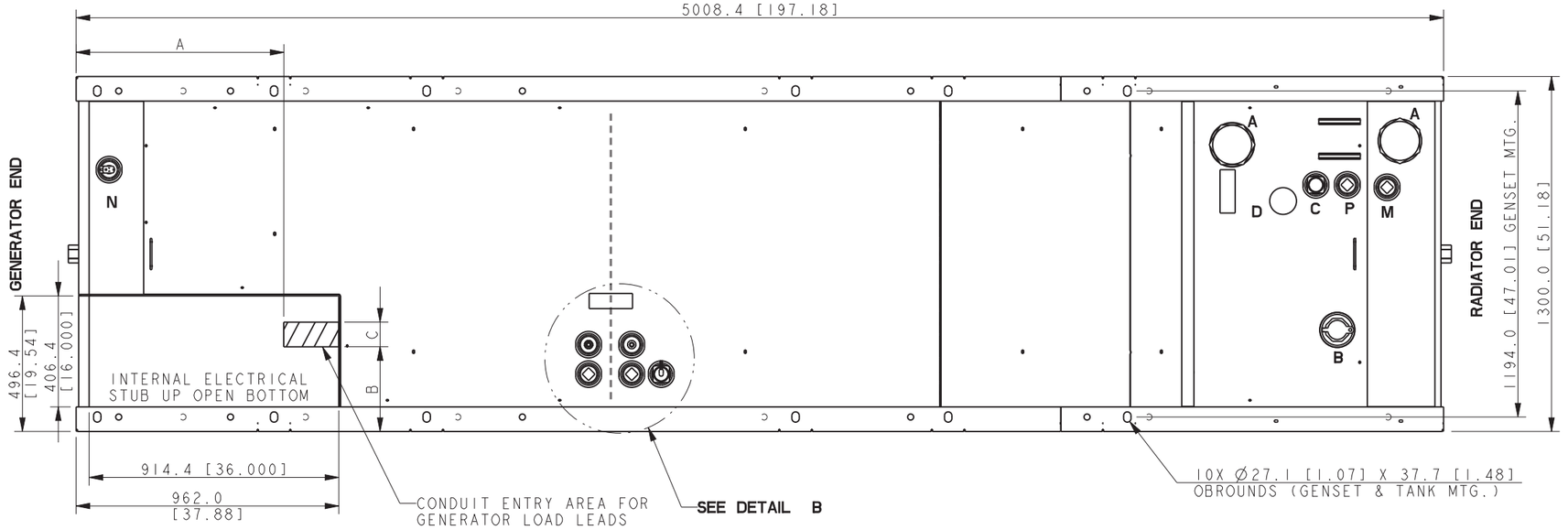
SCALE 0.10 | CAD NO. | SHEET 1 of 3
DWG NO. ADV-

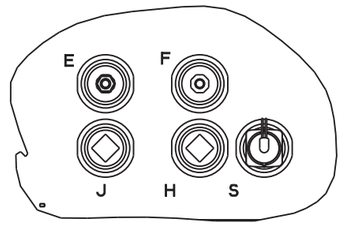
Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

MODEL	CAPACITY		WEIGHT		HEIGHT		E-Vent	
	LITERS	GAL	KG	LBS	MM	IN	SIZE (IN)	QTY
180/200kW	1576	416	1234	2721	457.2	18.0	5.0	2.0
180/200kW	2896	765	1560	3440	762.0	30.0	5.0	2.0

TANK FITTINGS:

A. 'A' NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS
B. 4" NPT FUEL FILL FITTING WITH LOCKABLE CAP AND RISER. PLUG & SHIP WITH TANK IN BOX ATTACHED TO TANK
C. 2" NPT FUEL LEVEL GAUGE FITTING
D. 2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER.
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE)
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE)
H. 2" NPT FOR LOW LEVEL SWITCH (SET AT 50% FULL, SILICONE PACKED)
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY (INSTALL 2" NPT PIPE PLUG)
M. 2" NPT BASIN DRAIN (PLUGGED
N. 2" NPT FOR FUEL IN BASIN SWITCH
P. 2" NPT ADDITIONAL FITTING FOR OTPIONAL ACCESORY (INSTALL 2" NPT PIPE PLUG)
S. 2" NPT FUEL LEVEL GAUGE FITTING WITH SENDER





DETAIL B
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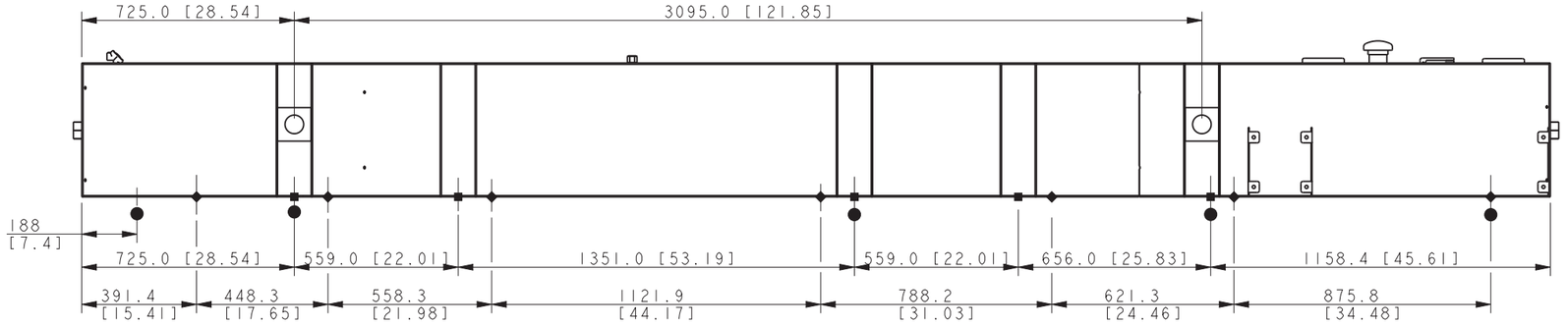

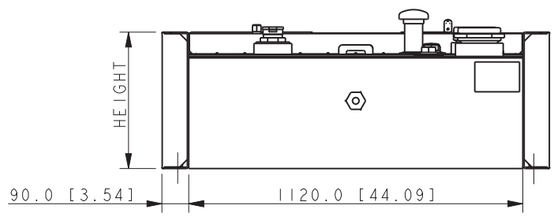

■ 10XØ25.4 [1.0] STANDARD MOUNTING
◆ 14XØ22.2 [0.88] IBC/WINDLOAD MOUNTING
● 10XØ25.4 [1.0] BOTTOM BEAM MOUNTING

GENSET	A	B	C
180KW	761 [30.0]	310 [12.2]	90 [3.5]
200KW	561 [22.1]	303 [11.9]	100 [3.9]

STATE TANK
180 MODEL 60HZ 4S15, 4S12X & 4S13X
200 MODEL 4UA9, 4UA13 & 4S13X
RECONNECTABLE
IMPROVED MOTOR STARTING (IMS) &
600V ALTERNATOR
JOHN DEERE 6068HF485, TIER III

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
G	2-28-17	(A-8, A-7) 761 WAS 571, 303 WAS 195,	
		(8-D, C-7) DELETE 50.0 UPDATE CONDUIT AREA,	
		SEE SHEET 1, [CT170607]	RMJ
H	2-19-18	SEE SHEET 3 [CT184671]	PAS
J	2-26-19	(A-5,6) IBC/WINDLOAD MOUNTING WAS IBC	
		MOUNTING; SEE SHEET 1 & 3 [CT193852]	TKK
K	7-2-19	(D-6)5.0 WAS 4.0, (B-4) CORRECTED ACCURACY	
		TO GENSET / TANK MOUNTING [CT196925]	JB2

UNLESS OTHERWISE SPECIFIED: - 1) DIMENSIONS ARE IN MILLIMETERS 2) TOLERANCES ARE: X.XX ± 0.25, X.X ± 1.0, X ± 1.5, ANGLES ± 0° 30' — SURFACE FINISH MAX. — THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	PKD	1-20-10
CHECKED	AJD	1-20-10
APPROVED	AJD	1-20-10

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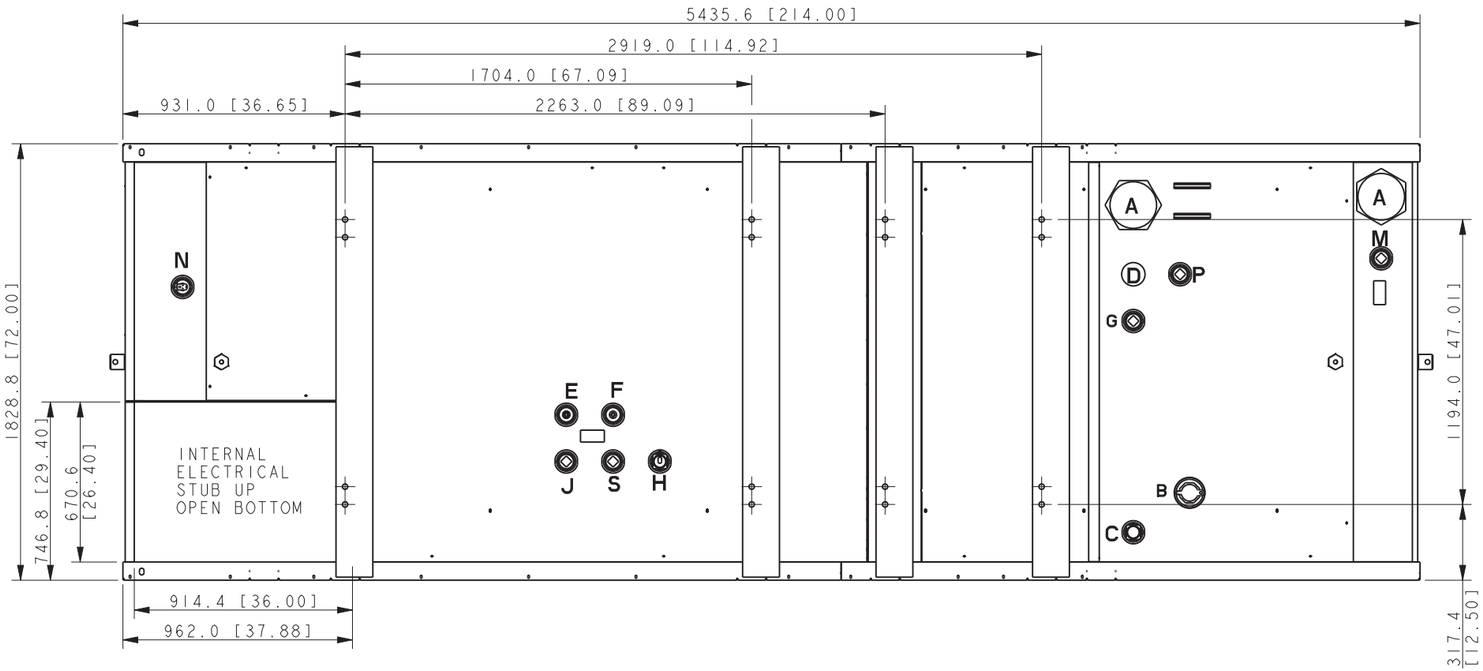
DWG NO. ADV-

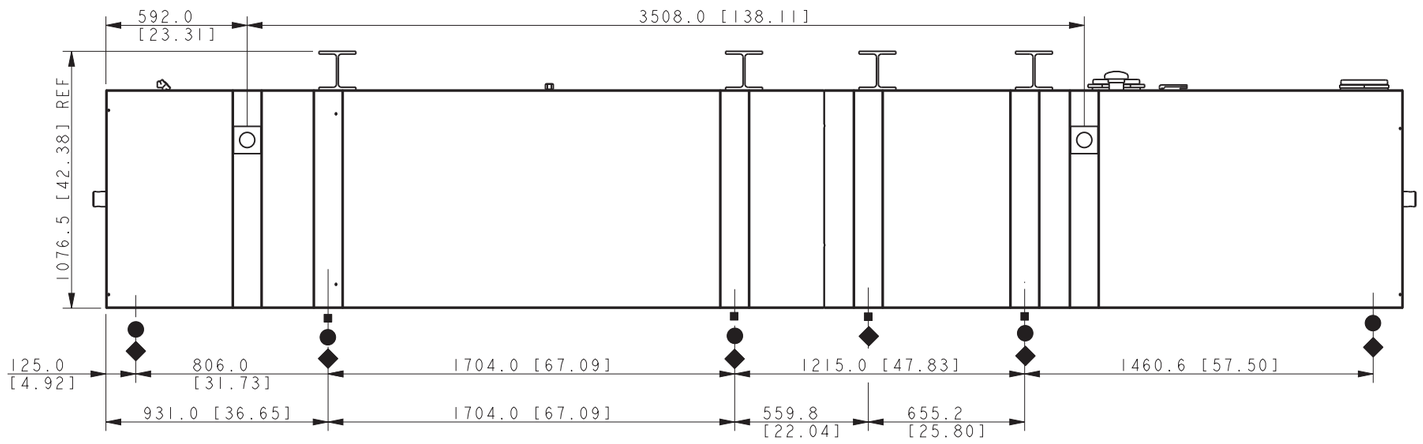
Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

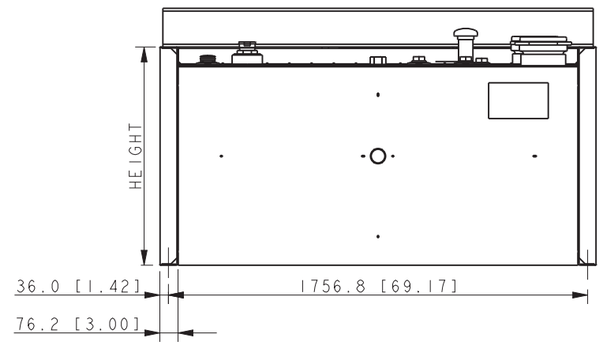
MODEL	CAPACITY		WEIGHT		HEIGHT		E-Vent	
	LITERS	GAL	KG	LBS	MM	IN	SIZE (IN)	QTY
180/200kW	5742	1517	1727	3809	914.4	36.0	6.0	2.0

TANK FITTINGS:

A. 'A' NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS
B. 4" NPT FUEL FILL FITTING WITH LOCKABLE CAP AND RISER.
C. 2" NPT FUEL LEVEL GAUGE FITING WITH DIRECT READING MECHANICAL GAUGE.
D. 2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER.
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE).
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE).
G. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY. (INSTALL STEEL 2" NPT PIPE PLUG).
H. 2" NPT FOR FUEL LEVEL SENDING UNIT.
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY. (INSTALL STEEL 2" NPT PIPE PLUG).
M. 2" NPT BASIN DRAIN (INSTALL STEEL 2" NPT PIPE PLUG).
N. 2" NPT FOR FUEL IN BASIN SWITCH.
P. 2" NPT ADDITIONAL FITTING FOR OTPIONAL ACCESORY (INSTALL STEEL 2" NPT PIPE PLUG).
S. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY. (INSTALL STEEL 2" NPT PIPE PLUG).







NOTE:
FOR FURTHER TANK DETAIL SEE INDIVIDUAL DRAWINGS

■ 8X Ø25.40 [1.0] STANDARD MOUNTING
● 10X Ø25.40 [1.0] BOTTOM BEAM MOUNTING
◆ 12X Ø25.40 [1.0] WINDLOAD MOUNTING

96 HOUR STATE TANK

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
H	2-19-18	SHEET 3 ADDED [CTI84671]	PAS
J	2-26-19	(A-4,5) 12X Ø25.40 [1.0] WINDLOAD MOUNTING	
		NOTE ADDED; SEE SHEET 1 & 2 [CTI93852]	TKK
K	7-2-19	SEE SHEET 2 [CTI96925]	JB2

UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	PAS	2-19-18
CHECKED	JB2	2-19-18
APPROVED	KJB	2-19-18

KOHLER CO. METRIC PRO
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
THIS DRAWING IN DESIGN AND DETAIL IS KOHLER PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH KOHLER CO. WORK. ALL RIGHTS DESIGN OR INVENTION ARE RESERVED.

TITLE
DIMENSION PRINT

SCALE 0.08 | CAD NO. | SHEET 3 of 3
DWG NO. ADV-

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GLEON Galleon

Area / Site Luminaire

Product Features

LumenSafe Technology

Light ARchitect™

Product Certifications

Interactive Menu

- Ordering Information page 2
- Mounting Details page 3
- Optical Distributions page 4
- Product Specifications page 4
- Energy and Performance Data page 4
- Control Options page 9

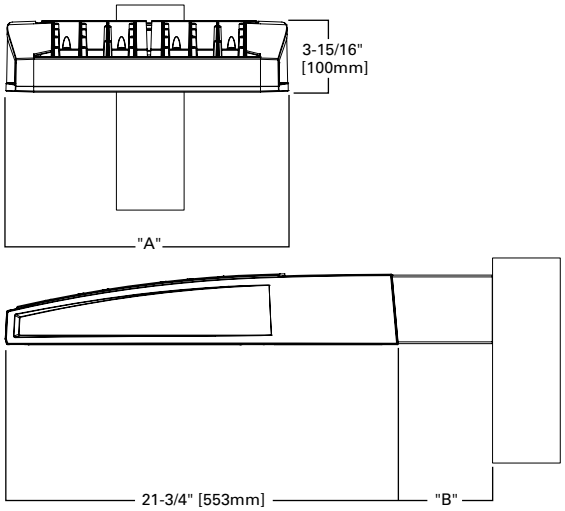
Quick Facts

- Lumen packages range from 4,200 - 80,800 (34W - 640W)
- Efficacy up to 156 lumens per watt
- Options to meet Buy American and other domestic preference requirements

Connected Systems

- WaveLinx
- Enlighted

Dimensional Details



Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Extended Arm Length [1]	"B" Quick Mount Arm Length	"B" Quick Mount Extended Arm Length
1-4	15-1/2"	7"	10"	10-5/8"	16-9/16"
5-6	21-5/8"	7"	10"	10-5/8"	16-9/16"
7-8	27-5/8"	7"	13"	10-5/8"	--
9-10	33-3/4"	7"	16"	--	--

NOTES:
For arm selection requirements and additional line art, see Mounting Details section.

NOTES:
1. Visit https://www.designlights.org/search/ to confirm qualification. Not all product variations are DLC qualified.
2. IDA Certified for 3000K CCT and warmer only.

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

Ordering Information

SAMPLE NUMBER: **GLEON-SA4C-740-U-T4FT-GM**

Product Family [1, 2]	Light Engine		Color Temperature	Voltage	Distribution	Mounting	Finish
	Configuration	Drive Current					
GLEON=Galleon **BAA-GLEON**=Galleon, Buy American Act Compliant [35] **TAA-GLEON**=Galleon, Trade Agreements Act Compliant [35]	**SA1**=1 Square **SA2**=2 Squares **SA3**=3 Squares **SA4**=4 Squares **SA5**=5 Squares [4] **SA6**=6 Squares **SA7**=7 Squares [5] **SA8**=8 Squares [5] **SA9**=9 Squares [6] **SA0**=10 Squares [6]	**A**=600mA **B**=800mA **C**=1000mA **D**=1200mA [16]	**722**=70CRI, 2200K **727**=70CRI, 2700K **730**=70CRI, 3000K **735**=70CRI, 3500K **740**=70CRI, 4000K **750**=70CRI, 5000K **760**=70CRI, 6000K **827**=80CRI, 2700K **830**=80CRI, 3000K **AMB**=Amber, 590nm [14, 16]	**U**=120-277V **1**=120V **2**=208V **3**=240V **4**=277V **8**=480V [7, 8] **9**=347V [7]	**T2**=Type II **T2R**=Type II Roadway **T3**=Type III **T3R**=Type III Roadway **T4FT**=Type IV Forward Throw **T4W**=Type IV Wide **5NQ**=Type V Narrow **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right **RW**=Rectangular Wide Type I **AFL**=Automotive Frontline	**[Blank]**=Arm for Round or Square Pole **EA**=Extended Arm [9] **MA**=Mast Arm Adapter [10] **WM**=Wall Mount **QM**=Quick Mount Arm (Standard Length) [11] **QML**=Quick Mount Arm (Standard Length, Large) [37] **QMEA**=Quick Mount Arm (Extended Length) [12]	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White **RALXX**=Custom Color

Options (Add as Suffix)	Controls and Systems Options (Add as Suffix)	Accessories (Order Separately)[36]
DIM=External 0-10V Dimming Leads [19, 20] **F**=Single Fuse (120, 277 or 347V Specify Voltage) **FF**=Double Fuse (208, 240 or 480V Specify Voltage) **20K**=Series 20kV UL 1449 Surge Protective Device **2L**=Two Circuits [17, 18] **HA**=50°C High Ambient **HSS**=Installed House Side Shield [28] **GRSBK**=Glare Reducing Shield, Black [23] **GRSWH**=Glare Reducing Shield, White [23] **LCF**=Light Square Trim Painted to Match Housing [27] **MT**=Installed Mesh Top **TH**=Tool-less Door Hardware **CC**=Coastal Construction finish [3] **L90**=Optics Rotated 90° Left **R90**=Optics Rotated 90° Right **CE**=CE Marking [29] **AHD145**=After Hours Dim, 5 Hours [22] **AHD245**=After Hours Dim, 6 Hours [22] **AHD255**=After Hours Dim, 7 Hours [22] **AHD355**=After Hours Dim, 8 Hours [22] **DALI**=DALI Drivers	**BPC**=Button Type Photocontrol **PR**=NEMA 3-PIN Photocontrol Receptacle **PR7**=NEMA 7-PIN Photocontrol Receptacle [21] **SPB2**=Dimming Occupancy Sensor with Bluetooth Interface, 8′ - 20′ Mounting [34] **SPB4**=Dimming Occupancy Sensor with Bluetooth Interface, 21′ - 40′ Mounting [34] **MS-L20**=Motion Sensor for ON/OFF Operation, 9′ - 20′ Mounting Height [24] **MS-L40W**=Motion Sensor for ON/OFF Operation, 21′ - 40′ Mounting Height [24] **MS/X-L20**=Bi-Level Motion Sensor, 9′ - 20′ Mounting Height [24, 25] **MS/X-L40W**=Bi-Level Motion Sensor, 21′ - 40′ Mounting Height [24, 25] **MS/DIM-L20**=Motion Sensor for Dimming Operation, 9′ - 20′ Mounting Height [24] **MS/DIM-L40W**=Motion Sensor for Dimming Operation, 21′ - 40′ Mounting Height [24] **ZW**=WaveLinx Module and 4-PIN Receptacle **ZD**=WaveLinx Module with DALI driver and 4-PIN Receptacle **SWPD4XX**=WaveLinx Sensor Only, 7′-15′ [13, 32, 33] **SWPD5XX**=WaveLinx Sensor Only, 15′-40′ [13, 32, 33] **WOBXX**=WaveLinx Sensor with Bluetooth, 7′-15′ [13, 32] **WOFXX**=WaveLinx Sensor with Bluetooth, 15′-40′ [13, 32] **LWR-LW**=Enlighted Sensor, 8′–16′ Mounting Height [26] **LWR-LN**=Enlighted Sensor, 16′–40′ Mounting Height [26] **DIM10-MS/DIM-L08**=Synapse Occupancy Sensor (<8′ Mounting) [19] **DIM10-MS/DIM-L20**=Synapse Occupancy Sensor (9′-20′ Mounting) [19] **DIM10-MS/DIM-L40**=Synapse Occupancy Sensor (21′-40′ Mounting) [19]	**OA/RA1016**=NEMA Photocontrol Multi-Tap - 105-285V **OA/RA1027**=NEMA Photocontrol - 480V **OA/RA1201**=NEMA Photocontrol - 347V **OA/RA1013**=Photocontrol Shorting Cap **OA/RA1014**=120V Photocontrol **MA1252**=10kV Surge Module Replacement **MA1036-XX**=Single Tenon Adapter for 2-3/8" O.D. Tenon **MA1037-XX**=2@180° Tenon Adapter for 2-3/8" O.D. Tenon **MA1197-XX**=3@120° Tenon Adapter for 2-3/8" O.D. Tenon **MA1188-XX**=4@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1189-XX**=2@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1190-XX**=3@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1191-XX**=2@120° Tenon Adapter for 2-3/8" O.D. Tenon **MA1038-XX**=Single Tenon Adapter for 3-1/2" O.D. Tenon **MA1039-XX**=2@180° Tenon Adapter for 3-1/2" O.D. Tenon **MA1192-XX**=3@120° Tenon Adapter for 3-1/2" O.D. Tenon **MA1193-XX**=4@90° Tenon Adapter for 3-1/2" O.D. Tenon **MA1194-XX**=2@90° Tenon Adapter for 3-1/2" O.D. Tenon **MA1195-XX**=3@90° Tenon Adapter for 3-1/2" O.D. Tenon **FSIR-100**=Wireless Configuration Tool for Occupancy Sensor [24] **GLEON-MT1**=Field Installed Mesh Top for 1-4 Light Squares **GLEON-MT2**=Field Installed Mesh Top for 5-6 Light Squares **GLEON-MT3**=Field Installed Mesh Top for 7-8 Light Squares **GLEON-MT4**=Field Installed Mesh Top for 9-10 Light Squares **GLEON-QM**=Quick Mount Arm Kit [11] **GLEON-QMEA**=Quick Mount Extended Arm Kit [12] **LS/HSS**=Field Installed House Side Shield [28, 30] **LS/GRSBK**=Glare Reducing Shield, Black [23, 30] **LS/GRSWH**=Glare Reducing Shield, White [23, 30] **LS/PFS**=Perimeter Shield, Black [15] **WOLC-7P-10A**=WaveLinx Outdoor Control Module [19, 31] **SWPD4-XX**=Wavelinx Wireless Sensor, 7′–15′ Mounting Height [13, 19, 32, 33] **SWPD5-XX**=Wavelinx Wireless Sensor, 15′–40′ Mounting Height [13, 19, 32, 33]

NOTES:

1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
2. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
3. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654. Not available with TH option.
4. Not compatible with MS/4-LXX or MS/1-LXX sensors.
5. Not compatible with extended quick mount arm (QMEA).
6. Not compatible with standard quick mount arm (QM) or extended quick mount arm (QMEA).
7. Requires the use of an internal step down transformer when combined with sensor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A.
8. 480V must utilize Wye system only. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems.)
9. May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
10. Factory installed.
11. Maximum 8 light squares.
12. Maximum 6 light squares.
13. Requires ZW or ZD receptacle.
14. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose drive current A; supplied at 500mA drive current only. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option.
15. Set of 4 pcs. One set required per Light Square.
16. Not available with HA option.
17. 2L is not available with MS, MS/X or MS/DIM at 347V or 480V. 2L in SA2 through SA4 requires a larger housing, normally used for SA5 or SA6. Extended arm option may be required when mounting two or more fixtures per pole at 90° or 120°. Refer to arm mounting requirement table.
18. Not available with Enlighted wireless sensors.
19. Cannot be used with other control options.
20. Low voltage control lead brought out 18" outside fixture.
21. Not available if any "MS" sensor is selected. Motion sensor has an integral photocell.
22. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
23. Not for use with T4FT, T4W or SL4 optics. See IES files for details.
24. The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Cooper Lighting Solutions for more information.
25. Replace X with number of Light Squares operating in low output mode.
26. Enlighted wireless sensors are factory installed only requiring network components LWP-EM-1, LWP-GW-1 and LWP-PoE8 in appropriate quantities.
27. Not available with house side shield (HSS).
28. Not for use with 5NQ, 5MQ, 5WQ or RW optics. A black trim plate is used when HSS is selected.
29. CE is not available with the LWR, MS, MS/X, MS/DIM, BPC, PR or PR7 options. Available in 120-277V only.
30. One required for each Light Square.
31. Requires PR7.
32. Replace XX with sensor color (WH, BZ or BK.)
33. WAC Gateway required to enable field-configurability: Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed.
34. Smart device with mobile application required to change system defaults. See controls section for details.
35. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.
36. For BAA or TAA requirements, Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information.
37. Available for 7-10 squares.

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

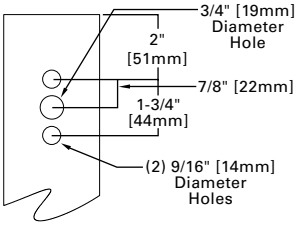
Product Family	Camera Type	Data Backhaul	
L=LumenSafe Technology	**D**=Standard Dome Camera **H**=Hi-Res Dome Camera **Z**=Remote PTZ Camera	**C**=Cellular, No SIM **A**=Cellular, AT&T **V**=Cellular, Verizon **S**=Cellular, Sprint	**R**=Cellular, Rogers **W**=Wi-Fi Networking w/ Omni-Directional Antenna **E**=Ethernet Networking

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

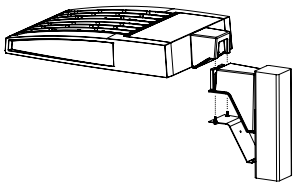
Mounting Details

Standard Arm (Drilling Pattern)

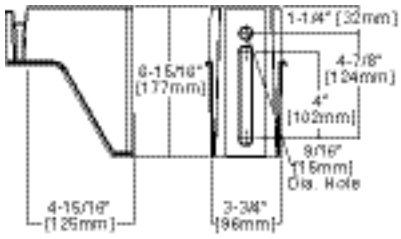
TYPE "N"



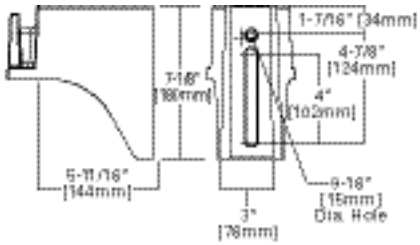
Quick Mount Arm (Includes fixture adapter)



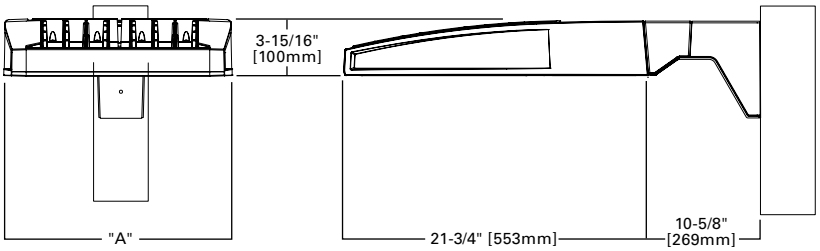
QM and QMEA Pole Mount



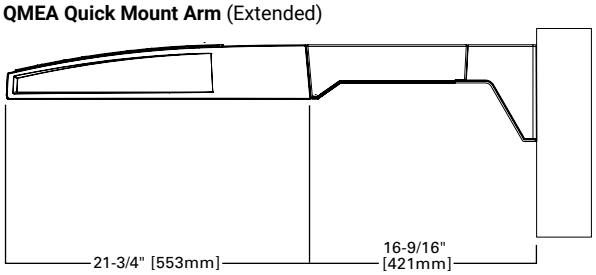
QML Pole Mount



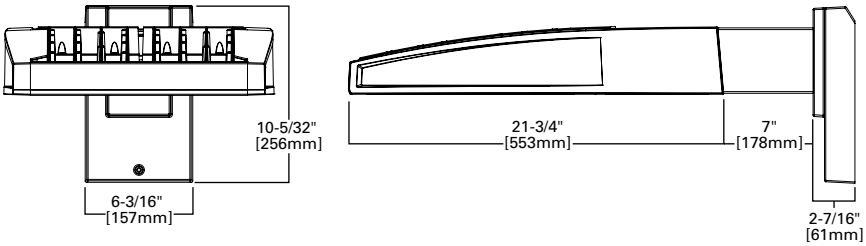
QM Quick Mount Arm (Standard)



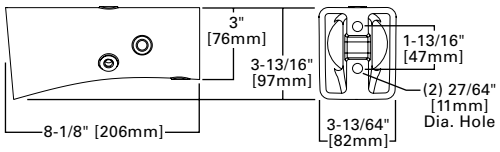
QMEA Quick Mount Arm (Extended)



Standard Wall Mount

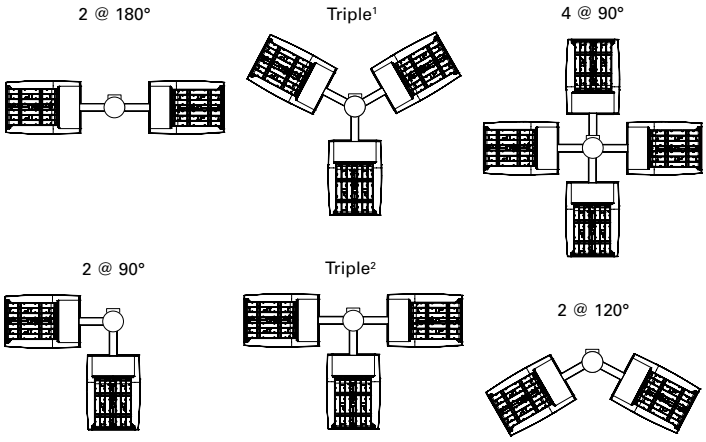


Mast Arm Mount



Arm Mounting Requirements

Number of Light Squares	Standard Arm @ 90° Apart	Standard Arm @ 120° Apart	Quick Mount Arm @ 90° Apart	Quick Mount Arm @ 120° Apart
1	Standard	Standard	QM Extended	Quick Mount
2	Standard	Standard	QM Extended	Quick Mount
3	Standard	Standard	QM Extended	Quick Mount
4	Standard	Standard	QM Extended	Quick Mount
5	Extended	Standard	QM Extended	Quick Mount
6	Extended	Standard	QM Extended	Quick Mount
7	Extended	Extended	--	Quick Mount
8	Extended	Extended	--	Quick Mount
9	Extended	Extended	--	--
10	Extended	Extended	--	--



NOTES: 1 Round poles are 3 @ 120°. Square poles are 3 @ 90°. **2** Round poles are 3 @ 90°. **3** Shown with 4 square configurations.

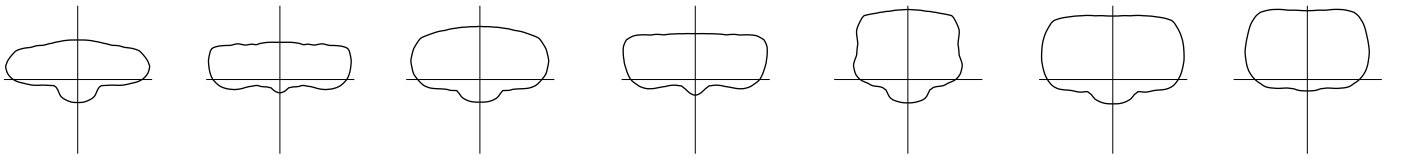
Fixture Weights and EPAs

Number of Light Squares	Weight with Standard and Extended Arm (lbs.)	EPA with Standard and Extended Arm (Sq. Ft.)	Weight with QM Arm (lbs.)	EPA with QM Arm (Sq. Ft.)	Weight with QML (lbs.)	EPA with QML (Sq. Ft.)	Weight with QMEA (lbs.)	EPA with QMEA (Sq. Ft.)
1-4	33	0.96	35	1.11	--	--	38	1.11
5-6	44	1.00	46	1.11	--	--	49	1.11
7-8	54	1.07	56	1.11	58	1.11	--	--
9-10	63	1.12	--	--	67	1.11	--	--

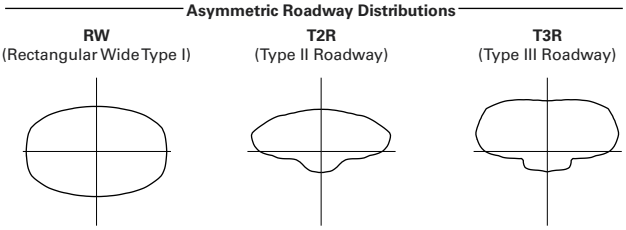
Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

Optical Distributions

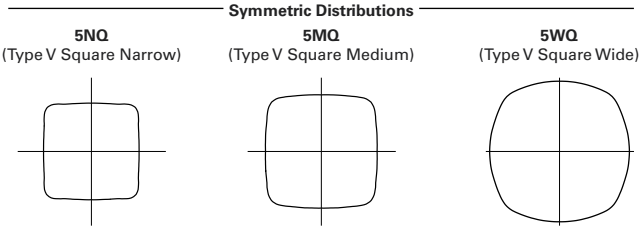
Asymmetric Area Distributions



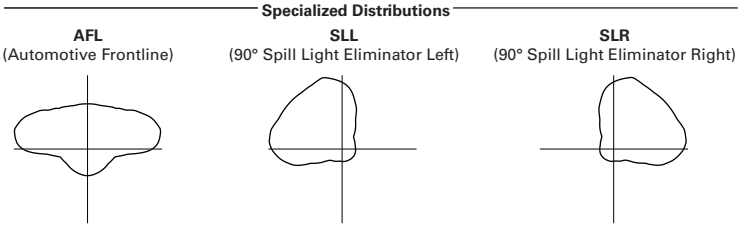
Asymmetric Roadway Distributions



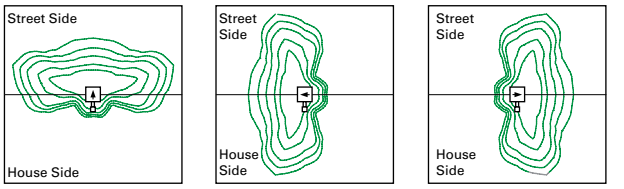
Symmetric Distributions



Specialized Distributions



Rotated Optics



Product Specifications

Construction

- Extruded aluminum driver enclosure
- Heavy-wall, die-cast aluminum end caps
- Die-cast aluminum heat sinks
- Patent pending interlocking housing and heat sink

Optics

- Patented, high-efficiency injection-molded AccuLED Optics technology
- 16 optical distributions
- 3 shielding options including HSS, GRS and PFS
- IDA Certified (3000K CCT and warmer only)

Electrical

- LED drivers are mounted to removable tray assembly for ease of maintenance
- Standard with 0-10V dimming
- Standard with Cooper Lighting Solutions proprietary circuit module designed to withstand 10kV of transient line surge
- Suitable for operation in -40°C to 40°C ambient environments. Optional 50°C high ambient (HA) configuration.

Mounting

- Standard extruded arm includes internal bolt guides and round pole adapter
- Extended arms (EA and QMEA) may be required in 90° or 120° pole mount configurations, see arm mounting requirements table
- Mast arm (MA) factory installed
- Wall mount (WM) option available
- Quick mount arm (QM and QMEA) includes pole adapter and factory installed fixture mount for fast installation to square or round poles

Finish

- Super housing durable TGIC polyester powder coat paint, 2.5 mil nominal thickness
- Heat sink is powder coated black
- RAL and custom color matches available
- Coastal Construction (CC) option available

Warranty

- Five year warranty

Energy and Performance Data

Lumen Maintenance (TM-21)

Drive Current	Ambient Temperature	25,000 hours*	50,000 hours*	60,000 hours*	100,000 hours**	Theoretical L70 hours**
Up to 1A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.7%	98.3%	98.1%	97.4%	> 1.9M
	50°C	98.2%	97.2%	96.8%	95.2%	> 851,000
1.2A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.5%	97.9%	97.7%	96.7%	> 1.3M

* Supported by IES TM-21 standards
** Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, explaining proper use of IES TM-21 and LM-80.

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

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Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (1.2A)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		67	129	191	258	320	382	448	511	575	640
Input Current @ 120V (A)		0.58	1.16	1.78	2.31	2.94	3.56	4.09	4.71	5.34	5.87
Input Current @ 208V (A)		0.33	0.63	0.93	1.27	1.57	1.87	2.22	2.52	2.8	3.14
Input Current @ 240V (A)		0.29	0.55	0.80	1.10	1.35	1.61	1.93	2.18	2.41	2.71
Input Current @ 277V (A)		0.25	0.48	0.70	0.96	1.18	1.39	1.69	1.90	2.09	2.36
Input Current @ 347V (A)		0.20	0.39	0.57	0.78	0.96	1.15	1.36	1.54	1.72	1.92
Input Current @ 480V (A)		0.15	0.30	0.43	0.60	0.73	0.85	1.03	1.16	1.28	1.45
Optics											
T2	4000K Lumens	7,972	15,580	23,245	30,714	38,056	45,541	53,857	61,024	68,072	75,366
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	121	122	119	119	119	120	119	118	118
T2R	4000K Lumens	8,462	16,539	24,680	32,609	40,401	48,348	57,176	64,783	72,266	80,010
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	129	126	126	127	128	127	126	125
T3	4000K Lumens	8,125	15,879	23,693	31,307	38,787	46,417	54,893	62,197	69,381	76,818
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	123	124	121	121	122	123	122	121	120
T3R	4000K Lumens	8,306	16,232	24,220	32,001	39,651	47,447	56,114	63,580	70,924	78,523
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	124	126	127	124	124	124	125	124	123	123
T4FT	4000K Lumens	8,173	15,970	23,831	31,488	39,014	46,686	55,212	62,558	69,783	77,261
	BUG Rating	B1-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	122	124	125	122	122	122	123	122	121	121
T4W	4000K Lumens	8,067	15,764	23,522	31,080	38,510	46,082	54,499	61,751	68,881	76,263
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	120	122	123	120	120	121	122	121	120	119
SL2	4000K Lumens	7,958	15,552	23,206	30,662	37,989	45,462	53,763	60,920	67,952	75,235
	BUG Rating	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	121	121	119	119	119	120	119	118	118
SL3	4000K Lumens	8,124	15,877	23,690	31,302	38,784	46,410	54,885	62,189	69,372	76,805
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	123	124	121	121	121	123	122	121	120
SL4	4000K Lumens	7,719	15,085	22,510	29,741	36,850	44,097	52,148	59,089	65,913	72,977
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	115	117	118	115	115	115	116	116	115	114
5NQ	4000K Lumens	8,380	16,375	24,436	32,287	40,003	47,870	56,610	64,144	71,552	79,221
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	125	127	128	125	125	125	126	126	124	124
5MQ	4000K Lumens	8,534	16,676	24,885	32,881	40,739	48,752	57,653	65,326	72,868	80,679
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	127	129	130	127	127	128	129	128	127	126
5WQ	4000K Lumens	8,556	16,723	24,951	32,968	40,847	48,881	57,808	65,499	73,063	80,894
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	128	130	131	128	128	128	129	128	127	126
SLL/ SLR	4000K Lumens	7,140	13,951	20,817	27,506	34,081	40,783	48,231	54,649	60,959	67,492
	BUG Rating	B1-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	107	108	109	107	107	107	108	107	106	105
RW	4000K Lumens	8,304	16,228	24,215	31,994	39,641	47,437	56,100	63,566	70,907	78,504
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	124	126	127	124	124	124	125	124	123	123
AFL	4000K Lumens	8,335	16,287	24,302	32,110	39,784	47,610	56,303	63,796	71,163	78,790
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5
	Lumens per Watt	124	126	127	124	124	125	126	125	124	123

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (1A)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		59	113	166	225	279	333	391	445	501	558
Input Current @ 120V (A)		0.51	1.02	1.53	2.03	2.55	3.06	3.56	4.08	4.60	5.07
Input Current @ 208V (A)		0.29	0.56	0.82	1.11	1.37	1.64	1.93	2.19	2.46	2.75
Input Current @ 240V (A)		0.26	0.48	0.71	0.96	1.19	0.41	1.67	1.89	2.12	2.39
Input Current @ 277V (A)		0.23	0.42	0.61	0.83	1.03	1.23	1.45	1.65	1.84	2.09
Input Current @ 347V (A)		0.17	0.32	0.50	0.64	0.82	1.00	1.14	1.32	1.50	1.68
Input Current @ 480V (A)		0.14	0.24	0.37	0.48	0.61	0.75	0.91	0.99	1.12	1.28
Optics											
T2	4000K Lumens	7,267	14,201	21,190	28,000	34,692	41,515	49,096	55,627	62,053	68,703
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	126	128	124	124	125	126	125	124	123
T2R	4000K Lumens	7,715	15,077	22,497	29,725	36,829	44,073	52,122	59,056	65,876	72,937
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	133	136	132	132	132	133	133	131	131
T3	4000K Lumens	7,408	14,475	21,598	28,539	35,358	42,313	50,039	56,698	63,246	70,024
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	130	127	127	127	128	127	126	125
T3R	4000K Lumens	7,571	14,798	22,078	29,172	36,145	43,253	51,153	57,959	64,653	71,581
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	128	131	133	130	130	130	131	130	129	128
T4FT	4000K Lumens	7,451	14,559	21,725	28,703	35,564	42,558	50,330	57,027	63,613	70,430
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	129	131	128	127	128	129	128	127	126
T4W	4000K Lumens	7,354	14,371	21,442	28,333	35,105	42,007	49,681	56,291	62,792	69,521
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	127	129	126	126	126	127	126	125	125
SL2	4000K Lumens	7,254	14,178	21,155	27,951	34,631	41,443	49,011	55,533	61,944	68,584
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	125	127	124	124	124	125	125	124	123
SL3	4000K Lumens	7,406	14,474	21,596	28,534	35,355	42,307	50,033	56,690	63,237	70,014
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	130	127	127	127	128	127	126	125
SL4	4000K Lumens	7,037	13,751	20,519	27,112	33,592	40,198	47,538	53,864	60,087	66,524
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	119	122	124	120	120	121	122	121	120	119
5NQ	4000K Lumens	7,640	14,928	22,275	29,431	36,465	43,637	51,606	58,472	65,226	72,218
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	129	132	134	131	131	131	132	131	130	129
5MQ	4000K Lumens	7,779	15,203	22,684	29,973	37,137	44,441	52,555	59,549	66,427	73,545
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	132	135	137	133	133	133	134	134	133	132
5WQ	4000K Lumens	7,800	15,243	22,744	30,052	37,236	44,560	52,697	59,708	66,603	73,742
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	132	135	137	134	133	134	135	134	133	132
SLL/ SLR	4000K Lumens	6,510	12,719	18,977	25,075	31,067	37,176	43,967	49,817	55,569	61,525
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	110	113	114	111	111	112	112	112	111	110
RW	4000K Lumens	7,570	14,793	22,073	29,165	36,137	43,243	51,140	57,945	64,637	71,564
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	128	131	133	130	130	130	131	130	129	128
AFL	4000K Lumens	7,598	14,847	22,154	29,272	36,267	43,400	51,326	58,156	64,872	71,824
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G4
	Lumens per Watt	129	131	133	130	130	130	131	131	129	129

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (800mA)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		44	85	124	171	210	249	295	334	374	419
Input Current @ 120V (A)		0.39	0.77	1.13	1.54	1.90	2.26	2.67	3.03	3.39	3.80
Input Current @ 208V (A)		0.22	0.44	0.62	0.88	1.06	1.24	1.50	1.68	1.87	2.12
Input Current @ 240V (A)		0.19	0.38	0.54	0.76	0.92	1.08	1.30	1.46	1.62	1.84
Input Current @ 277V (A)		0.17	0.36	0.47	0.72	0.83	0.95	1.19	1.31	1.42	1.67
Input Current @ 347V (A)		0.15	0.24	0.38	0.49	0.63	0.77	0.87	1.01	1.15	1.52
Input Current @ 480V (A)		0.11	0.18	0.29	0.37	0.48	0.59	0.66	0.77	0.88	0.96
Optics											
T2	4000K Lumens	5,871	11,474	17,121	22,622	28,029	33,542	39,667	44,944	50,134	55,508
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	133	135	138	132	133	135	134	135	134	132
T2R	4000K Lumens	6,233	12,181	18,176	24,016	29,756	35,608	42,111	47,714	53,224	58,929
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5
	Lumens per Watt	142	143	147	140	142	143	143	143	142	141
T3	4000K Lumens	5,986	11,695	17,450	23,057	28,568	34,186	40,430	45,809	51,099	56,576
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	136	138	141	135	136	137	137	137	137	135
T3R	4000K Lumens	6,117	11,955	17,838	23,569	29,203	34,946	41,328	46,827	52,235	57,832
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	139	141	144	138	139	140	140	140	140	138
T4FT	4000K Lumens	6,019	11,763	17,551	23,190	28,734	34,384	40,663	46,074	51,396	56,904
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	137	138	142	136	137	138	138	138	137	136
T4W	4000K Lumens	5,942	11,610	17,324	22,891	28,363	33,940	40,138	45,480	50,732	56,169
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	135	137	140	134	135	136	136	136	136	134
SL2	4000K Lumens	5,862	11,454	17,091	22,583	27,980	33,484	39,598	44,867	50,048	55,411
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	133	135	138	132	133	134	134	134	134	132
SL3	4000K Lumens	5,985	11,694	17,447	23,053	28,565	34,182	40,424	45,804	51,092	56,568
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	136	138	141	135	136	137	137	137	137	135
SL4	4000K Lumens	5,685	11,111	16,577	21,905	27,140	32,478	38,409	43,520	48,546	53,748
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	129	131	134	128	129	130	130	130	130	128
5NQ	4000K Lumens	6,172	12,061	17,997	23,778	29,462	35,256	41,694	47,242	52,699	58,347
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	140	142	145	139	140	142	141	141	141	139
5MQ	4000K Lumens	6,285	12,283	18,328	24,217	30,004	35,907	42,462	48,112	53,669	59,421
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	143	145	148	142	143	144	144	144	144	142
5WQ	4000K Lumens	6,303	12,317	18,377	24,281	30,085	36,001	42,575	48,241	53,812	59,579
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	143	145	148	142	143	145	144	144	144	142
SLL/ SLR	4000K Lumens	5,260	10,276	15,332	20,259	25,101	30,037	35,522	40,249	44,898	49,708
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	120	121	124	118	120	121	120	121	120	119
RW	4000K Lumens	6,116	11,952	17,834	23,563	29,196	34,938	41,317	46,817	52,224	57,819
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	139	141	144	138	139	140	140	140	140	138
AFL	4000K Lumens	6,139	11,996	17,899	23,650	29,302	35,064	41,468	46,987	52,412	58,030
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4
	Lumens per Watt	140	141	144	138	140	141	141	141	140	138

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (600mA)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		34	66	96	129	162	193	226	257	290	323
Input Current @ 120V (A)		0.30	0.58	0.86	1.16	1.44	1.73	2.03	2.33	2.59	2.89
Input Current @ 208V (A)		0.17	0.34	0.49	0.65	0.84	0.99	1.14	1.30	1.48	1.63
Input Current @ 240V (A)		0.15	0.30	0.43	0.56	0.74	0.87	1.00	1.13	1.30	1.43
Input Current @ 277V (A)		0.14	0.28	0.41	0.52	0.69	0.81	0.93	1.04	1.22	1.33
Input Current @ 347V (A)		0.11	0.19	0.30	0.39	0.49	0.60	0.69	0.77	0.90	0.99
Input Current @ 480V (A)		0.08	0.15	0.24	0.30	0.38	0.48	0.53	0.59	0.71	0.77
Optics											
T2	4000K Lumens	4,787	9,357	13,961	18,448	22,856	27,353	32,347	36,651	40,884	45,265
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	141	142	145	143	141	142	143	143	141	140
T2R	4000K Lumens	5,083	9,934	14,822	19,585	24,266	29,038	34,341	38,911	43,404	48,055
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
	Lumens per Watt	150	151	154	152	150	150	152	151	150	149
T3	4000K Lumens	4,880	9,537	14,231	18,803	23,296	27,878	32,970	37,358	41,671	46,137
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	144	145	148	146	144	144	146	145	144	143
T3R	4000K Lumens	4,988	9,749	14,547	19,220	23,814	28,497	33,703	38,188	42,598	47,162
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	147	148	152	149	147	148	149	149	147	146
T4FT	4000K Lumens	4,909	9,591	14,312	18,911	23,432	28,040	33,161	37,574	41,913	46,404
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	144	145	149	147	145	145	147	146	145	144
T4W	4000K Lumens	4,845	9,468	14,128	18,668	23,130	27,678	32,732	37,088	41,371	45,805
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	143	143	147	145	143	143	145	144	143	142
SL2	4000K Lumens	4,779	9,341	13,937	18,416	22,818	27,305	32,292	36,589	40,813	45,188
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	141	142	145	143	141	141	143	142	141	140
SL3	4000K Lumens	4,879	9,536	14,229	18,800	23,294	27,874	32,965	37,351	41,666	46,130
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	144	144	148	146	144	144	146	145	144	143
SL4	4000K Lumens	4,637	9,059	13,519	17,863	22,132	26,486	31,322	35,490	39,589	43,831
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	136	137	141	138	137	137	139	138	137	136
5NQ	4000K Lumens	5,033	9,835	14,676	19,392	24,026	28,751	34,002	38,526	42,975	47,581
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	148	149	153	150	148	149	150	150	148	147
5MQ	4000K Lumens	5,126	10,015	14,946	19,747	24,468	29,281	34,628	39,236	43,766	48,457
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	151	152	156	153	151	152	153	153	151	150
5WQ	4000K Lumens	5,139	10,043	14,985	19,801	24,533	29,359	34,721	39,339	43,883	48,586
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	151	152	156	153	151	152	154	153	151	150
SLL/ SLR	4000K Lumens	4,289	8,380	12,502	16,520	20,469	24,494	28,967	32,823	36,613	40,537
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	126	127	130	128	126	127	128	128	126	126
RW	4000K Lumens	4,987	9,746	14,543	19,215	23,808	28,491	33,695	38,178	42,587	47,151
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	147	148	151	149	147	148	149	149	147	146
AFL	4000K Lumens	5,007	9,782	14,597	19,285	23,896	28,594	33,817	38,317	42,742	47,322
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
	Lumens per Watt	147	148	152	149	148	148	150	149	147	147

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

Control Options

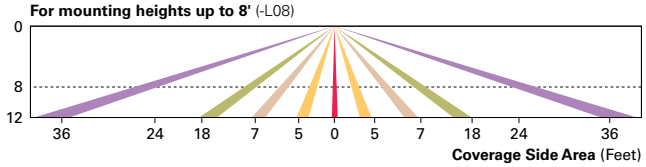
0-10V (DIM)
This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (BPC, PR and PR7)
Optional button-type photocontrol (BPC) and photocontrol receptacles (PR and PR7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PR7 receptacle.

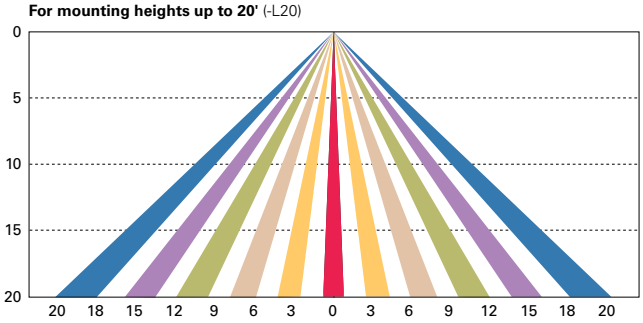
After Hours Dim (AHD)
This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a "dusk-to-dawn" period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

Dimming Occupancy Sensor (SPB, MS/DIM-LXX, MS/X-LXX and MS-LXX)
These sensors are factory installed in the luminaire housing. When the SPB or MS/DIM sensor options are selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines. SPB motion sensors require the Sensor Configuration mobile application by Wattstopper to change factory default dimming level, time delay, sensitivity and other parameters. Available for iOS and Android devices. The SPB sensor is factory preset to dim down to approximately 10% power with a time delay of five minutes. The MS/DIM occupancy sensors require the FSIR-100 programming tool to adjust factory defaults.

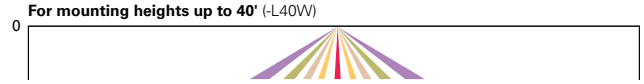
For mounting heights up to 8' (-L08)



For mounting heights up to 20' (-L20)

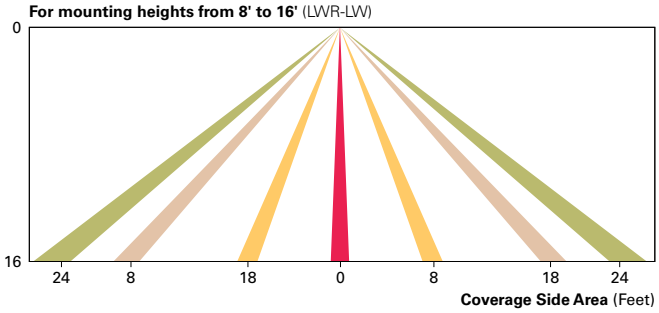


For mounting heights up to 40' (-L40W)

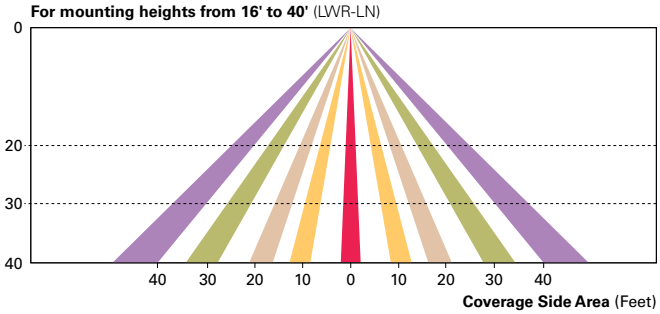


Enlighted Wireless Control and Monitoring System (LWR-LW and LWR-LN)
Enlighted is a connected lighting solution that combines a broad selection of energy-efficient LED luminaires with a powerful integrated wireless sensor system. The sensor controls the lighting system in compliance with the latest energy codes and collects valuable data about building performance and use. Software applications turn the granular data into information through energy dashboards and specialized apps that make it simple and help optimize the use of building resources, beyond lighting.

For mounting heights from 8' to 16' (LWR-LW)



For mounting heights from 16' to 40' (LWR-LN)



WaveLinx Wireless Outdoor Lighting Control Module (WOLC-7P-10A)
The 7-pin wireless outdoor lighting control module enables WaveLinx to control outdoor area, site and flood lighting. WaveLinx controls outdoor lighting using schedules to provide ON, OFF and dimming controls based on astronomic or time schedules based on a 7 day week.

LumenSafe Integrated Network Security Camera (LD)
Cooper Lighting Solutions brings ease of camera deployment to a whole new level. No additional wiring is needed beyond providing line power to the luminaire. A variety of networking options allows security integrators to design the optimal solution for active surveillance. As the ideal solution to meet the needs for active surveillance, the LumenSafe integrated network camera is a streamlined, outdoor-ready fixed dome that provides HDTV 1080p video. This IP camera is optimally designed for deployment in the video management system or security software platform of choice.

Synapse (DIM10)
SimplySNAP integrated wireless controls system by Synapse. Includes factory installed DIM10 Synapse control module and MS/DC motion sensor; requires additional Synapse system components for operation. Contact Synapse at www.synapsewireless.com for product support, warranty and terms and conditions.

Attachment: SP-2022-02 drawings 042122 (25490 : Sp-2022-02)

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Specifications and dimensions
subject to change without notice.

Legend

Abbreviations

Ex = Existing
E = East
N = North
W = West
S = South
R.O.W. = Right of Way
A.K.A. = also known as
EM Electric Meter
MW Monitoring Well
ELHH Electric Hand Hole
Deciduous Tree
Bush
Coniferous Tree
Electric Manhole
Signal Pole
Cable Manhole
Water Manhole
Traffic Manhole
Large Rock

Symbols

Sanitary Manhole
CO Cleanout
CB Catch Basin
DI Drain Inlet
SM Storm Manhole
YD Yard Drain
CM Cable TV
ER Electric Riser
PP Power Pole
GA Guy Wire Anchor
TR Telephone Riser
HYD Fire Hydrant
WV Water Valve
WSV Water Service Valve
GM Gas Line Marker
GV Gas Valve
GSV Gas Service Valve
Sign
MB Mailbox
MP Metal Post
Mon Concrete R.O.W. Monument
Light Standard
TM Telephone Manhole
Bollard
ICV Irrigation Control Valve
TR Traffic Control Box

Line Styles

ST Sanitary Sewer
SA Storm Sewer
W Water Line
G Gas Line
T Telephone Wires or Cables
E Electric Wires or Cables
OH Overhead Wires
100 Contour Line
Centerline of Ditch
Crown of Pavement
Centerline of Road
Right of Way Line
Building Setback Line
Easement Line
Property Line
UE Underground Electric
Point Stripe
Former Boundary Parcel Line
UFC Underground Cable TV
UFO Underground Fiber Optic

NBMS #50349
Cap Detail

Notes:

1) North as Shown on this Map is True North at 78°35' Meridian of West Longitude, as based on the New York State Plane Coordinate System NAD 83/92 HARN, West Zone 3103, as established from Town of Amherst Monuments 11.
N.1077943.37
E.1098312.30

2) Elevations as shown on this Map are based on NAVD 88, as established from Town of Amherst Monuments 11. Elevation = 679.31'

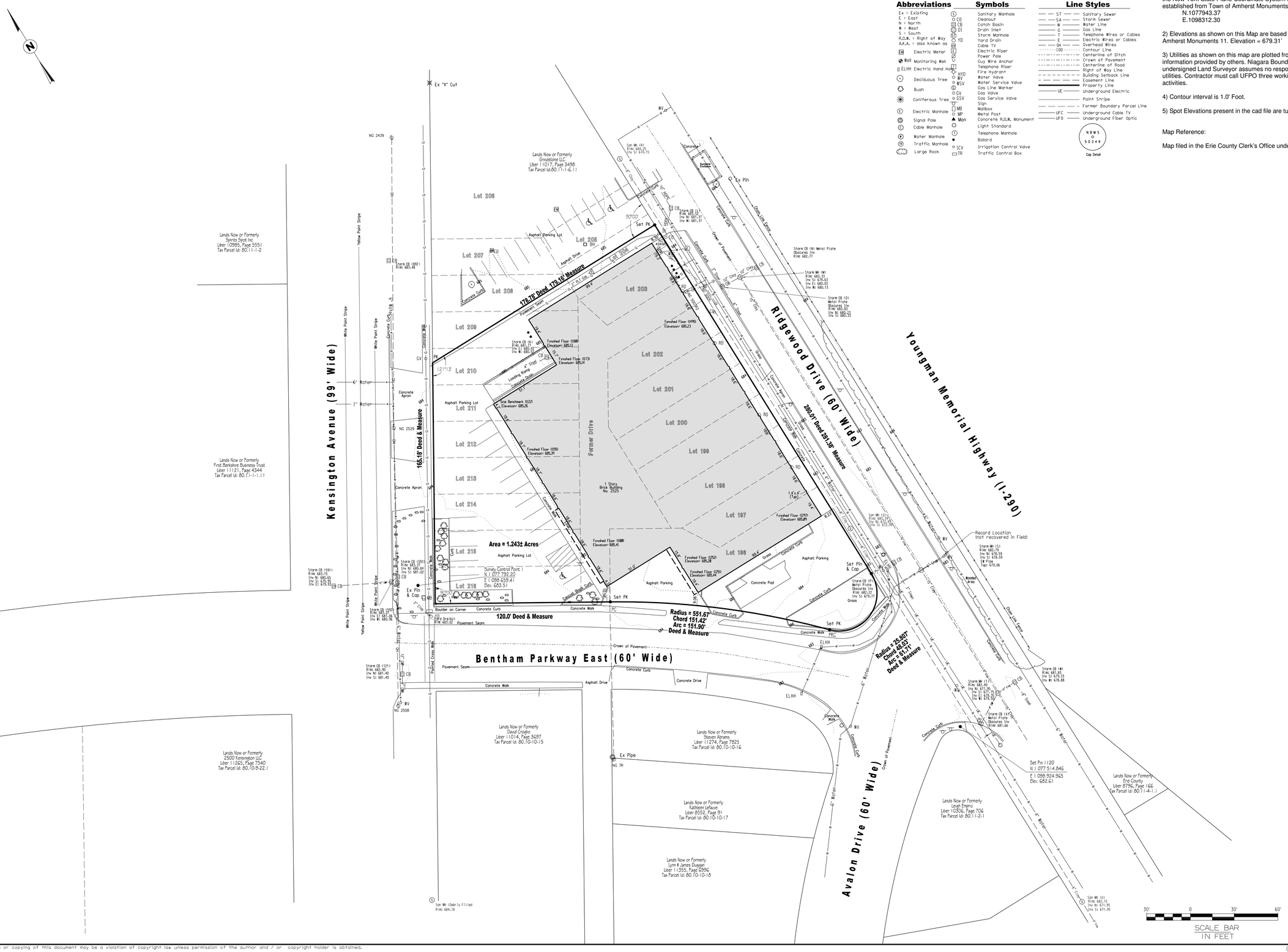
3) Utilities as shown on this map are plotted from field locations of visble structures and information provided by others. Niagara Boundary & Mapping Services, along with the undersigned Land Surveyor assumes no responsibility as to the accuracy of underground utilities. Contractor must call UFPO three working days prior to any excavation construction activities.

4) Contour interval is 1.0' Foot.

5) Spot Elevations present in the cad file are turned off for clarity.

Map Reference:

Map filed in the Erie County Clerk's Office under Cover 1374


Ex "X" Cut
NG 2439
Lands Now or Formerly Grindstone LLC Liber 11017, Page 3498 Tax Parcel Id: 80.17-1-6.11
Lands Now or Formerly Sparda Spot Inc Liber 12085, Page 5551 Tax Parcel Id: 80.11-1-2
Lands Now or Formerly First Berkshire Business Trust Liber 11121, Page 4344 Tax Parcel Id: 80.17-1-1.11
Lands Now or Formerly 2500 Kensington LLC Liber 11265, Page 7540 Tax Parcel Id: 80.10-9-22.1
Lands Now or Formerly David Crogho Liber 11014, Page 3697 Tax Parcel Id: 80.10-10-15
Lands Now or Formerly Steven Abrams Liber 11274, Page 7925 Tax Parcel Id: 80.10-10-16
Lands Now or Formerly Kathleen Lefauve Liber 8552, Page 91 Tax Parcel Id: 80.10-10-17
Lands Now or Formerly Lynn & James Duggan Liber 11355, Page 6986 Tax Parcel Id: 80.10-10-18
Lands Now or Formerly Legit Emporc Liber 10806, Page 706 Tax Parcel Id: 80.11-2-1
Lands Now or Formerly Erie County Liber 8796, Page 166 Tax Parcel Id: 80.11-4-1.1
Kensington Avenue (99' Wide)
Bentham Parkway East (60' Wide)
Avalon Drive (60' Wide)
Ridgewood Drive (60' Wide)
Youngman Memorial Highway (I-290)
Former Drive
Lot 206
Lot 207
Lot 208
Lot 209
Lot 210
Lot 211
Lot 212
Lot 213
Lot 214
Lot 215
Lot 216
Lot 203
Lot 202
Lot 201
Lot 200
Lot 199
Lot 198
Lot 197
Lot 196
Area = 1.243± Acres
178.78' Deed, 179.16' Measure
165.19' Deed & Measure
120.0' Deed & Measure
280.01' Deed, 281.39' Measure
Radius = 551.67'
Chord 151.42'
Arc = 151.90'
Deed & Measure
Radius = 25.807'
Chord = 48.06'
Arc = 61.71'
Deed & Measure
Survey Control Point 1
N 1 077 792.20
E 1 096 659.81
Elev. 683.51
Set Pin 1120
N 1 077 514.846
E 1 096 924.965
Elev. 682.61
Set PK
Set Pin & Cap
Ex Pin
Ex Pin & Cap
Ex Pipe
Record Location (not recovered in Field)
Asphalt Parking Lot
Asphalt Drive
Concrete Walk
Concrete Curb
Concrete Pad
Concrete Apron
Concrete Ramp
Concrete Steps
Concrete Cone Walk
Crown of Pavement
Pavement Seam
Edge of Pavement
Gravel
Grass
Woods
Wooded Area
Landing Ramp
Loading Ramp
Concrete Block Curb
Boulder on Corner
Utility Pedestal
Concrete Pedestal
1 Story Brick Building No. 2525
Finished Floor (0388) Elevation= 685.12
Finished Floor (0373) Elevation= 685.14
Finished Floor (0495) Elevation= 685.23
Finished Floor (0355) Elevation= 685.39
Finished Floor (0388) Elevation= 685.41
Finished Floor (0252) Elevation= 685.28
Finished Floor (0251) Elevation= 685.49
Finished Floor (0292) Elevation= 685.89
Storm CB (892) Rim= 683.48
Storm CB (1911) Rim= 683.15 Inv N= 680.65 Inv E= 679.75 Inv S= 679.55 CB
Storm CB (593) Rim= 683.37 Inv E= 681.64 Inv S= 681.32 CB
Storm CB (592) Rim= 683.07 Inv E= 681.08 Inv W= 680.98
Storm CB (121) Rim= 682.90 Inv N= 681.40 Inv S= 681.40
Storm CB (1) Rim= 684.25 Inv S= 674.75
Storm CB (4) Rim= 684.25 Inv N= 681.37 Inv W= 681.37
Storm CB (5) Rim= 683.77 Inv N= 680.53 Inv W= 680.53
Storm CB (4) Metal Plate Obscures Inv Rim= 682.77
Storm MH (4) Rim= 683.33 Inv S= 675.43 Inv E= 680.03 Inv W= 680.13
Storm CB (5) Metal Plate Obscures Inv Rim= 683.83 Inv N= 680.43 Inv S= 680.33
Storm CB (6) Metal Plate Obscures Inv Rim= 682.22 Inv S= 679.17 Grass
Storm MH (5) Rim= 683.79 Inv N= 678.79 Inv S= 678.59 CB Pipe Top= 679.06
Storm MH (3) Rim= 683.40 Inv N= 678.40 Inv S= 678.20 Inv E= 678.20 Inv W= 678.00
Storm CB (8) Rim= 681.83 Inv S= 678.33 Inv W= 678.88
Storm CB (9) Metal Plate Obscures Inv Rim= 681.66
San MH (5) Rim= 684.18 Debris Filled
San MH (10) Rim= 682.15 Inv N= 671.95 Inv S= 671.95
6" Water
1" Water
8" Water
12" Water
4" Gas
3" Gas
12" Clay
15" Clay
8" Clay
4" Clay
3" Clay
Chain Link Fence
Stone Wall
Brick Wall
Wood Fence
Utility Pole
Set Pk
Set Pin & Cap
Boulder on Corner
Concrete Apron:
Concrete Pad
Asphalt Parking
Gravel
Grass
Concrete Curb
Concrete Walk
Concrete Drive
Concrete Steps
Concrete Cone Walk
Crown of Pavement
Pavement Seam
Edge of Pavement
Yellow Point Stripe
White Point Stripe
Concrete Curb
Concrete Walk
Asphalt Drive
Asphalt Parking Lot

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

April 26, 2022

Philipps Bros. Supply Inc.
2525 Kensington Ave.
Amherst, NY 14226

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-2022-02**; PROPOSED PHILIPPS BROS./SHATKIN SCHOOL OF DENTISTRY AND PARKING EXPANSION; PROPERTY LOCATED AT **2525 KENSINGTON AVENUE**.

Dear Sir/Madam:

At its meeting of April 21, 2022 the Planning Board voted to **adjourn** the subject site plan at your request.

This request will be placed on the Planning Board agenda for the May 19, 2022 meeting.

Please submit revised plans or required materials by May 6, 2022 so they may be reviewed prior to the meeting.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\2022\SP-2022-02_(2525_Kensington_Ave)_2022\SP-2022-02_Adjournment Letter_042122.doc
cc: Joseph Molek, Stieglitz Snyder, 425 Franklin St., Buffalo, NY 14202
Andrew V. Marino, Tredo Engineers, 755 Seneca Street, Ste. 202, Buffalo, NY 14210

Attachment: SP-2022-02_adjournment_042122 (25490 : Sp-2022-02)

April 25 2022

5583 Main Street Williamsville NY 14221
Town of Amherst Planning Department

STIEGLITZ SNYDER ARCHITECTURE

RE: 2525 Kensington Avenue

Dear Mr. Thomas Voigt,

We are submitting to the Planning Department our application and supporting documents related to 2525 Kensington Avenue based on comments made by the Town of Amherst individual departments in April,

All documents submitted herein, contain responses to each item in question along with related changes to drawings and forms based on the comments.

Please review accompanying documents for overall compliance and variances that will be required for this application.

We look forward in working further with the Town of Amherst towards further development of this key medical and educational hub.

If you would like to discuss this application further, please don't hesitate to contact me at 716-222-3040 or via e-mail at jmolek@stieglitzsnyder.com.

Sincerely,

STIEGLITZ SNYDER ARCHITECTURE

Joseph Molek, RA

Project Architect

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

April 25 2022

5583 Main Street Williamsville NY 14221
Town of Amherst Planning Department

STIEGLITZ SNYDER ARCHITECTURE

RE: 2525 Kensington Avenue – Philipps Bros. Supply / The Shatkin School of Dentistry and Parking expansion.

Dear Mr. Gary Palumbo,

We are submitting to the Planning Department our response to Major Site Plan review comments submitted by the following Departments:

Engineering Department comments April 6 2022:

Item #1

Executed copy for access easement from adjacent parcel to the north is in progress.

Item #2

Executed copy of the Town of Amherst License Agreement / Land Lease regarding use of Ridgewood drive in progress.

Traffic Safety comments April 6 2022:

Item #1

Cross walk had been provided for Handicapped spaces located on east side of ridgewood drive.

Item #2

Cross walk had been provided at southwest corner of site from Ridgewood to patio beside refuse enclosure.

Item #3

We are providing landscape rather than walkway because, large amounts of snow tends to slide of the bowed roof. Therefore, we prefer not to have a sidewalk and put walkers at risk.

Item #4

Boulders stones in the Kensington Avenue Right- of- way are annotated to be removed as noted on drawing SP104.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Planning Department comments April 1 2022:

Zoning Enforcement Officer Review:

Item #1

Owner/applicant to pursue a variance of 1'-6' minimum setback at proposed canopy addition along Ridgewood Drive. We require a canopy covering to protect users of the building from snow sliding off the top off the bow truss roof. The snow is an ongoing issue in which snow guards cannot stop the snow from sliding off the roof.

Item #2

We have removed the single parking space along Bentham Drive and plan to leave a existing non-conforming.

Parking along Ridgewood Drive to be part of legal approvals.

Item #3

We have adjusted plans to accommodate a 5'-0" setback for garbage enclosure

Item #4

The transformer height will be a maximum height of 5'-0" high. Landscape Plantings (Emerald Arborvitaes) at planted height will be 4'-0" tall. These planting will grow beyond 5'-0" within a couple years.

Item #5

Photometric plan to be coordinated with legal department. Either lighting to be a mix of pole mounted and wall mounted, which is preferred. But this will depend on the outcome of Ridgewood Drive and the owner of building.

Item #6

Parking count has increased as per plan but it will not be possible to comply with off-street parking study.

Planning Department Staff Review:

Item #1

Condition of approval by Town Board and legal department.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Item #2

Owner/Applicant will provide a license agreement for maintenance and use of Ridgewood Drive right of way.

Item #3

Boulders stones in the Kensington Avenue Right- of- way are annotated to be removed as noted on drawing SP104.

Item #4

Northerly curb cut and driveway on Kensington Ave. is required for Fire Truck access along the north side of the building therefore we do not suggest removing this curb cut. We would agree to remove the southerly curb cut if deemed necessary however, we did not receive comment from NYSDOT to determine what concerns they may have, and therefore have not modified the site plan for such.

Item #5

Transformer is part of National Grid design. We currently do not have their final design but we anticipate a 5'-0" tall transformer and will screen the transformer with 4'-0" tall Emerald Arborvitae's as shown on landscape plan L101. See accompanying transformer photo (similar size transformer will be used) and diesel fuel generator and tank. The planted 4'-0" tall arborvitaes will grow within a couple years to 5'-0" tall and continually become taller

Item #6

Diesel Generator is indicated on the drawings which will be screened with 5'-0" tall Emerald Arborvitae's as shown on landscape plan L101.

Condensing units will be placed on rooftop of main building. all Rooftop equipment will be screened by awning covering facing Kensington avenue. The awning covering will extend past the roofline in order to cover all condensing units and mechanical units. See West Elevation and North Elevation on drawing A300.

Electric Meters are located on the north side of the building. See general location on drawing A300.

Item #7

We hereby request a waiver for the sidewalk requirement along Ridgewood Drive. The area of concern contains proposed foundation plantings instead to augment the façade treatment.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Item #8

Signage will be submitted under separate cover for review by the Town of Amherst.

Landscape Architect Review:

Item #1

Bollards surrounding explosive mechanical equipment will contain a plastic covering *color safety yellow* for visible warning to motorists to avoid impact. Disguising bollards in this application is not recommended.

Item #2

Ridgewood Drive right-of-way contains various underground utilities along the full length of Ridgewood Drive under the proposed parking / landscaped islands (see attached site survey prepared by Niagara Boundary), including ECWA water on each side of the roadway, that must remain as-is. We do not recommend planting trees atop these public utilities.

Item #3

Diesel Generator is indicated on the drawings which will be screened with 5'-0" tall Emerald Arborvitae's as shown on landscape plan L101.

Condensing units will be placed on rooftop of main building. all Rooftop equipment will be screened by awning covering facing Kensington avenue. The awning covering will extend past the roofline in order to cover all condensing units and mechanical units. See West Elevation and North Elevation on drawing A300.

Item #4

We do not intend to install landscaping along Thruway property. There is approximately 4-ft between the right-of-way/edge of pavement and the Thruway fence remaining that is shown re-planted as lawn.

Item #5

All existing trees or shrubs are shown with a legend for removals on drawing SP104. Brush shall be cleared from along the Thruway fence. The accompanying image shows various shrubs to be removed. No large trees are located on the Ridgewood drive side of the site, only on the thruway side.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

All other existing shrubs and plantings on this site to be preserved.



End of comments.

If you would like to discuss these comments further, please don't hesitate to contact me at 716-222-3040 or via e-mail at jmolek@stieglitzsnyder.com.

Sincerely,

STIEGLITZ SNYDER ARCHITECTURE

Joseph Molek, RA

Project Architect

425 Franklin Street · Buffalo, New York 14202
www.stieglitzsnyder.com · (716) 828 - 9166

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

TOWN OF AMHERST

APPLICATION & REVIEW PROCEDURE

MAJOR SITE PLAN

MATERIALS MUST BE PROVIDED IN AN ELECTRONIC FORMAT THAT CONTAINS PDF FILES OF THE APPLICATION, EAF, SITE PLAN DRAWING SET SURVEY, LANDSCAPE PLAN, PRELIMINARY BUILDING FLOO PLANS / ELEVATIONS & ANY OTHER SUPPORTING INFORMATION. THIS MUST BE SUBMITTED WITH YOUR APPLICATION. APPLICATIONS WILL NOT BE TRANSMITTED WITHOUT THIS ELECTRONIC INFORMATION.

THIS ALSO APPLIES TO REVISED MATERIALS THAT AR SUBMITTED.

This application package includes the following:

- Application Procedures
- Application Form & Checklist
- Stormwater Pollution Prevention Plan Checklist
- Appendix A Town of Amherst EAF Addendum
- Appendix B Criteria for Required 8½" x 11" Sketches
- Appendix C Erie Sewer District No. 5 – Commercial / Industrial New & Existing Buildings Requirements

- IMPORTANT-

1. A pre-submittal consultation with Planning Department staff is *strongly recommended* prior to submitting an application. The pre-submittal meeting gives the applicant an opportunity to discuss with staff such items as:
   - classifying the action as a major site plan, minor site plan, or minor site plan adjustment;
   - determining what specific information will be required to be submitted with the application;
   - identifying and discussing issues that must be addressed as part of the SEQR review;
   - identifying any potential variances required to implement the project as proposed.

   An appointment is required for all meetings with Planning Department staff.

2. This site plan petition is subject to the requirements of 6 NYCRR Part 617, State Environmental Quality Review Act (SEQR), and Chapter 104 of the Town of Amherst Code, as amended. The Planning Board cannot make a SEQR determination unless a complete Environmental Assessment Form (EAF), including Town of Amherst EAF Addendum, and any required supplementary information such as traffic impact studies, archaeological reports, wetland delineations or geotechnical reports, are submitted. SEQR issues may be discussed with Planning Department staff at a recommended pre-submittal meeting. Unlisted Actions require a Short EAF; Type I Actions require a Full EAF. The following is a link to the NYSDEC website and fillable forms with instructions*:*
   http://www.dec.ny.gov/permits/6191.html.

3. **Review by the Town Design Advisory Board (DAB) is required for Major Site Plans located in the following Mixed-Use zoning districts:**

   Traditional Infill 2.5 (TI-2.5)
   Traditional Infill 4 (TI-4)
   Shallow Corridor 3 (SC-3)
   Deep Corridor 3 (DC-3)
   Deep Corridor 5 (DC-5)
   Center 2.5 (CTR-2.5)
   Center 5 (CTR-5)
   Center 8 (CTR-8)

   The application for DAB review is required to be filed in conjunction with the major site plan application.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

4. The application shall be executed or consented to in writing by the owner of the property.

5. **Any variances from the Zoning Board of Appeals, or any decision from the Town Board (e.g. removal of deed restrictions) must be obtained prior to action by the Planning Board on a Site Plan application.**

6. Submittal of an application grants permission to Town staff and Planning Board members to access the parcel(s) under consideration.

7. All site plan drawings must be prepared by a Registered Architect, Professional Engineer, Landscape Architect, or Land Surveyor (as applicable) licensed to practice in New York State.

8. If you wish to include a Coordinated Sign Plan application with the site plan petition, a separate application must be completed. Contact the Planning Department for a copy of a Coordinated Sign Plan application package.

9. All drawings should be no larger than 24 in. x 36 in. If site characteristics warrant larger plan sheets, they may be accepted subject to Planning Department concurrence. All drawings must also reserve a 4 in. x 6 in. area in the lower right hand corner for official Town use.

APPLICATION PROCEDURES

1. Applicant secures application package from the Planning Department, 5583 Main Street, Williamsville, NY 14221. (716) 631-7051. Forms are also available online at: www.amherst.ny.us, (keyword: Planning).

2. Applicant prepares information as required on the Site Plan Submittal Checklist, attached. NOTE: Some proposals may not require all items on the checklist; please verify with the Planning Department.

3. Applicant schedules an appointment with the Planning Department to review the following:
   - a complete set of site plan drawings, preliminary building elevations and floor plans (no larger than 24" x 36" in size)
   - Environmental Assessment Form (EAF) & Town EAF Addendum
   - any supporting reports and materials
   - verification from the Town Assessor that the address in the application is correct

4. Applicant schedules an application submittal appointment with the Planning Department. NO SITE PLAN WILL BE ACCEPTED FOR REVIEW WITHOUT A PRE-SET SUBMITTAL APPOINTMENT.

5. At the submittal appointment, applicant provides fourteen (14) complete and collated sets of drawings and application information to the Planning Department **(materials will not be accepted unless folded into 9" x 12" in size),** including**:**
   - application form
   - Environmental Assessment Form (EAF)
   - supporting reports / materials
   - complete set of site plan drawings, preliminary building elevations and floor plans (**at least one (1) set of drawings must bear a raised or wet seal and signature of the design professional** who prepared the plans; the remaining copies may be submitted with a facsimile of the seal and signature)
   - digital files of all materials in pdf format
   - an 8½" x 11" reduction of the sketch plan or plat drawing (see Appendix B)

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

6. After approval for filing by the Planning Department, applicant submits all necessary fees to the Town Clerk. **(See Schedule of Fees on first page of application and make checks payable to: Town of Amherst.)**

7. The applicant returns a copy of the filing receipt to the Planning Department.

8. The Planning Department transmits remaining thirteen (13) copies of the application and supporting materials to:
   - Assessor
   - Commissioner of Building
   - Town Engineer
   - Superintendent of Highways
   - Traffic/Safety Board
   - Fire Chiefs' Association
   - Plumbing Division
   - Right-of-Way Agent
   - Police Department (if applicable)
   - Zoning Enforcement Officer
   - Other Town and outside agencies, as applicable

9. Within 30 days of its receipt of the complete application for Site Plan approval, each agency completes its review and notifies the Planning Department in writing of its comments or recommendations as required by Ordinance.

10. The applicant may be required to submit revised plans, reports, or materials to address review agency comments. The procedures for submittal of revised plans are as follows:

    - A cover letter addressing all comments received to date is required.
    - "Highlight" the area of change on the drawings and provide a notation describing the change.
    - Revised plans/materials are required. Planning staff should be contacted to determine the number of sets needed.
    - All revised plans and materials must also be provided in an electronic format that contains pdf files of the revised information.

11. The Planning Board reviews the EAF to determine whether a Draft Environmental Impact Statement (DEIS) is required. The petitioner will be advised in the event that a DEIS is required and afforded the opportunity to prepare it. If the petitioner declines, the Planning Board will prepare the DEIS at the petitioner's expense. The public hearing will be held on the DEIS concurrently with the Planning Board hearing on the application.

12. Planning Board Meeting Procedures:

    The applicant or representative presents the project at the public hearing before the Planning Board and is available to answer any questions. The Planning Board may take any of the following actions:

    - Adjourn the hearing to a future Planning Board meeting (hearing remains open).
    - Close the hearing and table action on the site plan to a future Planning Board meeting. (The Planning Board may remove the item from the agenda until such time as all required information is provided.)
    - Close the hearing and make a decision on the site plan.

    All determinations on matters before the Planning Board are made after all public hearings on that meeting's agenda are completed.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

13. A copy of the Planning Board's determination will be provided to the applicant, his / her representative, the Building Commissioner and the Town Clerk approximately 1 week following the Planning Board meeting at which it was heard.

14. If the Planning Board approves a Site Plan with conditions, the Planning Department will work with the applicant to ensure that all conditions of the approval are satisfactorily addressed. When all conditions are satisfied, the applicant submits **seven (7) final copies** of the complete set of all site plan drawings, folded into 9" x 12". For site plans in the Mixed-Use zoning districts, building elevations will also be required.

    All 7 sets must have original wet seals and include the required 4 in. x 6 in area in the lower right hand corner for official Town use. These drawings will be stamped and signed "Approved" by the Planning Director and transmitted to Town Departments for their files and use.

15. A building permit will not be issued by the Building Department until the stamped and signed Site Plan is issued by the Planning Director.

NOTE: Please check with the Planning Department to determine the deadline date for filing applications. Due to the public hearing notice requirements and department reviews, no site plan application will be placed on the Planning Board agenda after the deadline for filing has closed. Scheduling may be delayed if an application is incomplete.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: _____ **Acreage** _____ **Fee $** _____

Address Verified by Assessor's Office _____ VERIFIED BY DATE

Materials Received by Planning Department _____ RECEIVED BY DATE

Fee Paid to Town Clerk _____ RECEIVED BY DATE

Site Plan Review		**Fill In Applicable Fees**
1 acre or less	$1,250.00	_____
Each additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Site Plans	$1,200.00	_____
Request for Relief of / Change to Conditions of Site Plan Approval	$1,200.00	_____
Request for Extension of Site Plan Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1 - 4.99 Acres	$ 500.00	_____
5 - 10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
	TOTAL FEE:	**$**_____

To Be Completed By Applicant

Petitioner:

Name: Philipps Bros Supply Inc.

Address: 2525 Kensington Ave

Amherst (city) NY (state) 14226 (zip code)

Phone: 716-839-4800 Fax: 716-839-4051

E Mail: pphilipps@philippsbros.com

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

MAJOR SITE PLAN APPLICATION (con't) ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney)**:**

Name: Joseph Molek

Address: 425 Franklin Street

Buffalo (city) NY (state) 14202 (zip code)

Phone: 716 - 222-3752 Fax: _____

E Mail: jmolek@stieglitzsnyder.com

Project Location (must be verified by Town Assessor's Office)**:**

Address: 2525 KENSINGTON AVE

SBL No(s): *Deed Reference: Liber 11117, Page 3180*
Tax ID: 80.11-1-6.2

Project Name: SHATKIN SCHOOL OF DENTISTRY AT DAEMEN COLLEGE / IMIT

Project Description:

MULTI-TENANT BUILD-OUT AND PARKING LOT EXPANSION ONTO RIDGEWOOD DRIVE

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

	existing	proposed	total
Gross Floor Area (non-residential):	29,350	4,400	33,750
Gross Floor Area Residential:			
Number of Residential Units:			
Number of Parking Spaces:	26	46	72

Acreage of Parcel: 1.24 AC

(list each parcel separately)

Frontage on Public Roads: 165.18'+333.61'+280.01'=778.8'

(list each road separately)

Existing Zoning District(s) GB - GENERAL BUSINESS

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Site Plan Submittal Requirements and Checklist

The following checklist outlines the information required by the Planning Department to accept a Site Plan application for review. ***It is strongly recommended that you make an appointment with Planning Staff to determine which items apply to your application***.

Item No.	Item	Submitted	Official use
I Basic Drawing Information			
1.0	**Drawing size not to exceed 24" x 36"**		
2.0	**Title of Drawing**		
3.0	**Name and address of Applicant**		
4.0	**Name of person preparing drawing**		
5.0	**Wet seal/raised seal and signature of NYS licensed architect, engineer, landscape architect, or surveyor (as applicable)**		
6.0	**Project address**		
7.0	**Zoning of subject property and adjacent parcels**		
8.0	**North point, scale, date, and revision date(s)**		
9.0	**4" x 6" reserved area in lower right hand corner for official Town use**		
II Structures, Paved Areas, & Open Space			
1.0	**Existing and Proposed Streets**		
1.1	Names of all existing and proposed streets		
1.2	Width and radii of proposed curb-cuts		
1.3	Existing curb-cuts on adjacent and opposite properties		
1.4	Show ROW width, pavement dimensions, lane widths, pavement markings, and proposed signage on proposed streets		
1.5	Show proposed ROW consistent with planned NYSDOT, Erie County, or Town road projects (if applicable)		
1.6	Show location of proposed cross access to adjacent parcels along with a draft easement		
1.7	Designation of Fire Lanes (if applicable)		
1.8	Fire apparatus access roads		
1.9	Label any proposed roads as public or private		
1.10	Location and dimensions of sidewalks		
1.11	Typical cross sections and profiles of proposed streets, pedestrian walkways, and bikeways		
2.0	**Proposed Structures**		
2.1	Location and complete dimensions of proposed structures		
2.2	Setback dimensions of structure(s) to all property lines		
2.3	Proposed use of structures		
2.4	Gross square feet area of each structure		
2.5	Location of all building entrances		
2.6	Indicate type of roof construction/materials		
2.7	Location, height, and design detail of existing and proposed fences and walls		
2.8	Location of light standards and building mounted lights		
2.9	Location of dumpster and detail of dumpster enclosure with gate		
2.10	Layout and dimensions of the lot(s) proposed for development		

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.	Item	Submitted	Official use
II Structures, Paved Areas, & Open Space (cont'd)			
3.0	**Floor Plans with individual rooms and spaces labeled** (fully dimensioned)		
4.0	**Building elevations with height dimensions from finished grade to the highest point of the roof and to midpoint of gable or hip of a pitched roof.** (fully dimensioned)		
4.1	Show screening of mechanical equipment		
5.0	**Parking/Loading/Stacking Areas**		
5.1	Location and complete dimensions of all paved areas		
5.2	Setback dimensions of all paved areas to property lines		
5.3	Dimension of typical parking space and drive aisles		
5.4	Location and layout of handicapped parking spaces & access aisles		
5.5	Detail of vertical signage for handicapped parking and access aisles		
5.6	Indicate minimum parking requirement & number of spaces provided		
5.7	Proposed signage for directing and guiding traffic		
5.8	Curb cut permits from NYS, Erie County, or Town (if applicable)		
5.9	Pedestrian connections (from proposed structures to public sidewalk network)		
6.0	**Location and proposed development of all open spaces, including parks, playgrounds, and open reservations**		
III Utilities and Drainage			
1.0	**Engineers Report** (bound separately from the Stormwater Pollution Prevention Plan [SWPPP])		
1.1	Stamped/sealed and signed by NYS licensed architect or professional engineer		
1.2	Proposed water service sizing, RPZ pressure and fire safety flow and pressure calculations		
1.3	Proposed sanitary sewer facility load calculations (avg. & peak flows) including calculation of the peaking factor		
1.4	Proposed storm drainage facility calculations (see information included with this application)		
2.0	**Grading Plan**		
2.1	Existing and proposed grades indicated (proposed grades may not exceed 1 on 3)		
3.0	**Water Service**		
3.1	Location, size and material of existing and proposed facilities		
3.2	Location of existing and proposed fire hydrant location(s)		
3.3	Indicate use of sprinklers, location of Fire Department connection, and proposed fire protection systems		
3.4	Existing and proposed meter/RPZ size and location		
3.5	Applicable construction details		
4.0	**Sanitary Sewers**		
4.1	Locations, sizes, slopes, inverts, and materials of all existing and proposed facilities		

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.		Submitted	Official use
III Utilities and Drainage (cont'd)			
4.2	Applicable construction details		
4.3	Proposed water/oil/grease interceptor sizing calculations by a professional engineer (if applicable)		
5.0	**Storm Drainage**		
5.1	Locations, sizes, slopes, inverts, and materials of existing and proposed storm drainage facilities		
5.2	Connection of roof drains to proposed drainage system		
5.3	Applicable Town Standard construction details		
5.4	Existing and proposed swales and ditches		
5.5	Detention area cross-section and high-level elevations		
5.6	County and State approval for tie-in to existing sewers		
6.0	**Stormwater Pollution Prevention Plan (SWPPP) as applicable** (bound separately from the Engineer's Report) **See attached checklist.**		
7.0	**Natural Gas Service**		
8.0	**Location of transformers, generators and other mechanical equipment; include detail drawings (if applicable)**		
9.0	**Downstream Sanitary Capacity Analysis (DSCA) Report** (must be submitted if proposed average flows are greater than 2,500 gallons per day)		
9.1	The DSCA Report must include a detailed downstream sewer capacity analysis and the calculations of and commitment to (via Developer commitment letter) the required financial contribution to the Town's I/I mitigation fund based on peak flow conditions. The contribution must be based on $250 per gallon per minute of mitigated flow		
IV Lighting Plan			
1.0	**Photometric plan showing light spread in foot candles at property lines**		
1.1	Detail of all light standards, including dimension of height from finished grade		
1.2	Detail of all exterior lighting fixtures		
V Landscape Plan			
1.0	**Wet/raised seal and signature of a licensed Landscape Architect**		
2.0	**Provide a calculation of the total Parking area and a calculation of interior parking area in square feet and as a percentage**		
3.0	**Indicate location, size, number and type of proposed landscape materials**		
4.0	**Indicate location, type and size of <u>all</u> existing trees 4" caliper or larger and indicate which will be removed or retained**		
VI Other Required Information/General Requirements			
1.0	**Complete boundary survey that includes all existing structures, acreage, legal description with reference to a property line, street, or other known feature, and easements plotted to scale by a NYS licensed land surveyor**		

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.		Submitted	Official Use
VI Other Required Information/General Requirements (cont'd)			
1.1	Copies of all easements, reciprocal access agreement or similar leag documents		
2.0	**Topographic Survey with a 30 ft. buffer outside all property lines by a NYS licensed land surveyor**		
3.0	**Draft of any deed restrictions, covenants, provisions for home associations and common ownership, and reciprocal easement agreements (as applicable).**		
4.0	**For assessment purposes, state intent to apply for condominium status (if applicable).**		
5.0	**Completed and signed Environmental Assessment Form**		
5.1	Soil boring report and geotechnical report prepared by a qualified Professional Engineer (if applicable)		
5.2	Traffic Impact Study (if applicable)		
5.3	Archaeological survey (if applicable		
5.4	Wetland Delineation report (if applicable)		
6.0	**Show existing zoning(s) of both the subject property and adjacent parcels on the Site Plan and the Landscape Plan**		
7.0	**Location of NYSDEC wetlands (including buffer area) and/or federal wetlands; indicate jurisdictional status**		
8.0	**Location of Floodway and floodplain** (if applicable)		
9.0	**Documentation pertaining to any conditions of zonings, including copies of required deed restrictions; indicate date of rezoning and the parcel address under which it was rezoned (if applicable)**		
10.0	**Documentation related to any required variances granted by the ZBA**		
11.0	**For residential site plans, provide a statement from the appropriate school district that adequate school sites and facilities are available.**		
12.0	**8 1/2" X 11" reduction of primary site plan drawing (see appendix "B" of application package for specifications)**		
13.0	**A CD containing a PDF of all site plan drawings (Must also be provided with revised drawings)**		
VII Additional Required Information for Projects in the Mixed Use Districts			
1.0	**Design Advisory Board Application**		
1.1	Required for Major Site Plan		
1.2	Required at the Planning Directors Discretion for Minor Site Plans		
2.0	**Block & Street Network Plan**		
2.1	Designation of Core, Local & Alley streets		
2.2	Dimensions of Blocks		
3.0	**Block Usage Plan (as applicable)**		
3.1	Designation of site usage for each block including open space areas		
4.0	**Phasing Plan**		

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For official use only:

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Approved/Date

X:\Current_Planning\Application Forms 2013 Working Doc\Major Site Plan\Site Plan Submittal Requirements and Checklist (3).doc

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TOWN OF AMHERST
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
-- ADDENDUM --

1. For each applicable category of proposed <u>new</u> structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Urban Soil	severe	severe	severe	severe	severe

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   ____ Geotechnical report attached _____ Not applicable

3. Is your property located: On Youngs Road between Dodge and Klein Roads? □ Yes X No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? □ Yes X No
   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? □ Yes X No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   No

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: □ Yes X No
   Describe

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project Reference traffic study
   Source:

8. Will blasting occur during construction? □ Yes X No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? X Yes □ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    _1120_____ average flow _4400_____ peak flow.
    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? □ Yes X No

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

TOWN OF AMHERST

APPLICATION & REVIEW PROCEDURE

MAJOR SITE PLAN

MATERIALS MUST BE PROVIDED IN AN ELECTRONIC FORMAT THAT CONTAINS PDF FILES OF THE APPLICATION, EAF, SITE PLAN DRAWING SET SURVEY, LANDSCAPE PLAN, PRELIMINARY BUILDING FLOO PLANS / ELEVATIONS & ANY OTHER SUPPORTING INFORMATION. THIS MUST BE SUBMITTED WITH YOUR APPLICATION. APPLICATIONS WILL NOT BE TRANSMITTED WITHOUT THIS ELECTRONIC INFORMATION.

THIS ALSO APPLIES TO REVISED MATERIALS THAT AR SUBMITTED.

This application package includes the following:

- Application Procedures
- Application Form & Checklist
- Stormwater Pollution Prevention Plan Checklist
- Appendix A Town of Amherst EAF Addendum
- Appendix B Criteria for Required 8½" x 11" Sketches
- Appendix C Erie Sewer District No. 5 – Commercial / Industrial New & Existing Buildings Requirements

- IMPORTANT-

1. A pre-submittal consultation with Planning Department staff is *strongly recommended* prior to submitting an application. The pre-submittal meeting gives the applicant an opportunity to discuss with staff such items as:
   - classifying the action as a major site plan, minor site plan, or minor site plan adjustment;
   - determining what specific information will be required to be submitted with the application;
   - identifying and discussing issues that must be addressed as part of the SEQR review;
   - identifying any potential variances required to implement the project as proposed.

   An appointment is required for all meetings with Planning Department staff.

2. This site plan petition is subject to the requirements of 6 NYCRR Part 617, State Environmental Quality Review Act (SEQR), and Chapter 104 of the Town of Amherst Code, as amended. The Planning Board cannot make a SEQR determination unless a complete Environmental Assessment Form (EAF), including Town of Amherst EAF Addendum, and any required supplementary information such as traffic impact studies, archaeological reports, wetland delineations or geotechnical reports, are submitted. SEQR issues may be discussed with Planning Department staff at a recommended pre-submittal meeting. Unlisted Actions require a Short EAF; Type I Actions require a Full EAF. The following is a link to the NYSDEC website and fillable forms with instructions*:*
   http://www.dec.ny.gov/permits/6191.html.

3. **Review by the Town Design Advisory Board (DAB) is required for Major Site Plans located in the following Mixed-Use zoning districts:**

   Traditional Infill 2.5 (TI-2.5)
   Traditional Infill 4 (TI-4)
   Shallow Corridor 3 (SC-3)
   Deep Corridor 3 (DC-3)
   Deep Corridor 5 (DC-5)
   Center 2.5 (CTR-2.5)
   Center 5 (CTR-5)
   Center 8 (CTR-8)

   The application for DAB review is required to be filed in conjunction with the major site plan application.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

4. The application shall be executed or consented to in writing by the owner of the property.

5. **Any variances from the Zoning Board of Appeals, or any decision from the Town Board (e.g. removal of deed restrictions) must be obtained prior to action by the Planning Board on a Site Plan application.**

6. Submittal of an application grants permission to Town staff and Planning Board members to access the parcel(s) under consideration.

7. All site plan drawings must be prepared by a Registered Architect, Professional Engineer, Landscape Architect, or Land Surveyor (as applicable) licensed to practice in New York State.

8. If you wish to include a Coordinated Sign Plan application with the site plan petition, a separate application must be completed. Contact the Planning Department for a copy of a Coordinated Sign Plan application package.

9. All drawings should be no larger than 24 in. x 36 in. If site characteristics warrant larger plan sheets, they may be accepted subject to Planning Department concurrence. All drawings must also reserve a 4 in. x 6 in. area in the lower right hand corner for official Town use.

APPLICATION PROCEDURES

1. Applicant secures application package from the Planning Department, 5583 Main Street, Williamsville, NY 14221. (716) 631-7051. Forms are also available online at: www.amherst.ny.us, (keyword: Planning).

2. Applicant prepares information as required on the Site Plan Submittal Checklist, attached. NOTE: Some proposals may not require all items on the checklist; please verify with the Planning Department.

3. Applicant schedules an appointment with the Planning Department to review the following:
   - a complete set of site plan drawings, preliminary building elevations and floor plans (no larger than 24" x 36" in size)
   - Environmental Assessment Form (EAF) & Town EAF Addendum
   - any supporting reports and materials
   - verification from the Town Assessor that the address in the application is correct

4. Applicant schedules an application submittal appointment with the Planning Department. NO SITE PLAN WILL BE ACCEPTED FOR REVIEW WITHOUT A PRE-SET SUBMITTAL APPOINTMENT.

5. At the submittal appointment, applicant provides fourteen (14) complete and collated sets of drawings and application information to the Planning Department **(materials will not be accepted unless folded into 9" x 12" in size),** including**:**
   - application form
   - Environmental Assessment Form (EAF)
   - supporting reports / materials
   - complete set of site plan drawings, preliminary building elevations and floor plans (**at least one (1) set of drawings must bear a raised or wet seal and signature of the design professional** who prepared the plans; the remaining copies may be submitted with a facsimile of the seal and signature)
   - digital files of all materials in pdf format
   - an 8½" x 11" reduction of the sketch plan or plat drawing (see Appendix B)

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

6. After approval for filing by the Planning Department, applicant submits all necessary fees to the Town Clerk. **(See Schedule of Fees on first page of application and make checks payable to: Town of Amherst.)**

7. The applicant returns a copy of the filing receipt to the Planning Department.

8. The Planning Department transmits remaining thirteen (13) copies of the application and supporting materials to:
   - Assessor
   - Commissioner of Building
   - Town Engineer
   - Superintendent of Highways
   - Traffic/Safety Board
   - Fire Chiefs' Association
   - Plumbing Division
   - Right-of-Way Agent
   - Police Department (if applicable)
   - Zoning Enforcement Officer
   - Other Town and outside agencies, as applicable

9. Within 30 days of its receipt of the complete application for Site Plan approval, each agency completes its review and notifies the Planning Department in writing of its comments or recommendations as required by Ordinance.

10. The applicant may be required to submit revised plans, reports, or materials to address review agency comments. The procedures for submittal of revised plans are as follows:

    - A cover letter addressing all comments received to date is required.
    - "Highlight" the area of change on the drawings and provide a notation describing the change.
    - Revised plans/materials are required. Planning staff should be contacted to determine the number of sets needed.
    - All revised plans and materials must also be provided in an electronic format that contains pdf files of the revised information.

11. The Planning Board reviews the EAF to determine whether a Draft Environmental Impact Statement (DEIS) is required. The petitioner will be advised in the event that a DEIS is required and afforded the opportunity to prepare it. If the petitioner declines, the Planning Board will prepare the DEIS at the petitioner's expense. The public hearing will be held on the DEIS concurrently with the Planning Board hearing on the application.

12. Planning Board Meeting Procedures:

    The applicant or representative presents the project at the public hearing before the Planning Board and is available to answer any questions. The Planning Board may take any of the following actions:

    - Adjourn the hearing to a future Planning Board meeting (hearing remains open).
    - Close the hearing and table action on the site plan to a future Planning Board meeting. (The Planning Board may remove the item from the agenda until such time as all required information is provided.)
    - Close the hearing and make a decision on the site plan.

    All determinations on matters before the Planning Board are made after all public hearings on that meeting's agenda are completed.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

13. A copy of the Planning Board's determination will be provided to the applicant, his / her representative, the Building Commissioner and the Town Clerk approximately 1 week following the Planning Board meeting at which it was heard.

14. If the Planning Board approves a Site Plan with conditions, the Planning Department will work with the applicant to ensure that all conditions of the approval are satisfactorily addressed. When all conditions are satisfied, the applicant submits **seven (7) final copies** of the complete set of all site plan drawings, folded into 9" x 12". For site plans in the Mixed-Use zoning districts, building elevations will also be required.

    All 7 sets must have original wet seals and include the required 4 in. x 6 in area in the lower right hand corner for official Town use. These drawings will be stamped and signed "Approved" by the Planning Director and transmitted to Town Departments for their files and use.

15. A building permit will not be issued by the Building Department until the stamped and signed Site Plan is issued by the Planning Director.

NOTE: Please check with the Planning Department to determine the deadline date for filing applications. Due to the public hearing notice requirements and department reviews, no site plan application will be placed on the Planning Board agenda after the deadline for filing has closed. Scheduling may be delayed if an application is incomplete.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: _____ **Acreage** _____ **Fee $** _____

Address Verified by Assessor's Office _____ VERIFIED BY DATE

Materials Received by Planning Department _____ RECEIVED BY DATE

Fee Paid to Town Clerk _____ RECEIVED BY DATE

Site Plan Review		**Fill In Applicable Fees**
1 acre or less	$1,250.00	_____
Each additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Site Plans	$1,200.00	_____
Request for Relief of / Change to Conditions of Site Plan Approval	$1,200.00	_____
Request for Extension of Site Plan Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1 - 4.99 Acres	$ 500.00	_____
5 - 10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
	TOTAL FEE:	**$**_____

To Be Completed By Applicant

Petitioner:

Name: Philipps Bros Supply Inc.

Address: 2525 Kensington Ave

Amherst (city) NY (state) 14226 (zip code)

Phone: 716-839-4800 Fax: 716-839-4051

E Mail: pphilipps@philippsbros.com

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

MAJOR SITE PLAN APPLICATION (con't) ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney)**:**

Name: Joseph Molek

Address: 425 Franklin Street

Buffalo (city) NY (state) 14202 (zip code)

Phone: 716 - 222-3752 Fax: _____

E Mail: jmolek@stieglitzsnyder.com

Project Location (must be verified by Town Assessor's Office)**:**

Address: 2525 KENSINGTON AVE

SBL No(s): *Deed Reference: Liber 11117, Page 3180*
Tax ID: 80.11-1-6.2

Project Name: SHATKIN SCHOOL OF DENTISTRY AT DAEMEN COLLEGE / IMIT

Project Description:

MULTI-TENANT BUILD-OUT AND PARKING LOT EXPANSION ONTO RIDGEWOOD DRIVE

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

	existing	proposed	total
Gross Floor Area (non-residential):	29,350	4,400	33,750
Gross Floor Area Residential:			
Number of Residential Units:			
Number of Parking Spaces:	26	46	72

Acreage of Parcel: 1.24 AC

(list each parcel separately)

Frontage on Public Roads: 165.18'+333.61'+280.01'=778.8'

(list each road separately)

Existing Zoning District(s) GB - GENERAL BUSINESS

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Site Plan Submittal Requirements and Checklist

The following checklist outlines the information required by the Planning Department to accept a Site Plan application for review. ***It is strongly recommended that you make an appointment with Planning Staff to determine which items apply to your application***.

Item No.	Item	Submitted	Official use
I Basic Drawing Information			
1.0	**Drawing size not to exceed 24" x 36"**		
2.0	**Title of Drawing**		
3.0	**Name and address of Applicant**		
4.0	**Name of person preparing drawing**		
5.0	**Wet seal/raised seal and signature of NYS licensed architect, engineer, landscape architect, or surveyor (as applicable)**		
6.0	**Project address**		
7.0	**Zoning of subject property and adjacent parcels**		
8.0	**North point, scale, date, and revision date(s)**		
9.0	**4" x 6" reserved area in lower right hand corner for official Town use**		
II Structures, Paved Areas, & Open Space			
1.0	**Existing and Proposed Streets**		
1.1	Names of all existing and proposed streets		
1.2	Width and radii of proposed curb-cuts		
1.3	Existing curb-cuts on adjacent and opposite properties		
1.4	Show ROW width, pavement dimensions, lane widths, pavement markings, and proposed signage on proposed streets		
1.5	Show proposed ROW consistent with planned NYSDOT, Erie County, or Town road projects (if applicable)		
1.6	Show location of proposed cross access to adjacent parcels along with a draft easement		
1.7	Designation of Fire Lanes (if applicable)		
1.8	Fire apparatus access roads		
1.9	Label any proposed roads as public or private		
1.10	Location and dimensions of sidewalks		
1.11	Typical cross sections and profiles of proposed streets, pedestrian walkways, and bikeways		
2.0	**Proposed Structures**		
2.1	Location and complete dimensions of proposed structures		
2.2	Setback dimensions of structure(s) to all property lines		
2.3	Proposed use of structures		
2.4	Gross square feet area of each structure		
2.5	Location of all building entrances		
2.6	Indicate type of roof construction/materials		
2.7	Location, height, and design detail of existing and proposed fences and walls		
2.8	Location of light standards and building mounted lights		
2.9	Location of dumpster and detail of dumpster enclosure with gate		
2.10	Layout and dimensions of the lot(s) proposed for development		

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Item No.	Item	Submitted	Official use
II Structures, Paved Areas, & Open Space (cont'd)			
3.0	**Floor Plans with individual rooms and spaces labeled** (fully dimensioned)		
4.0	**Building elevations with height dimensions from finished grade to the highest point of the roof and to midpoint of gable or hip of a pitched roof.** (fully dimensioned)		
4.1	Show screening of mechanical equipment		
5.0	**Parking/Loading/Stacking Areas**		
5.1	Location and complete dimensions of all paved areas		
5.2	Setback dimensions of all paved areas to property lines		
5.3	Dimension of typical parking space and drive aisles		
5.4	Location and layout of handicapped parking spaces & access aisles		
5.5	Detail of vertical signage for handicapped parking and access aisles		
5.6	Indicate minimum parking requirement & number of spaces provided		
5.7	Proposed signage for directing and guiding traffic		
5.8	Curb cut permits from NYS, Erie County, or Town (if applicable)		
5.9	Pedestrian connections (from proposed structures to public sidewalk network)		
6.0	**Location and proposed development of all open spaces, including parks, playgrounds, and open reservations**		
III Utilities and Drainage			
1.0	**Engineers Report** (bound separately from the Stormwater Pollution Prevention Plan [SWPPP])		
1.1	Stamped/sealed and signed by NYS licensed architect or professional engineer		
1.2	Proposed water service sizing, RPZ pressure and fire safety flow and pressure calculations		
1.3	Proposed sanitary sewer facility load calculations (avg. & peak flows) including calculation of the peaking factor		
1.4	Proposed storm drainage facility calculations (see information included with this application)		
2.0	**Grading Plan**		
2.1	Existing and proposed grades indicated (proposed grades may not exceed 1 on 3)		
3.0	**Water Service**		
3.1	Location, size and material of existing and proposed facilities		
3.2	Location of existing and proposed fire hydrant location(s)		
3.3	Indicate use of sprinklers, location of Fire Department connection, and proposed fire protection systems		
3.4	Existing and proposed meter/RPZ size and location		
3.5	Applicable construction details		
4.0	**Sanitary Sewers**		
4.1	Locations, sizes, slopes, inverts, and materials of all existing and proposed facilities		

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Item No.		Submitted	Official use
III Utilities and Drainage (cont'd)			
4.2	Applicable construction details		
4.3	Proposed water/oil/grease interceptor sizing calculations by a professional engineer (if applicable)		
5.0	**Storm Drainage**		
5.1	Locations, sizes, slopes, inverts, and materials of existing and proposed storm drainage facilities		
5.2	Connection of roof drains to proposed drainage system		
5.3	Applicable Town Standard construction details		
5.4	Existing and proposed swales and ditches		
5.5	Detention area cross-section and high-level elevations		
5.6	County and State approval for tie-in to existing sewers		
6.0	**Stormwater Pollution Prevention Plan (SWPPP) as applicable** (bound separately from the Engineer's Report) **See attached checklist.**		
7.0	**Natural Gas Service**		
8.0	**Location of transformers, generators and other mechanical equipment; include detail drawings (if applicable)**		
9.0	**Downstream Sanitary Capacity Analysis (DSCA) Report** (must be submitted if proposed average flows are greater than 2,500 gallons per day)		
9.1	The DSCA Report must include a detailed downstream sewer capacity analysis and the calculations of and commitment to (via Developer commitment letter) the required financial contribution to the Town's I/I mitigation fund based on peak flow conditions. The contribution must be based on $250 per gallon per minute of mitigated flow		
IV Lighting Plan			
1.0	**Photometric plan showing light spread in foot candles at property lines**		
1.1	Detail of all light standards, including dimension of height from finished grade		
1.2	Detail of all exterior lighting fixtures		
V Landscape Plan			
1.0	**Wet/raised seal and signature of a licensed Landscape Architect**		
2.0	**Provide a calculation of the total Parking area and a calculation of interior parking area in square feet and as a percentage**		
3.0	**Indicate location, size, number and type of proposed landscape materials**		
4.0	**Indicate location, type and size of <u>all</u> existing trees 4" caliper or larger and indicate which will be removed or retained**		
VI Other Required Information/General Requirements			
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10.0	**Documentation related to any required variances granted by the ZBA**		
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For official use only:

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Approved/Date

X:\Current_Planning\Application Forms 2013 Working Doc\Major Site Plan\Site Plan Submittal Requirements and Checklist (3).doc

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TOWN OF AMHERST
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
-- ADDENDUM --

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2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   ____ Geotechnical report attached _____ Not applicable

3. Is your property located: On Youngs Road between Dodge and Klein Roads? □ Yes X No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? □ Yes X No
   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? □ Yes X No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   No

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: □ Yes X No
   Describe

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project Reference traffic study
   Source:

8. Will blasting occur during construction? □ Yes X No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? X Yes □ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    _1120_____ average flow _4400_____ peak flow.
    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? □ Yes X No

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:
Shatkin School of Dentistry / Philipps Bros Supply

Project Location (describe, and attach a location map):
2525 Kensington Ave at Bentham Pkwy and Ridgewood Drive

Brief Description of Proposed Action:
Shatkin School of Dentistry at Daemen College & Institute for Mobility and Technology on 1.2 acre existing developed parcel -plus- redevelopment of Ridgewood Drive into a new private paved surface parking lot.

Name of Applicant or Sponsor:	Telephone: 716-839-4800
Pat Philipps	E-Mail: pphilipps@philippsbros.com

Address:
2525 Kensington Avenue

City/PO:	State:	Zip Code:
Amherst	NY	14226

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: Amherst Site Plan, building permit	☐	☑

3. a. Total acreage of the site of the proposed action? 1.24 acres
   b. Total acreage to be physically disturbed? 0.50 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 1.24 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☑ Commercial ☑ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☐	☑
b. Consistent with the adopted comprehensive plan?	☐	☐	☑

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?	NO	YES
If Yes, identify: _____	☑	☐
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☐	☑
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☐	☑
9. Does the proposed action meet or exceed the state energy code requirements?	NO	YES
If the proposed action will exceed requirements, describe design features and technologies:		
REFER TO ARCHITECTURAL SET	☐	☑
10. Will the proposed action connect to an existing public/private water supply?	NO	YES
If No, describe method for providing potable water: _____	☐	☑
11. Will the proposed action connect to existing wastewater utilities?	NO	YES
If No, describe method for providing wastewater treatment: _____	☐	☑
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☐	☑
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☑	☐
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____		

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional
☐ Wetland ☐ Urban ☑ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☐	☑
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☑
If Yes, briefly describe: EXISTING PUBLIC DRAINAGE IN RIDGEWOOD DRIVE		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☑	☐
If Yes, explain the purpose and size of the impoundment:		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe:		
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☑	☐
If Yes, describe:		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: joseph molek Date: March 28 2022

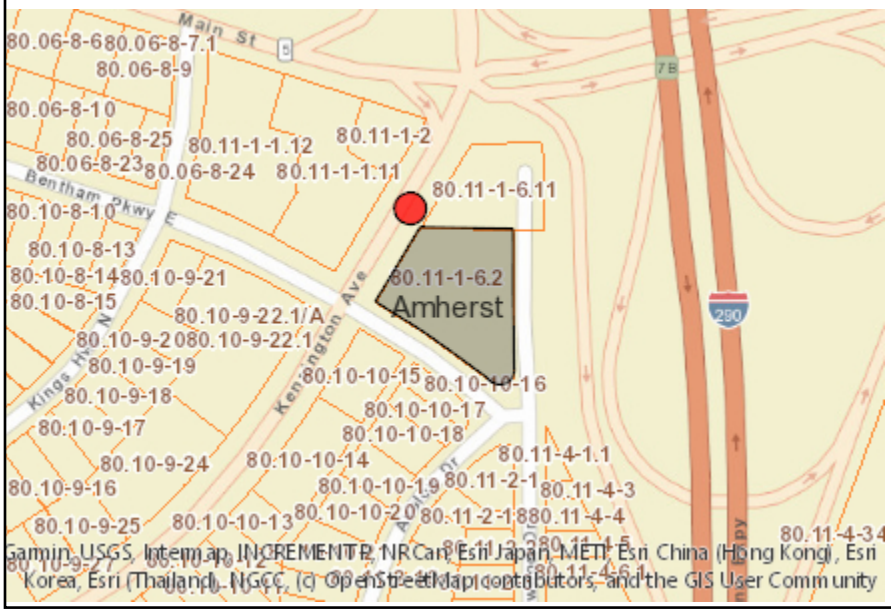
Signature: Title: Architect

PRINT FORM

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

EAF Mapper Summary Report

Monday, February 14, 2022 1:50 P.M.



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	No
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	No

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

March 28 2022

5583 Main Street Williamsville NY 14221
Town of Amherst Planning Department

STIEGLITZ SNYDER ARCHITECTURE

RE: 2525 Kensington Avenue – Philipps Bros. Supply / The Shatkin School of Dentistry and Parking expansion.

Dear Mr. Gary Palumbo,

We are submitting to the Planning Department our response to Major Site Plan review comments submitted by the following Departments:

Amherst Fire Chief Comments March 16 2022:

1. What fuel is used for generator? If diesel, provide specs on tank and quantity.

Fuel type is Diesel. See accompanying documents for tank specifications.

2. fire lane no parking signs are required on north side of the building

Signage will be provided.

3-Show location of fire department connection. Should be located on street side of building

Fire department connection will be provided at northwest corner of the building just north of the loading doc.

Engineering Department Comments March 9 2022:

1.An executed copy of the proposed access easement from the adjacent parcel to the north must be copied to this office prior to issuance of any town of Amherst plumbing permits for this project.

To be resolved with Town Board.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

2. An executed copy of the Town of Amherst License Agreement / Land lease regarding the use and improvement of Ridgewood drive must be copied to this office prior to the issuance of any Town of Amherst Plumbing permits for this project.

To be resolved with Town Board.

Planning Department comments March 7 2022:

Zoning Enforcement Officer Review:

Item #1

Owner/applicant to pursue 0 feet setback at proposed canopy addition location. We are requesting an Area Variance from the Ridgewood Drive Right-of-way.

Item #2

Owner/applicant to pursue 0 feet area setback for paved parking at the right-of-ways and north property line. We are requesting an Area Variance.

Item #3

Existing parking lot modified to comply with minimum size and spacing of car-parks and including a new curbed and landscaped end cap.

Item #4

Owner/applicant to pursue 0 feet setback at proposed trash enclosure location. We are requesting an Area Variance from the Ridgewood Drive and Bentham Pkwy Right-of-way.

Item #5

Landscape plan is sealed by NYS licensed Landscape Architect.

Item #6

Additional landscape screening is provided to screen Transformer and Generator. See accompanying transformer photo (similar size transformer will be used) and diesel fuel generator and tank.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Item #7

A foundation planting bed is now shown cut-out from the existing sidewalk fronting the west wall of the existing facility. Shrubs are added in the planting schedule.

Item #8

Site Lighting Plan – the intent is to illuminate Ridgewood Drive parking lot for safety. See accompanying revised drawing for lighting at south end of parking.

Item #9

Alternative parking analysis – See accompanying Traffic Study prepared by SRF Associates.

Planning Department Staff Review:

Item #1

Owner/Applicant will work with the Town of Amherst Board to remove parking restriction on Ridgewood Drive.

Item #2

Owner/Applicant will provide a license agreement for maintenance and use of Ridgewood Drive right of way.

Item #3

Boulders stones in the Kensington Avenue Right- of- way are shown to be removed.

Item #4

Northerly curb cut and driveway on Kensington Ave. is required for Fire Truck access along the north side of the building therefore we do not suggest removing this curb cut. We would agree to remove the southerly curb cut if deemed necessary however, we did not receive comment from NYSDOT to determine what concerns they may have, and therefore have not modified the site plan for such.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Item #5

See accompanying transformer photo (similar size transformer will be used) and diesel fuel generator and tank.

Item #6

See accompanying cut sheets for site and building mounted lighting fixtures.

Item #7

No other site features are anticipated.

Item #8

We hereby request a waiver for the sidewalk requirement along Ridgewood Drive. The area of concern contains proposed foundation plantings instead to augment the façade treatment.

Item #9

Signage will be submitted under separate cover for review by the Town of Amherst.

Item #10

SEAF – see accompanying document with applicant's name.

Item #11

See accompanying Application complete with Item #1, #5 and #7.

Item #12

We have provided 4"x6" in the lower right hand corner of all drawings that did not have the space available for Town use.

Item #13

An 8 1/2" x11" reduction of the modified site plan is included.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Landscape Architect Review:

Item #1

Bollards surrounding explosive mechanical equipment will contain a plastic covering *color safety yellow* for visible warning to motorists to avoid impact. Disguising bollards in this application is not recommended.

Item #2

Ridgewood Drive right-of-way contains various underground utilities, including ECWA water on each side of the roadway, that must remain as-is. We do not recommend planting trees atop these public utilities.

Item #3

Additional landscaping screening is shown on the south side of the transformer and west side of the generator to further restrict view from the public roadway.

Item #4

We do not intend to install landscaping on Thruway property. There is approximately 4-ft between the right-of-way/edge of pavement and the Thruway fence remaining that is shown re-planted as lawn.

Item #5

Existing trees or shrubs are shown with a legend for removals, if any. Brush shall be cleared from along the Thruway fence.

Item #6

See Item #5 – note on plan indicates where contractor is to protect or remove existing plantings.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Highway Dept. Review March 24 2022:

Item #1 – Applicant has requested abandonment of the portion of Ridgewood Drive running north of Bentham Pkwy. However, the underlying utilities including storm sewers, shall remain owned and maintained by the Town of Amherst.

End of comments.

If you would like to discuss these comments further, please don't hesitate to contact me at 716-222-3040 or via e-mail at jmolek@stieglitzsnyder.com.

Sincerely,

STIEGLITZ SNYDER ARCHITECTURE



Joseph Molek, RA

Project Architect

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Engineer's Report

for

SHATKIN SCHOOL OF DENTISTRY/IMIT
2525 KENSINGTON AVE
TOWN OF AMHERST, NY

February 22, 2022

Prepared By:

tredo
ENGINEERS

CIVIL | STRUCTURAL | ENGINEERING

755 Seneca Street, Suite 202
Buffalo, New York 14210
716.876.7147 ph



Seal

For:

Stieglitz Snyder Architecture
Buffalo, NY

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

tredo
ENGINEERS

I. SUMMARY

This project includes a mixed-use redevelopment and internal expansion in an existing 1-story retail/warehouse facility to include a dental school on a 1.2± acre parcel located at Kensington Avenue, Bentham Pkwy. and Ridgewood Drive in the Town of Amherst, New York. The GB-zoned site is located adjacent to the north terminal end of Ridgewood Drive, to which the applicant is requesting abandonment, and proposed replacement with a paved parking lot in a land-lease. The subject parcel is currently fully developed with replacement utility services planned for the uprated occupancy.

Sanitary wastewater is currently conveyed by 4-inch gravity piping from the building to an 8-inch public sewer found in Ridgewood Drive. New interior plumbing and partial replacement of the existing 4inch PVC lateral is planned.

New water service for domestic and fire-protection use of the multi-tenant build-out shall replace the existing tap and connect to the 6-inch main found in Kensington Ave. A new 6-inch tap with 4-inch DIP tee reducing to 3-inch and running to the water meter room and 6-inch DIP fire protection runs together in the same trench. The Erie County Water Authority (ECWA) regulates the water main. Metering and backflow prevention for the private services are contained within the facility mechanical room with application made by others.

Currently, storm water runoff generated by the site flows overland towards and into the existing surrounding roadway drainage systems. Replacement receivers are proposed for redevelopment of Ridgewood Drive from a roadway to a perpendicular car-park. New storm piping shall connect to existing manholes. One manhole rim is proposed to be raised-up to new grade of the proposed parking lot.

This development will not result in an increase in impervious surfaces on this site and does not involve soil disturbance greater than one (1) acre, thus stormwater detention is not provided. The site is not located within a 100-year floodplain. The site is currently fully developed and does not contain wetland.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

755 Seneca Street, Suite 202
Buffalo, New York 14210
716.876.7147 ph

www.tredoengineers.com

II. SANITARY SEWER SERVICE

The existing public 8-inch gravity sanitary sewer located on the west side of Ridgewood Drive will provide a sanitary sewer connection point. All public utilities within Ridgewood Drive shall remain operational and accessible for maintenance during and after reconstruction. One public sewer manhole rim is proposed to be raised-up to new grade of the proposed parking lot.

A replacement for the private 4-inch PVC (SDR35) sewer lateral will be installed to the proposed building sanitary sewer entry point at the north wall of the building from the existing tap per the building plumbing plans. The proposed facilities will generate a calculated 1120 gal/day (gpd) average of residential wastewater load* as per the following:

Day School: (30 empl x 15 gpd)+(52 students x 10 gpd) ~ 970
Existing retail/warehouse: (10 empl x 15 gpd) ~ 150

*Reference “NYS Design Standards for Intermediate Sized Treatment Works, March 2014”

III. WATER SERVICE

A new 6-inch water line for domestic and fire-protection will be connected to the existing 6-inch public main located on the east side (near side) of Kensington Ave. The following data pertains to the public watermain and private demands:

- Subsurface investigations indicates a somewhat shallow, till overburden on weathered shale bedrock. The presence of bedrock measurement approx. 7-ft below grade is indicated.
- The static pressure of the existing 6-inch public main is reported by ECWA as __ psi, and a residual (open hydrant) reading of __ psi. (Note that a recent pressure test is not available and a new test cannot be made at this time and until spring thaw)
- New domestic demand is limited to the proposed uses as a day school and retail/warehouse facility. New fire-protection demand design shall be by the building fire-protection engineer which may include a booster pump as required.

Erie County Water Authority (ECWA) governs the proposed tap and backflow prevention. ECWA provides the tapping sleeve and valve and the 4-inch gate valve and 6-inch gate valve installed at the property line. Metering and backflow prevention is contained within the facility. Meter set is also provided by ECWA. A Backflow Prevention Application shall be provided under separate cover on behalf of the water customer.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

IV. STORMWATER MANAGEMENT

I. Existing (Pre-Development) Conditions

The subject parcel is currently built-out with building and pavements. No on-site stormwater receivers were found. Ridgewood Drive contains curb inlets and storm piping conveyances owned and maintained by the Town of Amherst.

II. Proposed (Post-Development) Conditions

The proposed development includes the construction of a new canopy entry structure and associated paved parking in a land-lease agreement to use Ridgewood Drive as a car-park. Storm water receivers are replaced, existing piping abandoned, with new piping connections made to existing manholes. Storm pipe sizing for conveyance of the 10-year storm event is included in Appendix A for new drainage in Ridgewood Drive.

V. PERMITS

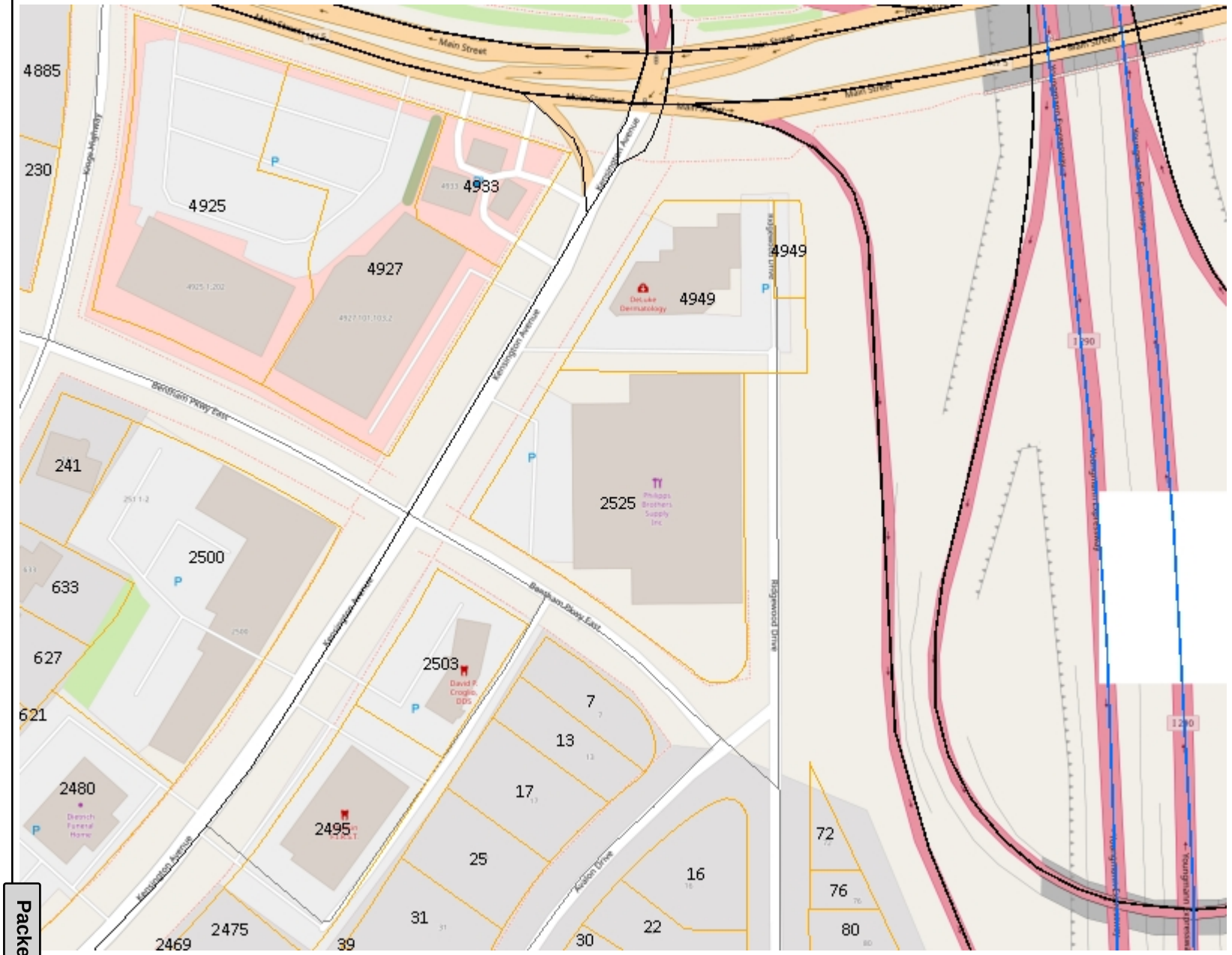
The proposed construction of the building addition, abandonment of public rights-of-way, new parking areas and drainage must receive approval from the Town of Amherst. An application for backflow prevention for private service must be made to the Erie County Water Authority (ECWA).

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

APPENDIX A

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Erie County On-Line Mapping Application





Legend

- Parcels
- Streets and Highways
  - Interstate
  - Primary State Road
  - Secondary State Road
  - County Road
  - Local Road

0.04 0.1 Miles

VGS_1984_Web_Mercator_Auxiliary_Sphere

HIS MAP IS NOT TO BE USED FOR NAVIGATION

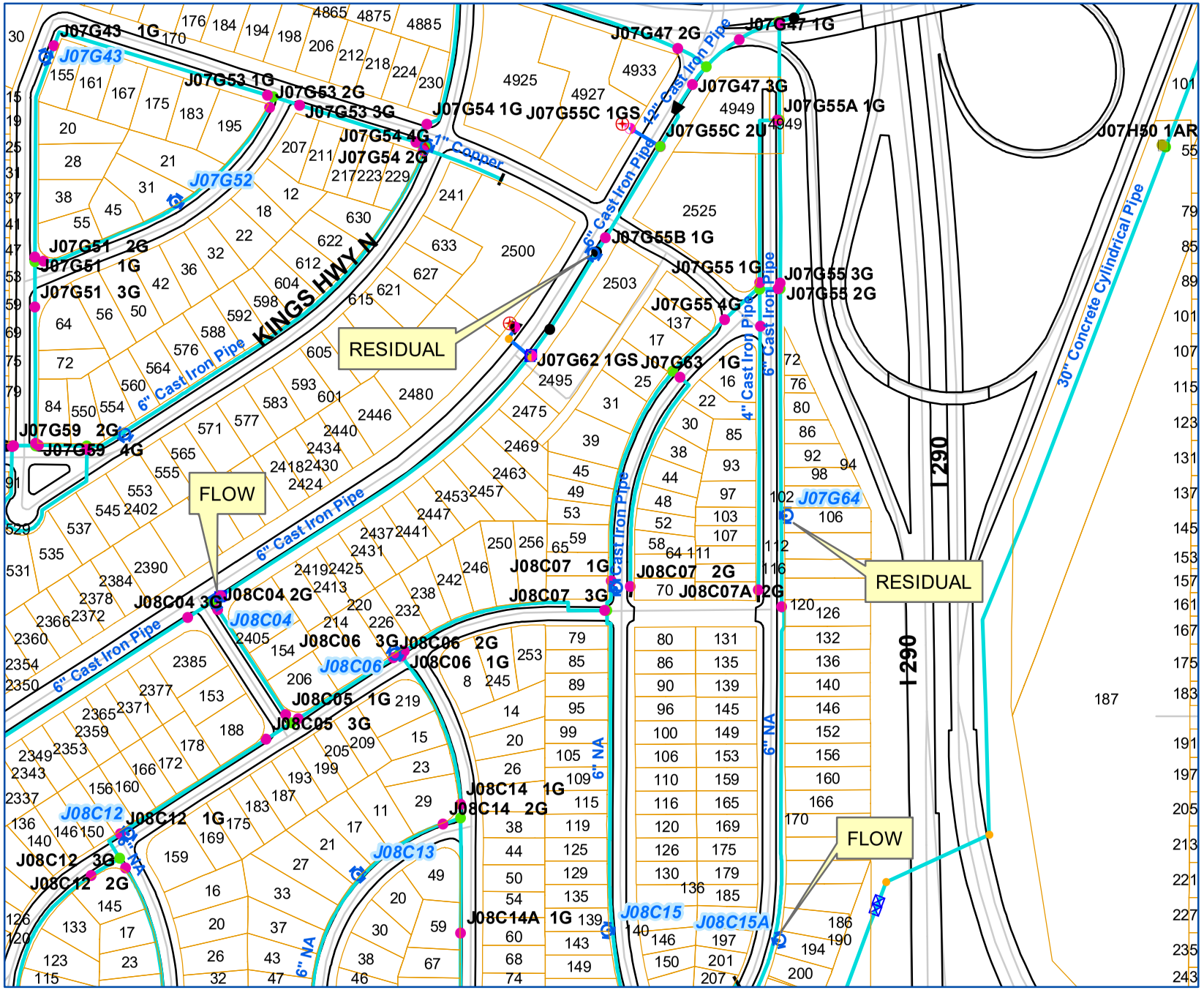
ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

1: 2,257

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

2525 KENSINGTON



STORM SEWER COMPUTATIONS (10 yr)

	RUNOFF AND FLOW																
	SEWER LOCATION			TRIBUTARY AREA (acres)		RUNOFF COEFFICIANT C									TIME OF CONC. T_c (min)	INTENSITY I (in/hr)	FLOW Q (cfs)
	area	from	to	A	SUM A	c	cA	SUM cA	LENGTH	SLOPE	PREV. Tc	T. of conc. c	RUNOFF Tc				
43.49																	
7.75																	
0.78	1	CB-1	ex mh1	0.10	0.10	0.90	0.09	0.09	70.00	1.50		0.90	2.63	2.63	10.00	4.6	0.43
	2	CB-2	CB-3	0.10	0.10	0.90	0.09	0.09	70.00	1.50		0.90	2.63	2.63	10.00	4.6	0.41
	3	CB-3	CB-4	0.32	0.41	0.90	0.28	0.37	70.00	1.50	10.57	0.90	2.63	10.57	10.57	4.5	1.67
	4	CB-4	ex mh2	0.13	0.54	1.90	0.24	0.61	70.00	1.50	10.83	1.90	10.52	10.83	10.83	4.5	2.72
					0.51												

	DESIGN								
	MANNING n	SLOPE S (%)	DIAMETER D (in)	CAPACITY Q (cfs)	CAPACITY VELOCITY V (ft/sec)	% capacity	peak factor	FLOW VELOCITY V (ft/sec)	LENGTH L (ft)
1	0.012	0.50	6	0.43	2.19	0.99	1.16	2.55	40
2	0.012	0.50	6	0.43	2.19	0.94	1.15	2.52	70
3	0.012	0.50	10	1.68	3.09	0.99	1.16	3.58	85
4	0.012	0.50	12	2.74	3.48	0.99	1.16	4.04	40

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

APPENDIX B

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

APPENDIX C

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

BARRON & ASSOCIATES, P.C.
Geotechnical Consulting and Special Inspections
10440 Main Street (716) 759-7821
Clarence, NY 14031 www.barronandassociatespc.com

October 18, 2021 Job No: 21-599

Shatkin School of Dentistry
2500 Kensington Avenue
Amherst, New York 14226

ATTN: Dr. Todd Shatkin, DDS

RE: Geotechnical Engineering Report
Proposed Mezzanine & Canopy at
Shatkin School of Dentistry
2525 Kensington Avenue
Town of Amherst, Erie Co., New York 14226

Dr. Shatkin:

This report presents the findings of the subsurface investigation program and geotechnical engineering recommendations for the above referenced project. The geographic orientation of the project site is illustrated on the U.S. Geologic Survey (USGS) site location map in Figure No. 1. The project site is illustrated in Figure No. 2, entitled "Test Boring and Concrete Core Location Plan", which includes: the approximate location of one exterior test boring and two interior concrete floor slab cores that were drilled by Buffalo Drilling Company, Inc. (BDC); relative ground surface elevations; and additional site details.

EXPLORATION METHODS

Sampling Method: A truck-mounted CME 55 rotary drill rig was used to drill one boring to shallow auger refusal by using 4-1/4 inch inside diameter (ID), continuous flight hollow stem augers. Samples were recovered by driving a standard split-spoon sampler (2-foot long by 1-3/8 inch inside diameter) 24 inches with a 140-pound hammer falling 30 inches per blow per the American Society of Testing and Materials (ASTM) Standard D1586. The number of blows from six to 18 inches of penetration is defined as the Standard Penetration Test (SPT) N-value. Auger refusal, which may infer the top of bedrock, was encountered approximately seven feet below ground surface. Inside the existing structure, an electric core machine with six-inch ID, diamond impregnated bit was used to core through the concrete floor slab to gain access to subsurface soils at two locations, C-1 and C-2. Subsurface samples were retrieved via hand sampler beneath concrete floor slab.

Bedrock was confirmed by coring boring B-1 to a depth of approximately five feet below auger refusal. Bedrock coring efforts were done with an Nx-sized (2-1/8-inch I.D.) core barrel and impregnated diamond bit in accordance with ASTM Method D2113.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Any encountered groundwater conditions are documented in the field on the driller's logs for each test boring. If indicators of groundwater are observed on the sampling equipment, the depth to groundwater is also checked and measured through the hollow stem augers at the completion of the sampling efforts.

Classification: The retrieved soil samples were initially logged in the field by the driller, and a portion of each sample was placed and sealed in a glass jar. The boring logs, which are included in Appendix A, were based upon the field logs and a second visual classification of recovered samples in the laboratory by a geologist. Classification/identification of samples, as noted on the boring logs, is based on the Unified Soil Classification System (USCS) in ASTM D2487/D2488. Refer to Appendix B entitled, "Geotechnical Reference Standards", for an explanation of the terminology that is used for soil and rock descriptions.

Each rock core was examined on a run-by-run basis to determine the percentage of core recovery and Rock Quality Designation (RQD). Core recovery percentage is the ratio of the sample length recovered divided by the length of the core run times 100 percent. RQD is defined as the total length of all pieces of core that are greater than four inches divided by the length of the core run times 100 percent. Core recovery and RQD percentages are noted on the boring logs.

Each core sample of the existing concrete floor slab was observed, measured, and photographed for review. Details can be found on the test boring/core logs C-1 and C-2 in Appendix A and the photographs are available in Appendix C, entitled "Floor Slab Core Photographs".

SITE AND SUBSURFACE CONDITIONS

General: The proposed site for development is the existing Phipps Brothers Supply, Inc. building addressed as 2525 Kensington Avenue, in the Town of Amherst, Erie County, New York. The project will include the construction of an interior mezzanine and an exterior canopy over the drop off area along the east side of the building. The site topography is generally flat across test boring locations.

Subsurface Soil Conditions: In general, subsurface conditions, underlying the exterior asphalt pavement or interior concrete floor slab, consist of one to two feet of granular fill material atop naturally deposited cohesive/fine-grained glacial till that extends to auger refusal.

Beneath the asphalt at B-1, granular fill material was encountered and extends two feet below ground surface. This fill consists of fine to coarse-grained sand to gravel sized crushed limestone and is believed to be the aggregate base course for the asphalt pavement. Relative density of the granular fill is medium dense with moisture contents of retrieved samples noted to be in a moist state. Beneath interior concrete floor slab at boring/cores C-1 and C-2, the granular fill is a loose to medium dense silty sand with trace quantities of gravel. This fill is described as a spent foundry sand typical of the metal casting industry which has a historic common reuse in this region as concrete slab/rigid pavement base layers.

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Beneath the fills, a naturally deposited cohesive/fine-grained glacial till exists and extends to auger refusal at B-1 and the remain depths advanced at C-1 and C-2. The till generally consists of slightly to moderately plastic, silt and clay with lesser amounts of sub-rounded fine-sized to coarse-sized sand and gravel. The consistency of this soil is primarily stiff to hard with moisture contents of retrieved samples noted to be moist. Spoon refusal conditions are also noted in the lower depths of the unit closer to soil bedrock interface. The proposed footing bearing grades for the proposed structures are assumed to be within this soil.

Bedrock: Auger refusal, which is generally inferred to be the top of the apparent bedrock surface, was encountered at B-1 approximately seven feet below ground surface. Confirmatory rock coring was advanced five feet beneath the refusal condition and bedrock samples collected. The bedrock type is the Onondaga Limestone, which is described as hard, slightly weathered, medium dark gray, thinly bedded, porous and calcareous limestone. Percent recovery is lightly more than 50 percent with rock quality designations (RQD) noted as 30 percent. These RQD values suggest that the rock is poor quality.

Groundwater: Groundwater was not encountered during subsurface exploration efforts. Note that the groundwater readings were taken at the completion of drilling efforts and, therefore, an adequate amount of time for the groundwater level to recharge to static conditions was probably not allowed. Fluctuations in the groundwater level may occur due to other factors than those present during field operations.

EARTHQUAKE/SEISMIC CONSIDERATIONS

Site Class Definition: For the given site conditions, the most applicable site definition is Site Class C, in accordance with Section 1613.2.2 of Building Code of New York State © 2020 and listed in Table 20.3-1 of Chapter 20 of American Society of Civil Engineers (ASCE) Standard 7-16.

Liquefaction Potential: For the Site Class C, the design spectral response acceleration parameters S_{DS}, at 0.2 seconds, and S_{D1}, at one second, are 0.146g and 0.045g (g = 32.2 feet/sec^2), respectively, for this part of Erie County, New York (see Appendix D). These values have a two percent probability of being exceeded in 50 years. Based upon the above conditions and an approximate magnitude 6.0 earthquake on the Richter Scale, the potential for liquefaction or settlement of Site Class C soil is considered extremely low.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

FOUNDATION DESIGN AND CONSTRUCTION RECOMMENDATIONS

General: This section will present and discuss recommendations on foundation design and construction and placement of controlled fills, and subgrade and base layer requirements for concrete floor slabs.

As shown in Figure No. 2, a mezzanine will be constructed inside the northern warehouse portion of the existing building. Additionally, a canopy will be constructed to cover the drop off area at the rear of the structure. The existing ground surface is generally flat across the development area and final exterior grades are assumed to closely match the existing at relative elevation 100.00 ± feet. The maximum design exterior and interior column loads are not expected to exceed 100 kips. The maximum live floor load is taken as 100 pounds per square foot (psf).

Site Preparation and Earthwork: General site preparation will include the demolition and complete removal of any encountered foundations and floor slabs, and removing all unsuitable surficial material (i.e., asphalt pavement, concrete, brick, expansive slag, organic or topsoil layer, and construction and demolition-like fill) to a depth where firm, granular or cohesive fills or naturally occurring soils are encountered. It is recommended, particularly in the location of the proposed structure, that any slag and/or cinder/ash containing material, if encountered, should be tested to determine the expansion and corrosion characteristics (where applicable for direct or potential contact with foundation elements and buried utilities) of these materials prior to their use on-site. Any rubble-like and brick fill, boulders, or wood fill in particular, if encountered, will require undercutting. Building pad and paved areas are to be proof rolled with a fully loaded ten-wheel dump truck. All encountered soft and disturbed zones should be undercut and stabilized with granular fill that is placed in compacted lifts prior to placement of additional fill materials above. Refer to Appendix E entitled "General Earthwork Specification" for definition of the fill types and gradations, recommended minimum compaction requirements for various site developments, and placement and compaction methods. The NYS Department of Transportation (NYSDOT) specification numbers for typical aggregate subbase/base course components that are included in the select granular fill category as are as follows: Item No. 304.12 (Metric) Subbase Course, Type 2 (< 2-inch maximum size), which is preferred; or Item No. 304.14 (Metric) Subbase Course, Type 4 (< 2-inch maximum size).

It is unknown if any former residential/commercial structures existed at the project site for the proposed renovations and if any former footings and foundation walls may be buried at the proposed site. Septic tank and system locations and the abandonment conditions or practices are normally unknown. If encountered during site development, it is recommended that any tanks and systems should be properly removed/treated/remediated relative to the proposed development and under the applicable local and state regulations. The remaining cavities, from the aforementioned items, should be backfilled with select/approved granular fill that is placed in thin lifts and compacted to the minimum recommendation, as presented in this report, for the proposed development at that cavity location.

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Shallow Foundation: The recommended foundation type is shallow footings. Individual interior and exterior spread column footings would bear at an elevation of 42-inches or lower below final grade, at relative elevation 96.50 ± feet or lower. A 42-inches minimum footing depth (as required by local or New York State code) is needed to provide adequate protection from frost for exterior footings.

The exterior and interior footings are recommended to bear at the same relative elevation on stable, naturally deposited, stiff (Nvalues > 10 blows) cohesive/fine-grained glacial till or on thin layers of thoroughly compacted (minimum of 95 percent of the maximum dry density by ASTM D 1557) select/approved granular fill that is placed on approved subgrade. If needed, a geotextile strength and filter fabric (such as, Mirafi 600X) may be used to line the excavation bottom for the purpose of stabilizing the excavation and placement of the select/approved granular fill. Alternatively, in heated buildings the interior footings are recommended to bear two and one-half feet or lower below finish floor at relative elevation 97.50 ± feet and on the same soil/fill conditions as the exterior footings.

Undercut areas beneath proposed foundations must extend laterally beyond each vertically projected edge of the foundation by a minimum distance equal to one-half the total depth of the undercut or equating to a slope of two vertical to one horizontal from the bottom foundation corner. The undercuts and placement of compacted select/approved granular fill are required to ensure a suitable and more uniform bearing media for the footings, and to prevent unacceptable differential settlements.

Column footings should have a minimum three-foot width. Based on the above described conditions, the recommended maximum net allowable foundation bearing pressure is 2,500 pounds per square foot (psf) of bearing area. All footings for the proposed building are recommended to be designed near the same contact pressure. The recommended maximum net allowable foundation bearing pressure is based on generally accepted design methods for cohesive/fine-grained soil conditions. Based on the provisions of the above recommendations and estimated design requirements and utilization of proper construction procedures and experienced field supervision and testing personnel, total and differential settlements are estimated to be less than one inch and 3/4's inch, respectively. Refer to Appendix D for additional foundation design and construction details.

Additional Foundation Considerations: In addition to the above, the following recommendations will provide additional assurances with regard to proper foundation construction.

a) All fill placed beneath, adjacent, or above foundations must comply with the "General Earthwork Specification", included as Appendix E.

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b) Backfill of foundations with approved select granular fill must be completed prior to placement of substantial superstructure loads, except for basement walls or substructure areas that may additionally require superstructure loads and possibly internal bracing.

c) The upper silty materials may rut and “pump” if exposed to excessive surface water and repeated construction traffic. Proper site management and fill placement operations are needed to minimize costly undercuts and subgrade repairs prior to placement of concrete slabs and asphalt pavement. It is noted that construction during wet/rainy and/or Fall and Spring conditions may require added precautions and possibly a thicker base layer to maintain a stable subgrade condition.

d) Step footings, if utilized, should have a rise to run ratio of 1:2, with a two-foot maximum rise and a four-foot minimum run between steps or as recommended by the design structural engineer.

e) The recommended at rest (rigid wall), active, and passive static earth pressure coefficients for unsaturated, select granular sandy gravel fill against an earth retaining structure/wall are 0.76, 0.24, and 2.8 (with an ultimate value of 4.2), respectively. The respective equivalent static lateral fluid pressures are recommended to be 90, 30 and 330 (with an ultimate value of 500) pounds per square foot (psf) per foot depth which are based upon a moist, compacted unit backfill weight of 120 pounds per cubic foot (pcf). The at rest value would account for the average expected compaction induced stresses and/or the potential influences of hydrostatic pressure. The static lateral fluid pressures can be directly proportioned for other unit weights.

Stabilization of Excavations: The trench/excavation sidewall stability concerns can be addressed with the Occupational Safety and Health Act (OSHA) requirements as set forth in Subpart P of 29 CFR Part 1926, Sections 1926.650 to 1926.652. In lieu of a properly designed shoring system, side slopes of the trench excavation should be one on one (vertical to horizontal distance) or flatter in cohesive soils or one on one and one-half or flatter in the granular materials, as required by OSHA.

Water must not be allowed to accumulate or pond on exposed foundation bearing grades. Surface water and groundwater from within the excavation must be either pumped, diverted or channelized by gravity flow to effectuate the construction of the proposed foundation. Pockets of localized perched groundwater may seasonally be expected to be encountered at footing and/or footing undercut bearing grades. At these locations, dewatering with surface sumps may be required to maintain stable side slopes and excavation bottom.

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Concrete Interior Floor Slab(s)/Pad: A geotextile fabric (such as, Mirafi 600X or equal) that separates the subgrade and the approved/select granular base layer is recommended for sensitive cohesive/fine-grained/silty subgrade soil/fills. This approach will stabilize and provide a workable building pad condition with minimal required repairs. The approved subgrades will most likely consist of stiff or better/thoroughly compacted (i.e., minimum 92 percent of the maximum dry density by ASTM D 1557) cohesive silt and clay, and/or a thoroughly compacted imported select/approved granular fill.

Above the approved subgrades, a minimum eight-inch thick for lightly loaded areas and minimum 12-inch thick for heavily loaded areas select granular fill (i.e., number two crusher run stone or equal) layer is recommended as the base course for concrete floor slabs. The NYSDOT specification numbers for typical aggregate subbase/base course components are Item No. 304.12 (Metric) Subbase Course, Type 2 (< 2-inch maximum), which is preferred, or Item No. 304.14 (Metric) Subbase Course, Type 4 (< 2-inch maximum). This select granular base layer would be compacted to a minimum 95 percent of the maximum dry density by ASTM D 1557. The floor slabs in any lightly loaded areas are recommended to have a minimum four-inch thickness, while heavily loaded areas are recommended to have a minimum six-inch thickness or as determined by the design structural engineer. The floor slab reinforcement should be provided through placement of wire mesh or plastic fibers and is also as determined by the design structural engineer.

At the discretion of the design architect, a vapor barrier may be considered for use in the proposed structure. The use of a thin gravel cushion, as a capillary break, or a thin sand cushion over a vapor barrier that is placed beneath the concrete slab(s) are at the discretion of the design architect/engineer or as required by local code. Gradations of gravels that are satisfactory capillary breaks include 1 ¼-inch or ¾-inch crushed stone or aggregate per the ASTM D2321 Types IA, IB and II with less than 5 % fines. A number two crusher run stone may also be applicable, but the gradation and material property specifications must qualify.

At the assumed final site grade and based upon the thickness and character of the underlying natural soils, the subgrade modulus is recommended not to exceed 150 pounds per cubic inch (pci). A Poisson Ratio of 0.4 is recommended for design purposes. Isolation of the floor slabs from the footings-piers-columns and walls do appear to be warranted. Based upon the subgrade modulus and slab mechanical properties and thickness, the design structural engineer may accordingly adjust the granular aggregate base thickness.

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Exterior Concrete Slabs-On-Grade/Pad/Parking and Roadway Facilities: The characteristics of the cohesive natural glacial till, and the known frost penetration in Western New York require that specific attention is provided to the design and construction of paved roadway and parking areas. For new pavement sections, isolated pockets of surficial silty/cohesive/fine-grained soil/fill may be encountered and may be too soft and wet in the proposed parking and roadway areas. These types of soil/fill may be adequately conditioned (i.e., dried and blended) and compacted (i.e., minimum 90 percent compaction) to support necessary construction equipment and normal pavement section. Otherwise, the removal/undercutting of the silty/cohesive/fine-grained soil/fill to a firm, approved subgrade and subsequent placement and compaction of select or approved granular fill will be required in order to accommodate the recommended pavement sections.

For new pavement sections, it is recommended that the subgrade surface is adequately graded and/or underdrains are installed to prevent water accumulation. Above the approved subgrade surface (i.e., minimum 90 percent compaction), a minimum eight-inch thick select granular layer is recommended as the base course for lightly traveled roadway and parking areas (standard duty section). A geotextile filter and strength fabric (such as, Mirafi 600X or equal) on silty/cohesive/fine-grained soil subgrades and minimum 12-inch thick base course are recommended for all truck routes and heavily traveled roadways (heavy duty section). If “pumping” of the silty/cohesive/fine-grained soil subgrade occurs or is difficult to stabilize during construction, an increase in the base thickness to that of the heavy-duty section and/or a geotextile filter and strength fabric is recommended to be placed on the prepared and approved subgrade for the standard duty section. The NYS Department of Transportation (NYSDOT) specification numbers for typical aggregate subbase/base course components are Item No. 304.12 (Metric) Subbase Course, Type 2 (< 2-inch maximum size), which is preferred, or Item No. 304.14 (Metric) Subbase Course, Type 4 (< 2-inch maximum size). The granular aggregate base layer is recommended to be compacted to at least 95 percent of maximum dry density by ASTM D1557.

The thickness of top and binder course layers should be determined in accordance with AASHTO methods. In summary, the minimum recommended asphalt thicknesses for the heavy-duty section and standard duty section are three and one-half inches and three inches, respectively. The top and binder course layers are recommended to be designed and constructed in accordance with New York State Department of Transportation Standard Specification.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Limitations, Field Inspections and Monitoring: This report is based on the preliminary information that is provided by project representatives and the subsurface conditions that were encountered at the test boring locations. Due to the nature of the investigation method, test pit excavation will provide a greater level of delineation of the subsurface soil/fill/rock conditions than can be defined by the test boring data alone. As detailed in Appendix F "Limitations", modification regarding proposed building/structure locations and other site developments can result in changes to provided recommendations. It is recommended that the geotechnical engineer be provided the opportunity to generally review the final detailed design and contract specifications. Required earthwork and foundation construction should be done under the supervision of experienced construction personnel and in a manner consistent with proven methods. All site work should be carefully monitored and tested by experienced geotechnical personnel to assure compliance with earthwork and foundation construction specifications.

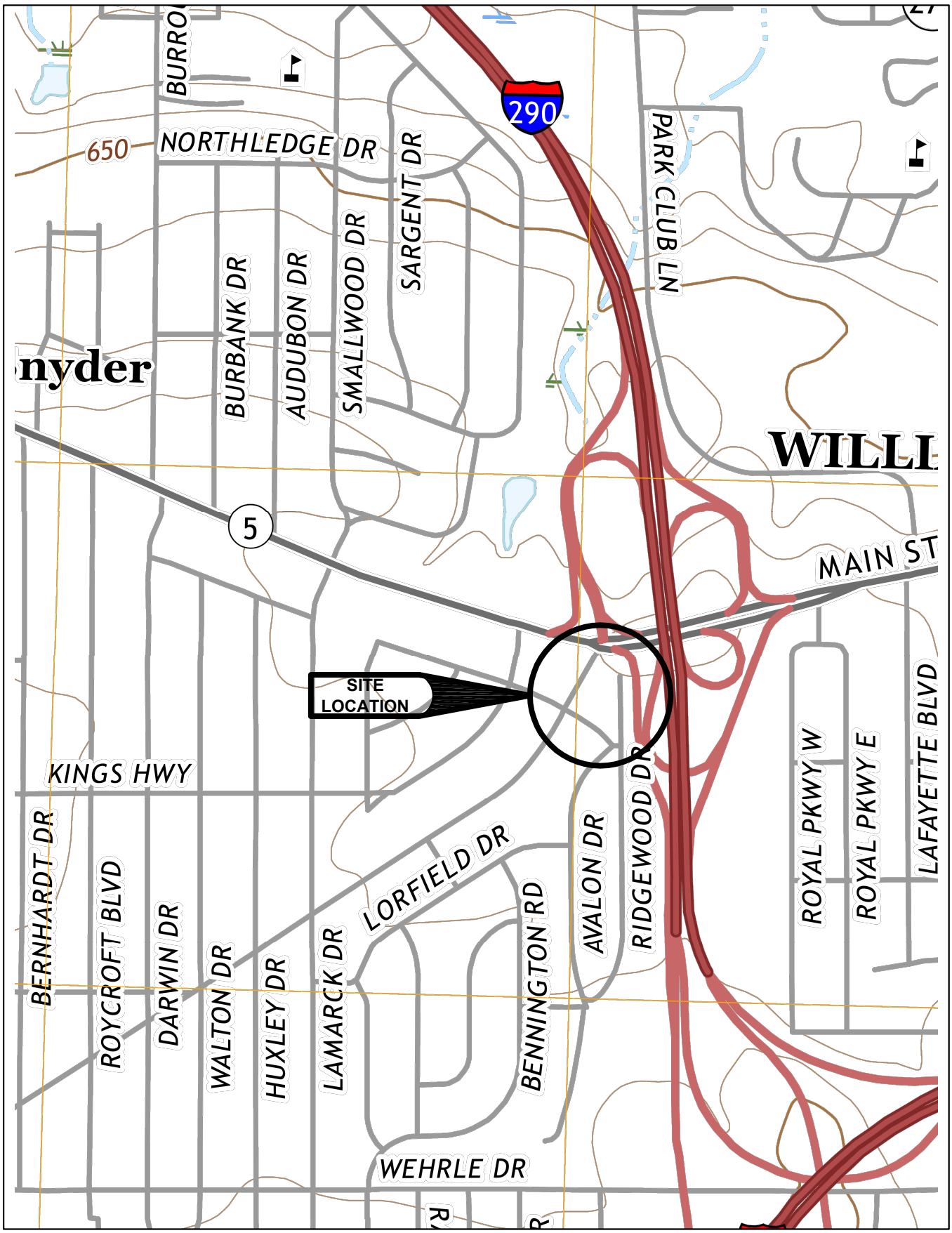
Thank you for the opportunity to assist on this project. If questions should arise, please call the undersigned at your earliest convenience.

Very truly yours,
BARRON & ASSOCIATES, INC.
and
BUFFALO DRILLING COMPANY, INC.

Andrew J. Camping, PG
Senior Geologist

James S. Barron, PE
President/Geotechnical Engineer

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)



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DRAWN: DAN KASPROWICZ

CLIENT: MR. TODD SHATKIN, D.D.S.
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AMHERST, NEW YORK 14226

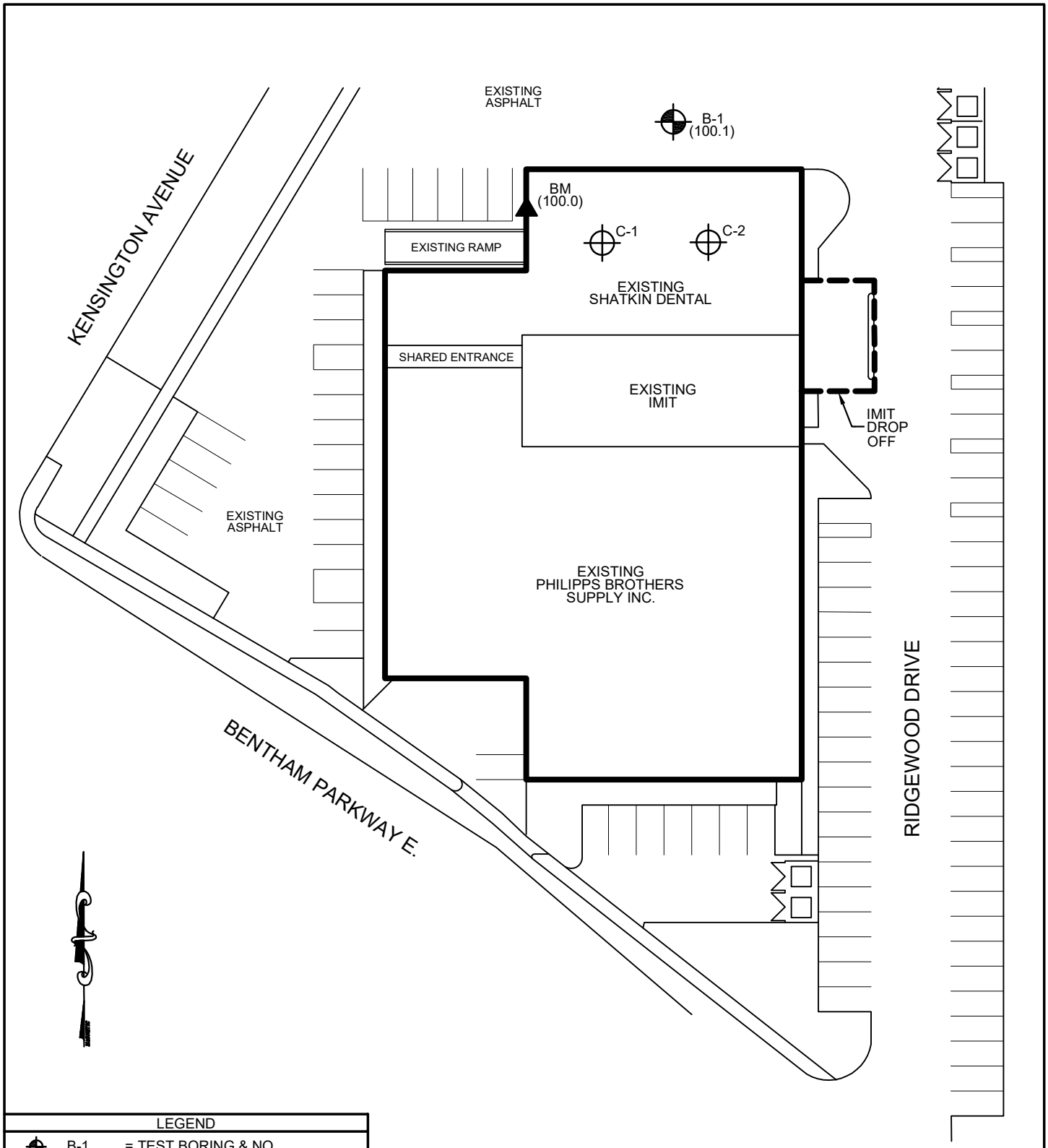
PROJECT: PROPOSED MEZZANINE AT
SHATKIN SCHOOL OF DENTISTRY
2525 KENSINGTON AVENUE
TOWN OF AMHERST,ERIE CO., NEW YORK 14226

NEW YORK STATE SITE LOCATION

USGS SITE LOCATION PLAN
BUFFALO NE
2019

JOB NO.: 21-599 | SCALE: N.T.S.
DATE: 8/10/2021 | FIGURE NO. 1

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)



LEGEND

⊕	B-1	= TEST BORING & NO.
⊕	C-2	= CONCRETE CORE & NO.
	(100.1)	= RELATIVE GROUND SURFACE ELEVATION (FT.)
▲	BM	= BENCH MARK (FINISH FLOOR OF EXISTING BUILDING)

NOTES:

1. BORING, CONCRETE CORES, BUILDINGS, SITE FEATURES, PROPERTY LINE LOCATIONS, & SCALE OF DRAWING ARE APPROXIMATE.
2. BASE MAP REFERENCE PROVIDED BY STIEGLITZ SNYDER ARCHITECTURE, TITLED "SITE PLAN - SHATKIN SCHOOL OF DENTISTRY DAMEN COLLEGE - INSTITUTE FOR MOBILITY AND TECHNOLOGY", DATED 6/1/2021.

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PROJECT: PROPOSED MEZZANINE AT
SHATKIN SCHOOL OF DENTISTRY
2525 KENSINGTON AVENUE
TOWN OF AMHERST,ERIE CO., NEW YORK 14226

TEST BORING AND CONCRETE CORE LOCATION PLAN

0 25 50 100

JOB NO.: 21-599	SCALE: 1" = 50' ±
DATE: 8/10/2021	FIGURE NO. 2

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

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APPENDIX A

TEST BORING AND CORE LOGS

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

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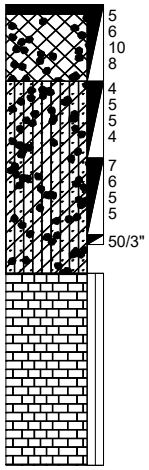
TEST BORING LOG

2.d

JOB No.: 21-599 **BORING No.:** B-1

PROJECT: Proposed Mezzanine and Drop-Off Canopy at Shatkin School of Dentistry
2525 Kensington Avenue, Town of Amherst, Erie Co., New York 14226

DRILLER:	D. Rimbeck	**TYPE OF DRILL RIG:**	CME 55 (Truck)
SAMPLING METHODS:	ASTM D1586 & D2113	**SIZE AND TYPE OF BIT:**	4 1/4" H.S.A. & Nx Core
DATE STARTED:	8/13/21	**SURFACE ELEVATION (ft.):**	100.0
DATE COMPLETED:	8/13/21	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None

Elevation/ Depth (feet)	Soil Symbols Sampler Symbols Field Test Data	Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
100 — 0					
		S-1 : 0.0'- 2.0'	16	30	Asphalt (3"+/-) Gray, m. dense f/c sand to gravel-sized Crushed Limestone, moist (GV Fill)
		S-2 : 2.0'- 4.0'	10	50	Brown, stiff CLAY, and SILT, little f/c Sand, tr. Gravel, sl. to mod. plast wet (CL-Till)
95 — 5		S-3 : 4.0'- 6.0'	11	0	Same as S-2 (No Recovery)
		S-4 : 6.0'- 6.3'	50+	0	...grade: hard (No Recovery)
90 — 10		C-1 : 7.0'- 12.0'	-	53 (30)	ONONDAGA LIMESTONE: med. dark gray, finely crystalline, thin bedded, LIMESTONE, porous, calcareous, sl. weathered, hard (ONONDAGA LIMESTONE) # pieces > 1": 8 # pieces > 4": 4 longest piece: 5" *(Vertical fracture observed in lower half of retrieved core sample.)*
85 — 15					Depth to Bottom of Hole: 12.0 feet
80 — 20					
75 — 25					
70 — 30					
65 — 35					

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

Logged by: B. Smith

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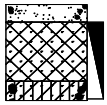
TEST BORING LOG

2.d

JOB No.: 21-599 **BORING No.:** C-1

PROJECT: Proposed Mezzanine and Drop-Off Canopy at Shatkin School of Dentistry
2525 Kensington Avenue, Town of Amherst, Erie Co., New York 14226

DRILLER:	D. Rimbeck	**TYPE OF DRILL RIG:**	Hand Sampler
SAMPLING METHODS:	ASTM D420	**SIZE AND TYPE OF BIT:**	2" I.D. Split Spoon
DATE STARTED:	8/13/21	**SURFACE ELEVATION (ft.):**	100.0
DATE COMPLETED:	8/13/21	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None

Elevation/ Depth (feet)	Soil Symbols Sampler Symbols Field Test Data	Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
100 — 0					Concrete Floor Slab (5.5")
		S-1 : 0.5'- 2.5'	-	70	Dk. gray, f. Sand, little to tr. Silt, tr. Gravel, moist (SM-Fill) *(Appears to be foundry sand.)*
					Brown, stiff CLAY and SILT, little f/c Sand, tr. Gravel, sl. to mod. plasti moist (CL-Till)
					Depth to Bottom of Hole: 2.5 feet
95 — 5					
90 — 10					
85 — 15					
80 — 20					
75 — 25					
70 — 30					
65 — 35					

1. Concrete floor slab approximately 5.5" thick with welded wire mesh 1.75 inches from bottom.
2. Manually advanced split spoon sampler into ground to retrieve samples after coring.

Logged by: B. Smith

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

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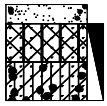
TEST BORING LOG

2.d

JOB No.: 21-599 **BORING No.:** C-2

PROJECT: Proposed Mezzanine and Drop-Off Canopy at Shatkin School of Dentistry
2525 Kensington Avenue, Town of Amherst, Erie Co., New York 14226

DRILLER:	D. Rimbeck	**TYPE OF DRILL RIG:**	Hand Sampler
SAMPLING METHODS:	ASTM D420	**SIZE AND TYPE OF BIT:**	2" I.D. Split Spoon
DATE STARTED:	8/13/21	**SURFACE ELEVATION (ft.):**	100.0
DATE COMPLETED:	8/13/21	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None

Elevation/ Depth (feet)	Soil Symbols Sampler Symbols Field Test Data	Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
100 — 0					Concrete Floor Slab (6")
		S-1 : 0.5'- 2.5'	-	65	Dk. gray, loose, f. Sand, little to tr. Silt, tr. Gravel, moist (SM-Fill) *(Appears to be foundry sand.)*
					Brown, stiff CLAY and SILT, little f/c Sand, tr. Gravel, mod. to sl. plasti moist (CL-Till)
					Depth to Bottom of Hole: 2.5 feet
95 — 5					
90 — 10					
85 — 15					
80 — 20					
75 — 25					
70 — 30					
65 — 35					

1. Concrete floor slab approximately 6" thick with welded wire mesh 0.5 inches from bottom.
2. Welded wire mesh is not fulling integrated within floor slab at this location.
3. Manually advanced split spoon sampler into ground to retrieve samples after coring.

Logged by: B. Smith

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

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APPENDIX B

GEOTECHNICAL REFERENCE STANDARDS

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

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Column Header Descriptions

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TEST BORING LOG

JOB No.: BORING No.:

PROJECT:

EXAMPLE

DRILLER:
SAMPLING METHODS:
DATE STARTED:
DATE COMPLETED:

TYPE OF DRILL RIG:
SIZE AND TYPE OF BIT:
SURFACE ELEVATION (ft.):
GROUNDWATER DEPTH (ft.):
(measured at completion unless indicated below)

Elevation/ Depth (feet)	Soil Symbols Sampler Symbols Field Test Data	Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
100 — 0	1 1 1 2 / 6 8 11 14	S-1 : 0.0'- 2.0'	2	50	Dk. brown, soft, CLAY, some Silt, little f. Sand, tr. Gravel, tr. Roots, tr. Organic matter, mod. plastic, wet (CL)
		S-2 : 2.0'- 4.0'	19	50	Brown, m. dense f. SAND, some Silt, tr. Gravel, tr. Clay, tr. Roots, non-plastic, moist (SM)

Elevation/Depth: The depth column provides the vertical scale of the boring log in feet below ground surface.

Sample No. : Range: Disturbed samples are identified with “S” preceding the sample number. Undisturbed (Shelby-tube) samples are identified with “U” preceding the sample number. Rock core samples identified with “C” preceding the core run. The range of elevation/depth where the sample was taken is identified in one-tenth foot increments.

N-value: The Standard Penetration Test N-value, as specified by ASTM D1586, is defined as the number of blows required by a 140-pound hammer falling 30 inches, each blow, to drive a 2-in outside diameter split-spoon sampler 12 inches.

% REC (RQD): “Percent Recovery” is the length of samples recovered divided by the total length sampled. The result is numerically expressed as a percent. The Rock Quality Designation (RQD) is the total length of places >4 inches divided by the total length of core run.

Soil and Rock Description / Remarks: This column denotes the exact depth of recovery and general documentation of drilling efforts. Description and classification are based on visual inspection of samples and boring operations. The stratum lines shown on the boring logs are based upon interpretation and may not represent precise subsurface conditions. Water-level readings have been made in the drill holes at time under conditions stated on the boring logs. Fluctuations in the water level may occur due to other factors than those present the time measurement was taken. See attached sheet.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

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Soil and Rock Description / Remarks: Terminology Used for Soil Description

Density Description of Granular Soil

Number of Blows per ft., N	*Relative Density*
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium
30 - 50	Dense
Over 50	Very Dense

Abbreviations Used in Soil Sample Classification

f - fine	v - very
m - medium	gr - gray
c - coarse	bn - brown
f/m - fine to medium	yel - yellow
f/c - fine to coarse	sl - slight
tr - trace	dk - dark

Consistency Description of Cohesive Soil

Number of Blows per ft., N	*Consistency*
Below 2	Very Soft
2 - 4	Soft
4 - 8	Medium
8 - 15	Stiff
15 - 30	Very Stiff
Over 30	Hard

Bedding

Parting	Less than 0.02 ft.
Band	0.02 - 0.2 ft.
Thin bed	0.2 - 0.5 ft.
Medium bed	0.5 - 1.0 ft.
Thick bed	1.0 - 2.0 ft.
Massive	Over 2.0 ft.

Grain Size

	Passing / Retained on
Boulder	LARGE / 12-in sieve
Cobble	12-in / 3-in sieve
Gravel	3-in sieve / No. 4 sieve
	No. 4 sieve / No. 10 sieve
Sand	No. 10 sieve / No. 40 sieve
	No. 40 sieve / No. 200 sieve
Silt	No. 200 sieve / 0.005 mm sieve
Clay	Smaller than 0.005 mm

Hardness

Very Soft or Plastic	Can be indented with thumb
Soft	Can be scratched with fingernail
Moderately Hard	Can be scratched with knife
Hard	Difficulty to scratch with knife
Very hard	Cannot be scratched with knife

Percentage Terminology Used in Soil Classification

Trace	0 - 10 %	Some	20 - 35 %
Little	10 - 20 %	And	35 - 50 %

Moisture

Dry	Absence of moisture, dusty, dry to the touch.
Moisture	Small quantity of moisture. Soil usually above groundwater level.
Wet	Moisture noticeable to the touch. Soil may be below groundwater level.
Saturated	Visible free water, usually soil is below groundwater level.

Plasticity

Non-plastic	An 1/8-in thread cannot be rolled at any water content.
Slight plasticity	Thread can be barley rolled.
Moderate plasticity	Thread is easy to roll and little time is required to reach the plastic limit (PL).
Plasticity	Considerable time is required to reach PL. Thread can be re-rolled several times after reaching the PL.

Crystallinity or Texture

Dense	Crystals are to small they cannot be distinguished with the naked eye.
Very Fine Crystalline	Crystals barely discernable with the naked eye.
Crystalline	Crystals are medium size, up to 1/8-in diameter.
Very Coarsely Crystalline	Crystals larger than 1/8-in diameter.

Voids

Porous	Smaller than pinhead. Their presence is indicated by the degree of absorbency.
Pitted	Pinhead size to 1/4 in. If thin walls separate the individuals pits, the core may be described as honeycomb.
Vug	1/4 inch to the diameter of the core. The upper limit will vary with core size.
Cavity	Larger than the diameter of the core.

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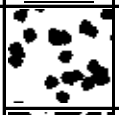
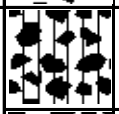
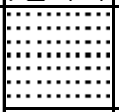
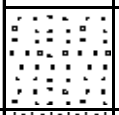
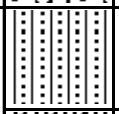
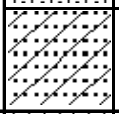
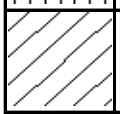
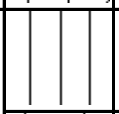
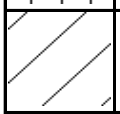
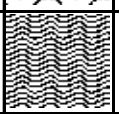
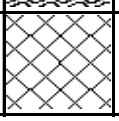
Soil Classification Chart: Unified Soil Classification System (USCS)

Major Divisions			Pattern	USCS ID	Typical Descriptions
Coarse-Grained Soils: More than 50% of material larger than No. 200 sieve	**Gravels**: More than 50% of coarse fraction larger than No. 4 sieve	Clean Gravels (little or no fines)		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		Gravels with appreciable amounts of fines		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-silt mixtures
	Sands: Less than 50% of coarse fraction larger than No. 4 sieve	Clean sands (little or no fines)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		Sand with appreciable amount of fines		SM	Silty sands, silt-sand mixtures
				SC	Clayey sands, sand-clay mixtures
Fine-Grained Soils: Less than 50% of material larger than No. 200 sieve	**Silts and Clays, Low plasticity**: Liquid Limit < 50%			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays, High plasticity: Liquid Limit > 50%			MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
Highly Organic Soils				Pt	Peat, humus, swamp soils with organic contents
Miscellaneous Fill				FILL	Miscellaneous fill may belong in any division but is identified as FILL

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APPENDIX C

FLOOR SLAB CORE PHOTOGRAPHS

21-599 Floor Slab Core, C-1; Top View



Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

21-599 Floor Slab Core, C-1; Side View



Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

21-599 Floor Slab Core, C-2; Top View



Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)



21-599 Floor Slab Core, C-2; Side View

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

21-599 Floor Slab Core, C-2; Bottom View



Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

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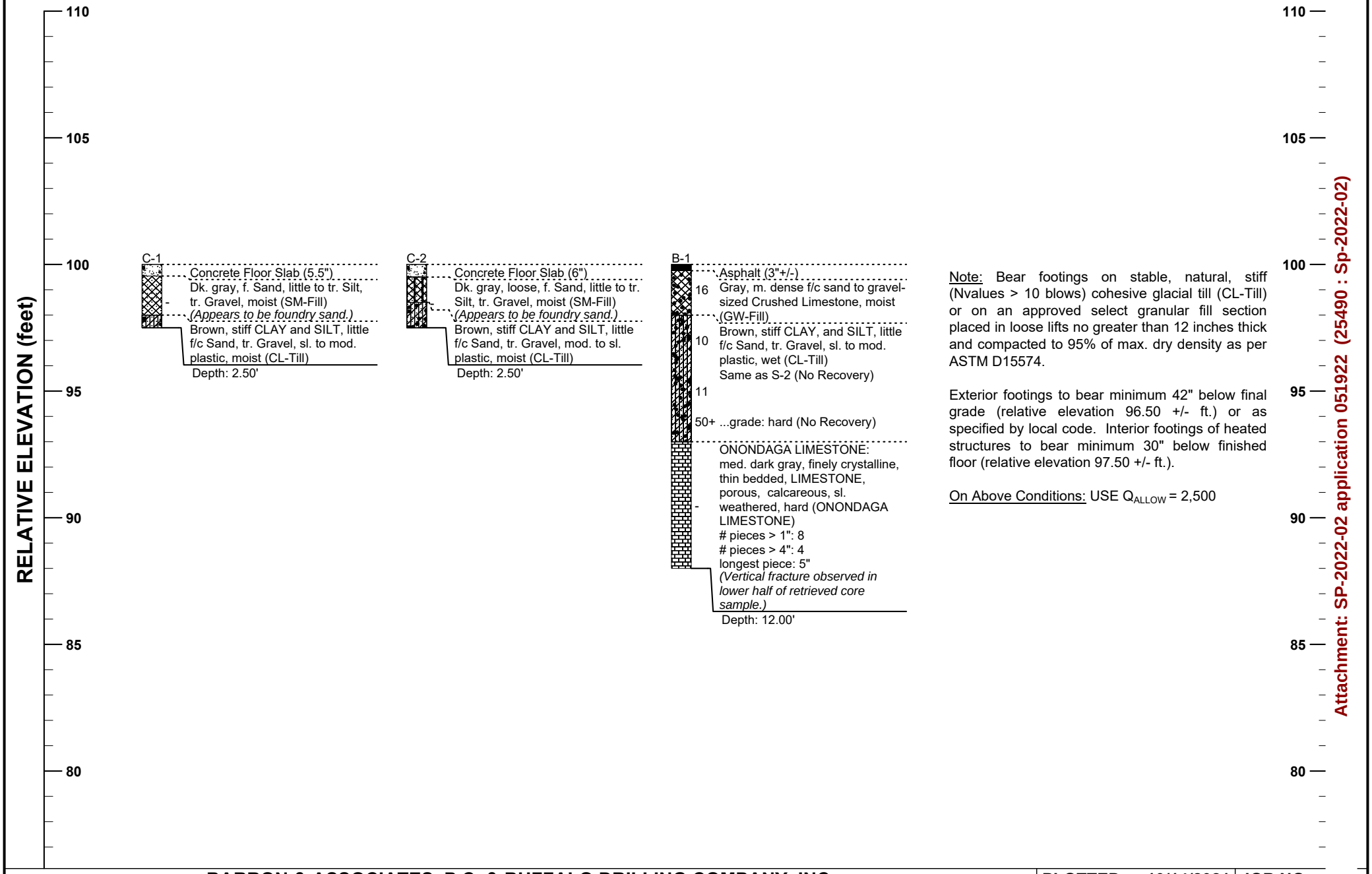
APPENDIX D

ENGINEERING COMPUTATIONS AND SCHEMATICS

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

"PROFILE OF BORINGS"



Note: Bear footings on stable, natural, stiff (Nvalues > 10 blows) cohesive glacial till (CL-Till) or on an approved select granular fill section placed in loose lifts no greater than 12 inches thick and compacted to 95% of max. dry density as per ASTM D15574.

Exterior footings to bear minimum 42" below final grade (relative elevation 96.50 +/- ft.) or as specified by local code. Interior footings of heated structures to bear minimum 30" below finished floor (relative elevation 97.50 +/- ft.).

On Above Conditions: USE Q_{ALLOW} = 2,500

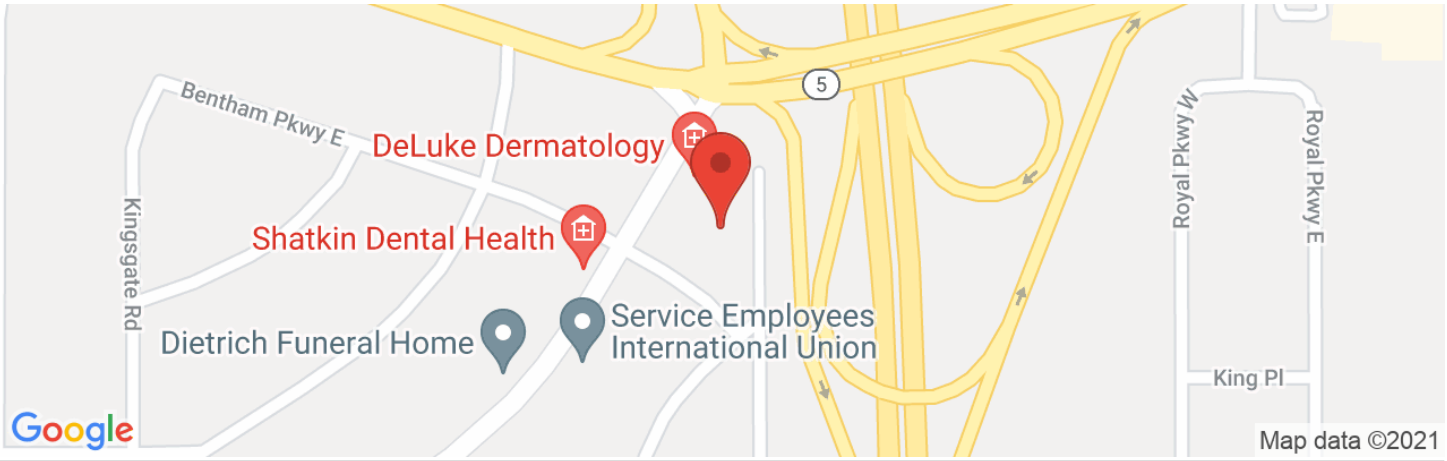
Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

BARRON & ASSOCIATES, P.C. & BUFFALO DRILLING COMPANY, INC. **10440 MAIN STREET, CLARENCE, NEW YORK 14031**	**PLOTTED: 10/14/2021** **BY: A. Camping**	**JOB NO.: 21-599**
PROJECT: Proposed Mezzanine and Drop-Off Canopy at Shatkin School of Dentistry **2525 Kensington Avenue, Town of Amherst, Erie Co., New York 14226**	**PAGE NO.: 1 of 3**	**FIGURE NO.:**

OSHPD

Mezzanine and Canopy, 2525 Kensington Ave., Amherst, NY 14226

Latitude, Longitude: 42.9580, -78.7680



Date	10/14/2021, 3:49:34 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	C - Very Dense Soil and Soft Rock

Type	Value	Description
S_S	0.169	MCE_R ground motion. (for 0.2 second period)
S_1	0.045	MCE_R ground motion. (for 1.0s period)
S_{MS}	0.22	Site-modified spectral acceleration value
S_{M1}	0.068	Site-modified spectral acceleration value
S_{DS}	0.146	Numeric seismic design value at 0.2 second SA
S_{D1}	0.045	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	A	Seismic design category
F_a	1.3	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.094	MCE_G peak ground acceleration
F_{PGA}	1.3	Site amplification factor at PGA
PGA_M	0.123	Site modified peak ground acceleration
T_L	6	Long-period transition period in seconds
SsRT	0.169	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	0.176	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.045	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.048	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.958	Mapped value of the risk coefficient at short periods

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

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B&A JOB NO.: 21-599

DATE: 10/14/21

LATERAL EARTH PRESSURE ON GENERIC BLOCK FOUNDATIONS FOR SIGNS, FREE-STANDING RETAINING WALLS, OR BELOW GRADE/BASEMENT/TANK/POOL RETAINING WALLS (Less Than 20 Feet High)

a) Porous filter media, in contact with the basement/below grade foundation wall or retaining walls, protects and is in contact with a minimum 4 inch diameter perforated drainage pipes at the footing/base of the foundation/structural wall (exterior backfill side and interior basement side) and/or weep pipes through the wall, as needed and as applicable.

b) Where recommended, a geotextile filter fabric will protect the gravel filter media from the earth backfill. Overlap unsewn seams as per the manufacturer's recommendations.

c) Waterproof earth side of wall, as is customarily provided in practice.

d) Drainage pipes are connected to an appropriately designed collector pipe, conveyance, and/or sump pump system as is applicable for the intended purpose of the wall and as customarily provided/installed in practice.

e) For potential groundwater table conditions above the top of the basement slab-on-grade condition, install continuous waterstops (with no joints in stop) at wall and floor construction joints, as is customarily provided in practice. Interior intermediate drainage pipes beneath the slab, that are spaced on-center and in both directions, do appear to be needed.

f) Assume a uniformly graded, clean coarse sand or sandy gravel backfills:

* equivalent N-value in a dense state: $(N_1)_{60}$ = 40 blows/foot
* friction angle: ϕ' = 38 degrees {Teng, pg. 12}
* average in-place densities: moist - γ_m = 120 pcf
  saturated - γ_{sat} = 132 pcf submerged - $\gamma' = (\gamma_{sat} - \gamma_w)$ = 70 pcf

g) Assume at base of wall/footing, coefficient of friction against sliding (f_s) at base of wall (Refer to Teng, pg. 320-1):

f_s = tan (0.58 x ϕ') = 0.40 (AREA silty soil to silty coarse-grained soil)

h) Use equivalent fluid pressure design approach {Hough, pg. 249 and NAVFAC pg. 7-10-9}:

* at rest pressure coefficient - K_0 = 1 - sin (ϕ') = 0.38
* effective lateral pressure of soil - γ'_l = K_o x γ' = 26.6 pcf
* hydrostatic pressure - γ_w = 62.4 pcf
* equivalent fluid pressure with water level at the top of the grade at the wall - γ_{eo} = $\gamma'_l + \gamma_w$ = 89 pcf (say 90 pcf)
* equivalent fluid pressure with compaction induced lateral stress increase (W&F, pg 409) - γ_{eo} = 2 x K_o x γ_m = 91 pcf (say 90 pcf)
* active pressure case - K_a = [1 - sin (ϕ')] / [1 + sin (ϕ')] = 0.24
  γ_{ea} = K_a x γ_m = 29 pcf (say 30 pcf)
* passive pressure case - K_p = [1 + sin (ϕ')] / [1 - sin (ϕ')] = 4.2
  γ_{ep} = K_p x γ_m = 504 pcf (say 330 pcf with a F.S. = 1.5)

			Thoroughly Compacted ⇒⇒ Uniformly Graded & Clean Coarse Sand or Sandy Gravel Fill	Non-Plastic Silty Sand or Sandy Silt Fill	
USE:	Earth Pressure Coefficient	Static Active =	0.24	0.33	
		Static At-Rest =	0.76	1.00	
		Static Passive =	2.80	2.00	(with F.S. = 1.5)
		Static Passive =	4.20	3.00	(with F.S. = 1.0)
USE:	Equivalent Fluid Pressure	Static Active =	30 pcf		
		Static At-Rest =	90 pcf (for rigid walls)		
		Static Passive =	330 pcf (with F.S. = 1.5)	[500 pcf with (with F.S. = 1.0)]	

[For earthquakes, structural engineer may elect to use the above Static Passive case instead of the below Earthquake Lateral Load for Non-Yielding Wall movement into the soil backfill.]

USE: Simplified Model for Earthquake Lateral Load/Ft. Wall Length @ 0.6 H_{bw} above base. Loads for Non-Yielding Wall.

H_{bw} = Earth Height Behind Wall (feet)

Reduce load by 33% for Yielding Wall (active case) = (6.8 psf / foot) x H_{bw}^2 (NYS, S_{ds} = 0.25 g)

(γ_m = 120 pcf for S_{ds} value. Add to Static At Rest/ Active Pressure/Load for unsaturated backfill case) = (13.5 psf / foot) x H_{bw}^2 (NYS, S_{ds} = 0.50 g)

= (17.5 psf / foot) x H_{bw}^2 (NEern NYS, $S_{ds} \leq 0.65$ g)

[Above for Site Class C to E soils. Interpolate for other S_{ds} values.
Use 1.75 x values for walls on Class B/A rock or on rigid foundation base. (FEMA NEHRP Guidelines)]

Saturated/Liquified Soil During Earthquake = 132 pcf
(Equivalent Fluid Pressure. Add to inertial hydrodynamic pressure, not presented here.)

{For looser/denser backfills, adjust above pressures by the ratio = new density / 120 pcf or / 132 pcf (for saturated case)}

USE:	Coefficient of Friction Against Sliding (f_s)	= 0.45	(on compacted NYSDOT Item #304.12 or #304.14 gravels)
	(use lowest f_s with no underlying weaker layers)	= 0.35	(on compacted granular soil & non-plastic silt)
		= 0.20	(slab-on-grade on polyethylene on granular fill)
	[with a F.S. = 1.0]	= 0.60/0.50	(on clean, rough, & sound bedrock/smooth bedrock)
	Min. Factor of Safety Against Sliding	= 1.5	*[Rev.9-30-09]*

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APPENDIX E

GENERAL EARTHWORK SPECIFICATION

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

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GENERAL EARTHWORK SPECIFICATIONS

1. GENERAL

1.1. SITE AND SUBSURFACE CONDITIONS

1.1.1. Overview

This specification is included as a courtesy to the clients of *Barron & Associates, PC* and addresses earthwork site preparation. Additions and modifications are necessary to create a job-specific specification. This specification may serve as a basis for the development for a technical specification under Division 31 (Earthwork) and Division 32 (Exterior Improvements).

1.1.2. Site Conditions

The site-specific conditions are described under separate cover or may be available from the OWNER.

1.1.3. Subsurface Conditions

The site-specific subsurface conditions are described under separate cover or may be available from the OWNER.

1.2. REFERENCES

1.2.1. American Standard for Testing and Measurement (ASTM)

- ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- ASTM D6938 Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
- ASTM D7928 Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis
- ASTM D1140 Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing
- ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3))
- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D1883 Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils

1.2.2. Other

- 2018 International Building Code (IBC)
- 2020 Building Code of New York State
- 2020 Residential Code of New York State
- 2021 MasterSpec

1.3. DEFINITIONS

1.3.1. Unacceptable Material

Soil material containing debris, wood, scrap material, vegetation, refuse, soft unsound particles, and other organic, frozen, deleterious, or objectionable materials. Contaminated soils shall be properly documented and removed or remediated on site. If necessary, remediation procedure will be defined by the OWNER.

1.3.2. Unsuitable Material

Brown, organic topsoil and underlying soft pockets of organic silt or wet, reworked silty clay.

1.3.3. Ordinary Fill

Friable soil containing no stone greater than two-thirds loose lift thickness and no unacceptable or unsuitable materials. In general, existing random fill is expected to be acceptable for reuse as ordinary fill given proper sorting, blending, drying, and controlled placement methods.

1.3.4. Granular Fill

Ordinary fill meeting the designation of ASTM D2487 classification of GW with a maximum of 10 percent by weight passing ASTM D1140, No. 200 sieve.

1.3.5. Select Granular Fill

Clean, uncoated soil which contains no unacceptable materials and conforms to the gradation requirements defined in Table A: Select Granular Fill.

Table A: Select Granular Fill

Sieve Size	Percent Finer by Weight
⅔ of the loose lift thickness	100
No. 10	30 - 95
No. 40	10 - 70
No. 200	0 - 15

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1.3.6. Sand and Gravel

Clean, hard, durable, uncoated particle of sand and gravel, free from lumps of clay, containing no unacceptable matter, and conforming to gradation requirements of Table B: Sand and Gravel.

Table B: Sand and Gravel	
Sieve Size	Percent Finer by Weight
*	100
No. 4	50 - 85
No. 10	
No. 40	10 - 35
No. 100	
No. 200	0 - 8

* Job-Specific. To be determined by the ENGINEER

1.3.7. Crushed Stone

Clean, durable, sharp-angled fragments of rock or crushed gravel stone of uniform quality, containing no unacceptable matter, free from coatings, and conforming to gradation requirements of Table C: Crushed Stone.

Table C: Crushed Stone		
Sieve Size	Percent Finer by Weight	
	¾-inch Stone	1 ¼-inch Stone
1 ½-inch		100
1 ¼-inch		85 - 100
1-inch	100	
¾-inch	90 - 100	10 - 40
⅝-inch		
½-inch	10 - 50	0 - 8
⅜-inch	0 - 20	
No. 4	0 - 5	

1.3.8. Flowable Fill

Also known as Controlled Low Strength Material – Controlled Density Fill (CLSM-CDF), this material is available under a variety of producer names (e.g., K-Krete©, M-Crete, Flash Fill©, Flowable Mortar, Unshrinkable Fill, etc.). This non-settling backfill mixture is most commonly used for its flowable characteristics, its support strength under traffic loads, and its removability at a later date. The material may be produced on-site or off-site. In either case, the producer

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of such materials and the product must meet certain certification criteria. Such information is beyond the scope of this specification and will be considered on a site-specific basis.

Flowable fill may be acceptable for use as a backfill for utility trenches of other low-lying areas which require a compacted granular fill. Its use and warranty of performance is left to the CONTRACTOR in such applications.

The use of flowable fill under load-bearing structural components in place of properly placed and compacted granular fill is NOT common and is questionable. The localized use of such material may have profound effects on the performance of a foundation system. Site-specific conditions and the extent of anticipated use of flowable fill must be examined by geotechnical engineer. Cost of such consultation shall be borne by the CONTRACTOR unless specifically directed by the OWNER to seek such consultation. Without such consultation, warranty of performance for such use is left to the CONTRACTOR.

1.4. SUBMITTALS

The following submittals shall be provided in accordance with approved submittals procedures.

(1) Fill Source: Provide name and source locations of fill material.

(2) Field Test Reports: Field tests will be performed by OWNER's Representative as needed. CONTRACTOR may be required to perform such tests on proposed off-site fill materials.

(a) Fill material grain size analyses per ASTM C136, D7928, D1140, D2487

(b) Moisture/Density test results per ASTM D2216

(c) Liquid limit, plastic limit, and plasticity index per ASTM D4318

(d) Compaction/Density test results per ASTM D6938 and D1557

(3) Sample: Geotextile fabric

2. PRODUCTS

Geotextile Fabric: Mirafi 600X or equal. (Also referred to as synthetic fabric).

3. EXECUTION

3.1. PROTECTION

3.1.1. General

Manner of excavation shall minimize disturbance of underlying natural ground. If deemed necessary by the Engineer, alter construction procedures to reduce subgrade disturbance.

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Excavate areas which have been excessively disturbed to firm ground and backfill with properly compacted granular fill.

3.1.2. Roads and Walks

Keep roads and walks free of dirt and debris at all times.

3.1.3. Trees, Shrubs, and Existing Facilities

Protect from any damage all vegetation and facilities identified to remain.

3.1.4. Utility Lines

Locate all utilities within the area of disturbance prior to the start of work. Show locations on initial plans. Protect utility lines from damage. Notify the ENGINEER immediately of damage to or an encounter with an unknown utility. Damage to utility lines are to be repaired by the CONTRACTOR at no additional cost. The CONTRACTOR shall have underground utility owners stake out utility locations prior to the start of clearing and excavation operations.

3.2. VERIFICATION OF CONDITIONS / PROOF-ROLLING

Prior to placement of the initial layer of fill over the natural ground, proof-roll the exposed natural ground above the groundwater table elevation by making two passes with a fully-loaded ten-wheel truck. Excavate unstable areas detected by this process and replace with compacted granular fill.

3.3. PREPARATION

3.3.1. Surface Preparation

Within the site limits indicated on the drawings, excavate all unsuitable material to firm natural ground in the manner specified herein. Follow a construction procedure which permits visual identification of firm natural ground. In the even that groundwater is encountered, the ENGINEER may require that the size of the open excavation be limited to that which can be handled by open pumping to allow visual inspection of the excavation bottom and the performance of backfill operations to be conducted in a dry state.

Excavation of unsuitable material shall be limited to the greater of the following:

- A distance of 5 feet beyond building lines or
- The area defined by a one-horizontal to one-vertical line sloping down from the outside bottom edge of exterior footings to firm natural ground.

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3.4. PLACEMENT AND COMPACTION

3.4.1. General

Place fill in accordance with Table D: Compaction Alternatives. These alternatives are provided as minimum compaction standards only and in no way relieve the CONTRACTOR of his obligation to achieve any specified degree of compaction by whatever means may be necessary.

Grade to provide positive drainage and a smooth surface which will readily shed water. To the extent practicable, compact each layer to the specified density on the same day placed. Place fill in horizontal layers. Where horizontal layers meet a natural slope, key layer into slope by cutting a bench.

Fill that is too wet for proper compaction: Disc, harrow, or otherwise dry to proper moisture content for compaction to the required density.

Fill that is too dry for proper compaction: Uniformly apply water over the surface of the loose layer in sufficient quantity to allow compaction to the required density.

Table D: Compaction Alternatives

Compaction Method	Maximum Stone Size	Maximum Loose Lift Thickness (inches)		Maximum Number of Passes	
		Below Structure and Pavements	Less-Critical Areas	Below Structure and Pavements	Less-Critical Areas
Hand operated vibratory plate of light roller in confined areas.	3	4	4	4	4
Hand operated vibratory drum rollers weighing at least 1,000 pounds in confined areas.	4	6	8	4	4
Loaded 10-wheel truck or D-8 crawler.	6	10	12	4	2
Light vibratory drum roller; Min. weight at drum 8,000lbs; Min. dynamic force 10,000lbs.	8	12	12	6	2
Minimum vibratory drum; Min. weight at drum 10,000lbs; Min. dynamic force 20,000lbs.	8	18	18	6	4

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3.4.2. Dewatering

Provide adequate pumping and drainage facilities to keep excavated areas sufficiently dry of groundwater and surface run-off. Dewatering shall avoid adversely affection construction procedures or causing excessive disturbance of underlying natural ground. Drain all pumped water in such a manner as to avoid damage to adjacent property.

If requested by the ENGINEER, place a 6-inch to 12-inch layer of sand and gravel or crushed stone over the natural underlying soil to stabilize area which have been disturbed due to groundwater seepage pressures and to expedite dewatering operations. Particular attention shall be given areas under proposed foundations.

3.5. FIELD QUALITY CONTROL

3.5.1. Compaction Requirements

Allow the ENGINEER sufficient time to make necessary observations and tests. Base the degree of compaction on maximum dry density as determined by ASTM D1557. The minimum degree of compaction for placed fill shall be as indicated in Table E: Compaction Requirements.

Table E: Compaction Requirements

Area	Minimum Degree of Compaction (%)
Below foundation.	95
Pavement and building subbase and base courses.	95
Below building slab base course and above bottom of foundation.	92
Below pavement subbase and base courses.	90
Trench backfill outside of building.	90
Trench backfill inside of building.	Refer to one of the above- listed categories
Ordinary fill within 5 feet of grade.	90
Vegetated areas below 5 feet of grade.	85

3.5.2. Testing

Site work should be monitored and tested by geotechnical ENGINEER or his representative and in accordance with requirements of the design team to assure compliance with earthwork and foundation construction specifications.

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The owner will retain a geotechnical ENGINEER or his representative to perform on-site observations and testing during this phase of construction operations. The geotechnical ENGINEER or his representative will:

- Observe excavation and dewatering of building and controlled fill areas;
- Observe backfill and compaction within building and controlled fill areas;
- Laboratory test and analyze fill material; and
- Observe construction – and performing water content, gradation, and compaction tests.

On a timely basis, the CONTRACTOR will receive copies of test results submitted to the OWNER. In addition, during construction the geotechnical ENGINEER will advise the OWNER and CONTRACTOR in writing of conditions which fail to conform to the Contract Documents. The CONTRACTOR shall take immediate action to remedy indicated deficiencies.

The geotechnical ENGINEER or his representative will not supervise or direct the actual work of the CONTRACTOR or employees and representatives of the CONTRACTOR. The presence of, observations by, and testing performed by the geotechnical ENGINEER or his representatives shall not excuse the CONTRACTOR from defects discovered in the work.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

BARRON & ASSOCIATES, P.C.
Geotechnical Consulting and Special Inspections
10440 Main Street
Clarence, NY 14031
(716) 759-7821
www.barronandassociatespc.com

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

APPENDIX F

LIMITATIONS

LIMITATIONS

1. This report is based on the data that was obtained from the subsurface explorations and on the design of the proposed interior mezzanine and exterior canopy as submitted to the geotechnical engineer. A geotechnical engineer, who is experienced in foundation construction and earthwork, should be engaged to review the final design and specifications in order to determine whether any change in concept may have any effect on the validity of the conclusions presented herein, and whether these conclusions have, in fact, been implemented in the design and specifications.

2. The subsurface conditions, including thickness, between the exploration locations are approximate and simplified representations of the strata and transitions. There is the possibility that variations in soil and rock conditions and boundaries will be encountered during construction. In order to permit correlation between the exploratory soil data and the actual soil conditions encountered during construction and so as to assess conformance with the plans and specifications as originally contemplated, it is recommended that a geotechnical engineer, who is experienced in foundation construction and earthwork monitoring, should be retained to perform continuous construction review during the site preparation and foundation construction operations.

3. The subsurface exploration logs and subsurface conditions may aid in estimating material quality and quantities, such as topsoil/organic matter, fills, natural soils, and rock, but are not to be relied upon as the exclusive means for bid preparation purposes. It is the responsibility of the contractor to perform any additional site examinations and explorations and to prepare an accurate bid.

4. Disclaimers:

   a. In the event that any changes in the nature, design or location of the structure are planned, the conclusions that are contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report are modified or verified in writing.

   b. The geotechnical engineering report has been prepared for this project by Barron & Associates, P.C. This report is for assistance in design only and is not a sufficient basis on which to prepare an accurate bid.

   c. This report has been prepared for the exclusive use of Dr. Todd Shatkin (Shatkin School of Dentistry), and their designated design representatives, for specific application to the construction of an interior mezzanine and exterior drop off canopy at 2525 Kensington Avenue, in the Town of Amherst, New York and in accordance with generally accepted geotechnical engineering practice. No other warranty, expressed or implied, is made.

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

SRF ASSOCIATES
Transportation Planning / Engineering / Design

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

(585) 272-4660
www.srfa.net

Mr. Daniel J. Ulatowski, AICP
Principal Planner/ZEO
Town of Amherst Planning Department
5583 Main Street
Williamsville, New York 14221

February 22, 2022

RE: Proposed Shatkin School of Dentistry, Town of Amherst, NY
Shared Parking Demand Assessment Letter

Dear Mr. Ulatowski:

This technical letter provides a Shared Parking Demand Assessment related to the proposed project located at 2525 Kensington Avenue in the Town of Amherst, NY in connection with a request for the approval of an Alternate Parking Study per Section 7-1-7A of the Zoning Code.

When evaluating the parking supply needs for the proposed project, our firm projected the parking demand considering shared parking (mixed-use) principles using nationally accepted methodology developed, in part, by the Urban Land Institute (ULI), Institute of Transportation Engineers (ITE), International Council of Shopping Centers (ICSC), and National Parking Association (NPA). Specifically, the assessment includes an estimation of future parking demands for the proposed project using national standards for similar developments, as documented by the ITE Parking Generation Manual (5th Edition).

This evaluation then provides a comparison to Town requirements, as set forth within Section 7-1-6A of the Town of Amherst's Zoning Code.

All supporting materials are included as an attachment to this letter.

PROJECT DESCRIPTION

Currently, the ±29,350 square foot (SF) building is owned and occupied by Phillips Brothers Supply, a business that has been in operation for over 30 years. Under the proposed development Phillips Brothers Supply will have ±5,736 SF of retail space and ±12,019 SF of warehouse space.

Shatkin Dental Health is developing the remaining ±12,253 SF which includes a ±4,400 SF of a new mezzanine that will be constructed within part of the existing warehouse space for a total of ±16,653 SF. The Shatkin Dental Health space will be used for a new dental (±7,853 SF) school associated with Daemen College and an out-patient rehab center also associated with Daemen College (±4,000 SF).

The project will provide 75 surface parking spaces.

Relative to the proposed uses, the following information was obtained from the applicant:

Daemen College Dental School (8-hour day)
Employees: 8 general staff and 10 teaching staff.

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Students: 40 students for 8 hours each day. Each student will have four patients total throughout the day. (Many students will be bussed from the main campus.)

Daemen College IMIT (9-hour day)
Staff: 12 general staff, 12 students.
Visitors: Six patients per hour plus allow for an accompanying family member with each patient.

PARKING REQUIREMENTS IN THE TOWN OF AMHERST ZONING CODE

Section 7-1-6A of the Zoning Code sets forth the off-street parking requirements for different categories of land uses. Strict application of the parking requirements per Section 7-1-6A of the Zoning Code is depicted in **Table 1**.

TABLE 1: TOWN CODE PARKING REQUIREMENTS

USE TYPE	REQUIRED PARKING RATIO	SIZE	TOTAL REQUIRED PARKING SPACES
Retail Sales, >2,000 SF and <25,000 SF	5.5 per 1,000 SF of net floor area	±4,302 SF	24
Warehouse	1 per 1,000 SF of gross floor area	±12,019 SF	12
Medical Office	1 per 150 SF of net floor area	±8,889 SF	60
Total Parking Spaces Required			**96**

Notes:
1. Net Floor Area = For a multistory, multiple tenant building — 75 percent of gross floor area.

Strict application of the off-street parking standards in the Zoning Code results in a parking requirement of 96 spaces, as depicted in **Table 1**. The total number of parking spaces to be provided is 75 spaces. Thus, there is a deficit of 21 parking spaces per strict application of Section 7-1-6A of the Zoning Code.

SHARED PARKING PRINCIPLES

Shared parking studies are conducted to establish the total number of spaces necessary by mixed-use developments to effectively serve expected parking demands. The shared parking concept builds upon the premise that land uses in a mixed-use development often do not share the same peak demand period, so spaces can be shared between the different land uses during different peak periods. Each land use typically has a peak demand period where it would occupy the maximum number of spaces that the use requires and an off-peak period where a lesser percentage of the maximum spaces would be occupied; be it by time of day, day of week, or even month of the year. This allows for the project to provide fewer spaces than would be required if the land uses on a project site were to be treated separately with individual parking demands. The concept of shared parking is well recognized within the real estate and regulatory community and is proven to work.

SHARED PARKING METHODOLOGY

To estimate the number of parking spaces required for the proposed project, this assessment used ULI and ITE methodology for shared parking. This methodology is utilized by transportation engineers and planners when evaluating the parking demand for a mixed-use project. The ULI Shared Parking 3rd Edition includes state-of-the-art practice methodologies for determining parking demand in these types of projects. Accompanying the publication is an interactive Shared Parking Calculation Model (Model) that is used to estimate the shared parking demand. However, given that the Model does not

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

have a warehouse land use, parking accumulation percentages for each land use were obtained from the ITE Parking Generation Manual.

The peak hour demand is projected to occur at 10:00 AM on a typical weekday. The projected peak hour demand for the mixed-use project (i.e., the busiest hour of the busiest weekday) is ±77 spaces. Parking demand accumulations are presented in **Table 2**.

TABLE 2: SHARED PARKING DEMAND PROJECTIONS

LAND USE	SIZE	PARKING DEMAND	
		UNADJUSTED DEMAND	**SHARED DEMAND**
Warehouse (ITE LUC 150)	±12,019 SF	5	**4**
Hardware Supplies (ITE LUC 862)	±5,736 SF	19	**19**
Medical Office (ITE LUC 720)	±15,995 SF	54	**54**
Total Parking Spaces		78	**77**
Shared Parking Reduction		**1.28%**	

Note:
1. ITE LUC = ITE Land Use Code

When considering the site's 75 total parking spaces, there is a projected deficit of two parking spaces. However, it should be noted that the parking demands of the proposed land use may vary given that students may campus busing instead of private vehicles.

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CONCLUSIONS AND RECOMMENDATIONS

This detailed analysis assessed the projected shared parking demands associated with the proposed mixed-use project. The following summarizes the findings of this assessment:

1. The proposed project consists of retail hardware supply, warehouse, and medical office space.

2. The proposed project will provide 75 total parking spaces.

3. Strict application of the unshared off-street parking standards in the Zoning Code results in a parking requirement of 96 spaces.

4. The peak hour demand is projected to occur at 10:00 AM on a typical weekday. The projected peak hour demand for the mixed-use project (i.e., the busiest hour of the busiest weekday) is ±77 spaces.

5. When considering the site's 75 total parking spaces, there is a projected deficit of two parking spaces. However, it should be noted that the parking demands of the proposed land use may vary given that students may campus busing instead of private vehicles.

6. Transportation Demand Management (TDM) strategies may be considered to reduce the parking demands during the peak period. They include, but are not limited to:

    a. Carpooling
    b. Off-site parking agreements
    c. Promoting non-motorized travel (e.g., install bike racks, NFTA transit)

If you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
SRF Associates, D.P.C.

David Kruse, AICP, PTP
Senior Transportation Planner

Attachments

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

ATTACHMENT

February 22, 2022

Letter to
Mr. Daniel J. Ulatowski, AICP
Town of Amherst

Proposed Shatkin School of Dentistry
2525 Kensington Avenue

Shared Parking Demand Assessment

Town of Amherst
Erie County, New York

SRF ASSOCIATES

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

UNSHARED DEMAND

				Time																		
LAND USE	ITE LUC	SIZE	UNSHARED DEMAND	5a	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p	12a
Warehouse	150	12	5	3%	8%	27%	57%	79%	83%	87%	91%	91%	97%	100%	91%	74%	47%	26%	20%	17%	1%	1%	1%
Hardware Store	862	5.763	19	0%	0%	9%	55%	73%	100%	64%	95%	68%	91%	50%	45%	36%	5%	0%	0%	0%	0%	0%	0%
Medical Office	720	11.853	54	0%	0%	12%	43%	88%	99%	100%	83%	74%	94%	93%	86%	54%	0%	0%	0%	0%	0%	0%	0%
			78																				

SHARED DEMAND

				Time																		
LAND USE	ITE LUC	SIZE	UNSHARED DEMAND	5a	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p	12a
Warehouse	150	12	5	0	0	1	3	4	4	4	4	4	5	5	4	4	2	1	1	1	0	0	0
Hardware Store	862	5.763	19	0	0	2	10	14	19	12	18	13	17	9	8	7	1	0	0	0	0	0	0
Medical Office	720	11.853	54	0	0	7	23	48	54	54	45	40	51	51	47	29	0	0	0	0	0	0	0
Total Shared Demand			**78**	**0**	**0**	**10**	**36**	**65**	**77**	**71**	**67**	**57**	**73**	**65**	**60**	**40**	**3**	**1**	**1**	**1**	**0**	**0**	**0**

ITE PARKING RATES

Warehouse	0.39 spaces per 1,000 SF
Hardware Store	3.25 spaces per 1,000 SF
Medical Office	4.59 spaces per 1,000 SF

Note: Results may be affected by small rounding errors.

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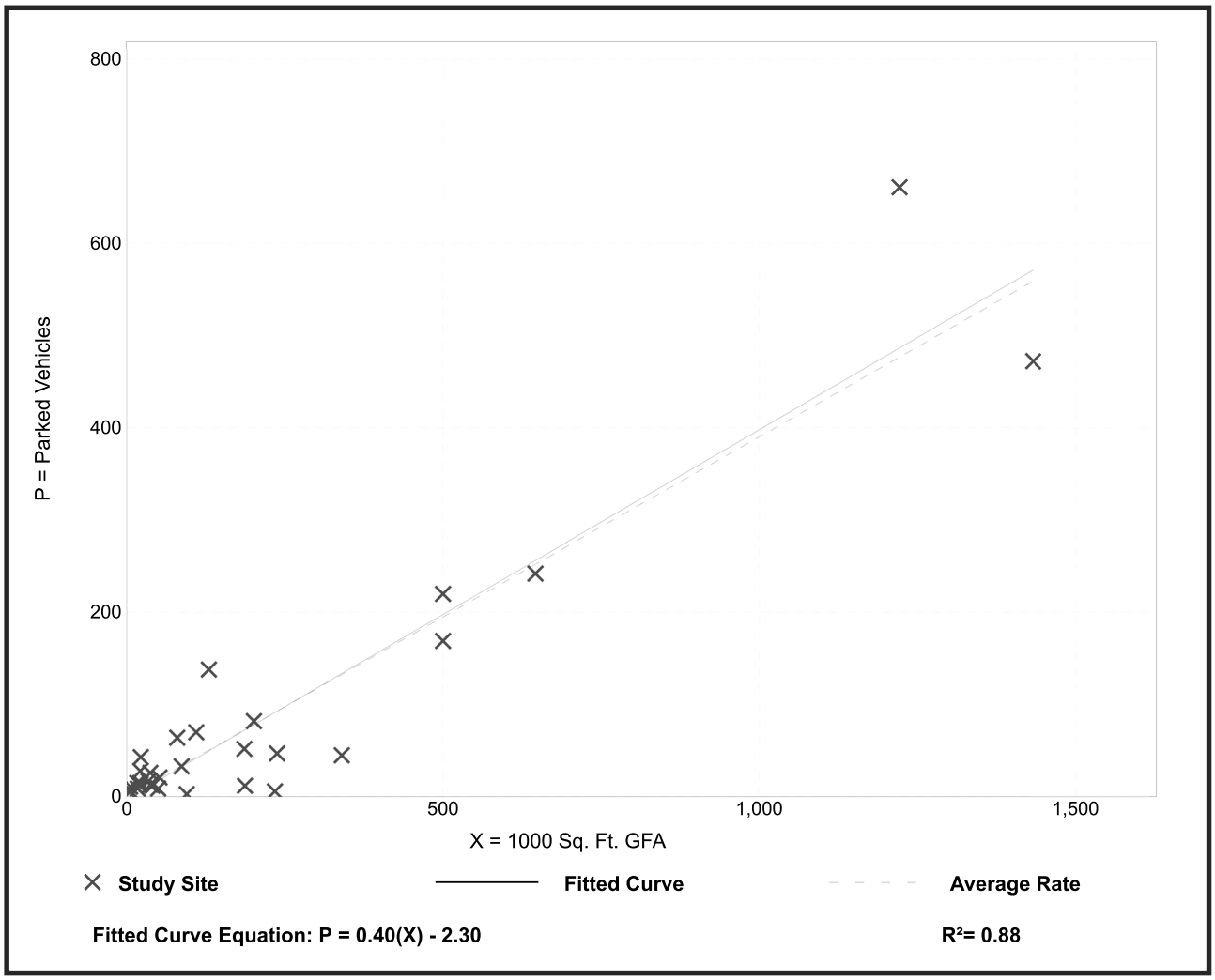
Warehousing
(150)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **11:00 a.m. - 4:00 p.m.**
Number of Studies: 31
Avg. 1000 Sq. Ft. GFA: 212

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.39	0.03 - 1.96	0.34 / 1.11	0.31 - 0.47	0.22 (56%)

Data Plot and Equation



Parking Generation Manual, 5th Edition ● Institute of Transportation Engineers

Attachment: SP-2022-02 application 051922 (25490 : Sp-2022-02)

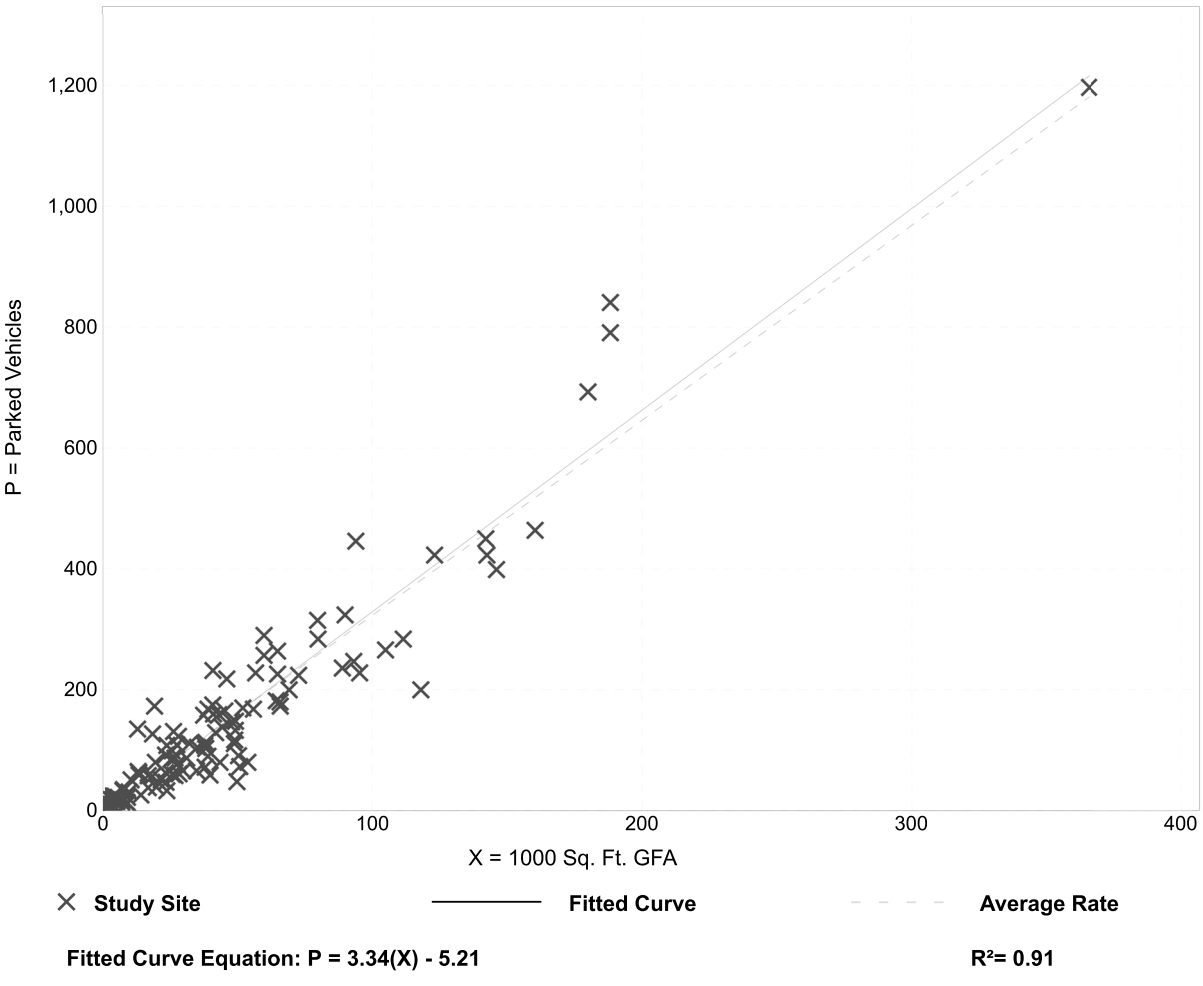
Medical-Dental Office Building
(720)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **9:00 a.m. - 4:00 p.m.**
Number of Studies: 117
Avg. 1000 Sq. Ft. GFA: 46

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
3.23	0.96 - 10.27	2.73 / 4.59	3.04 - 3.42	1.05 (33%)

Data Plot and Equation



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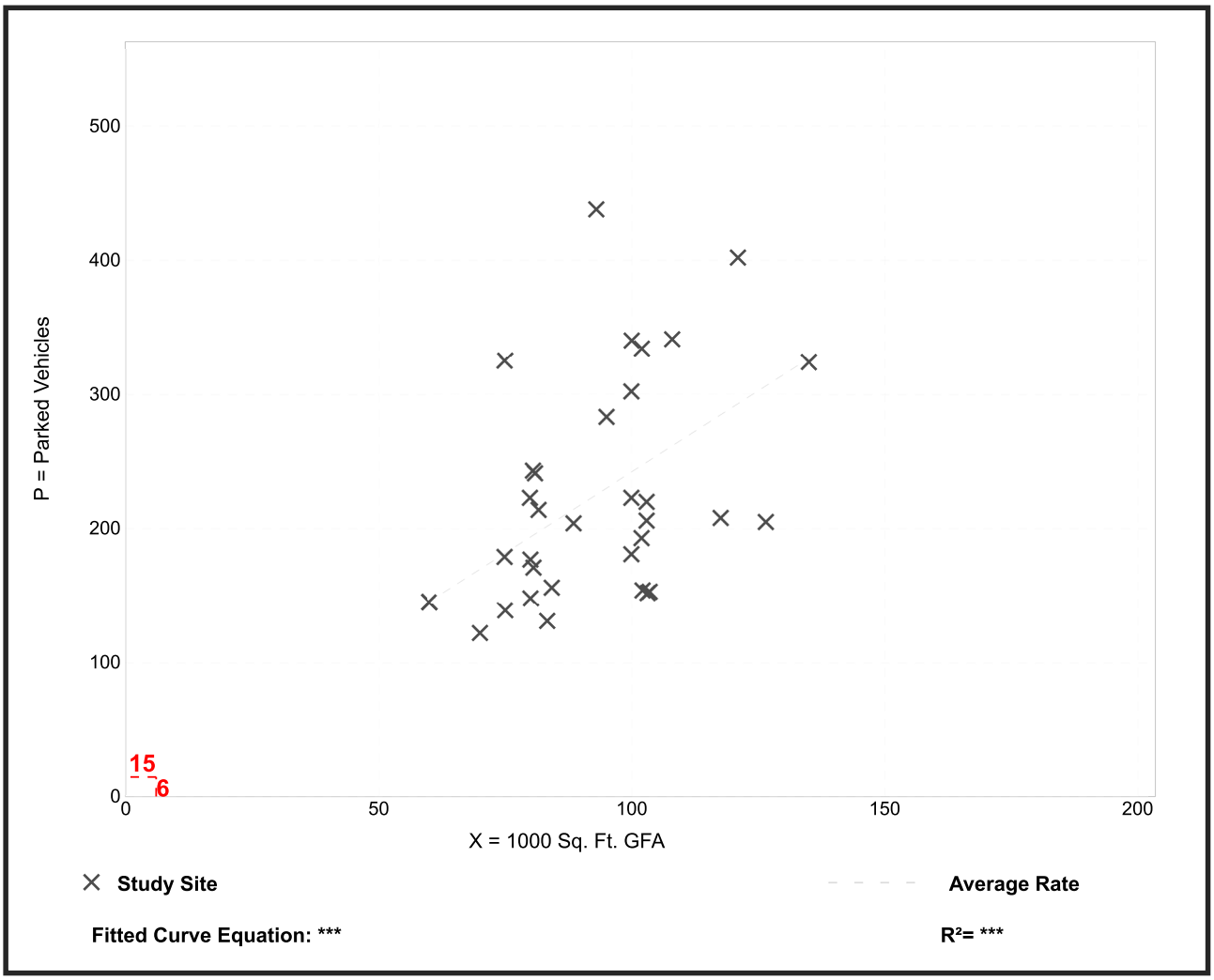
Home Improvement Superstore
(862)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Friday**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **10:00 a.m. - 4:00 p.m.; 8:00 - 9:00 p.m.**
Number of Studies: 34
Avg. 1000 Sq. Ft. GFA: 93

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
2.42	1.47 - 4.71	1.87 / 3.25	2.15 - 2.69	0.79 (33%)

Data Plot and Equation



Parking Generation Manual, 5th Edition ● Institute of Transportation Engineers

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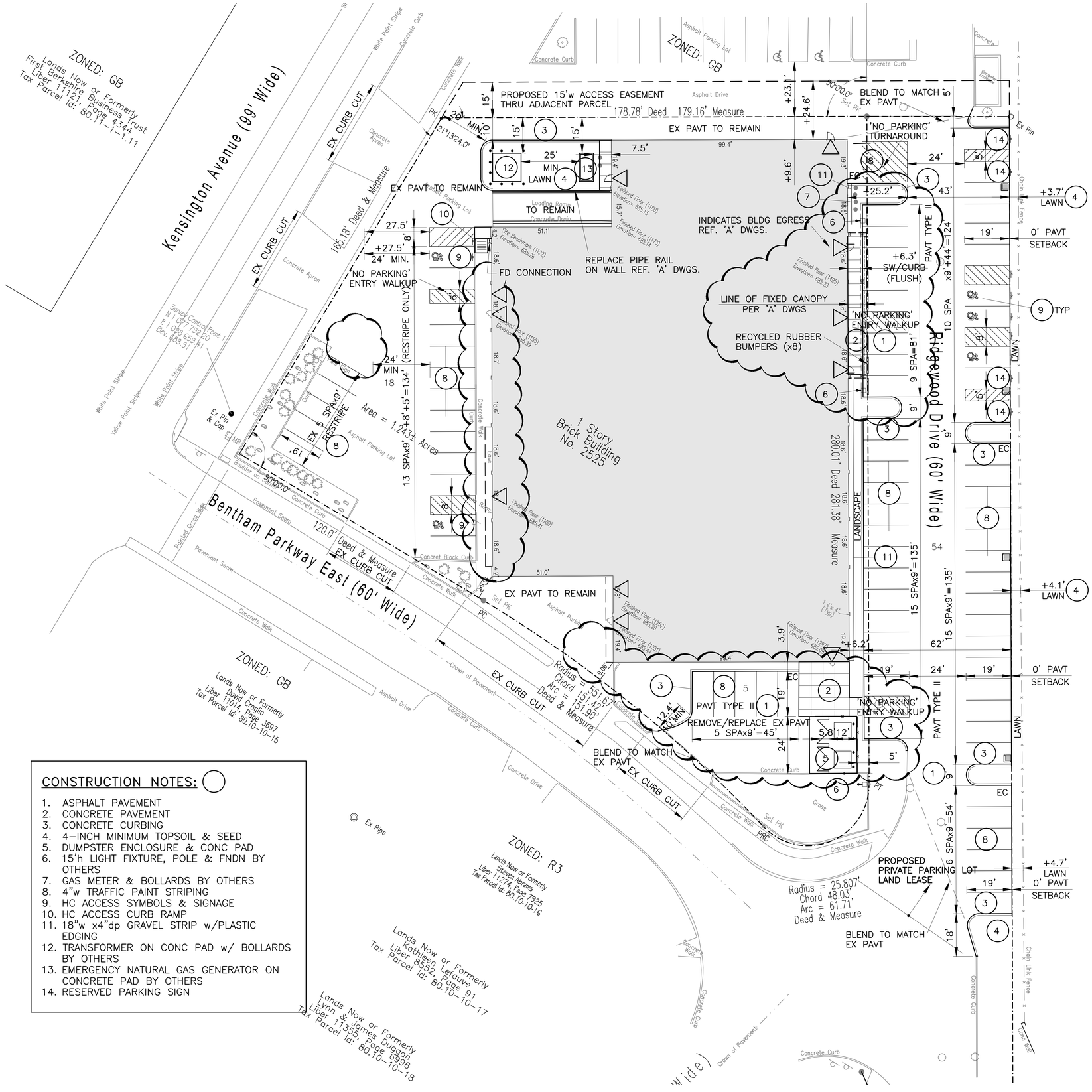
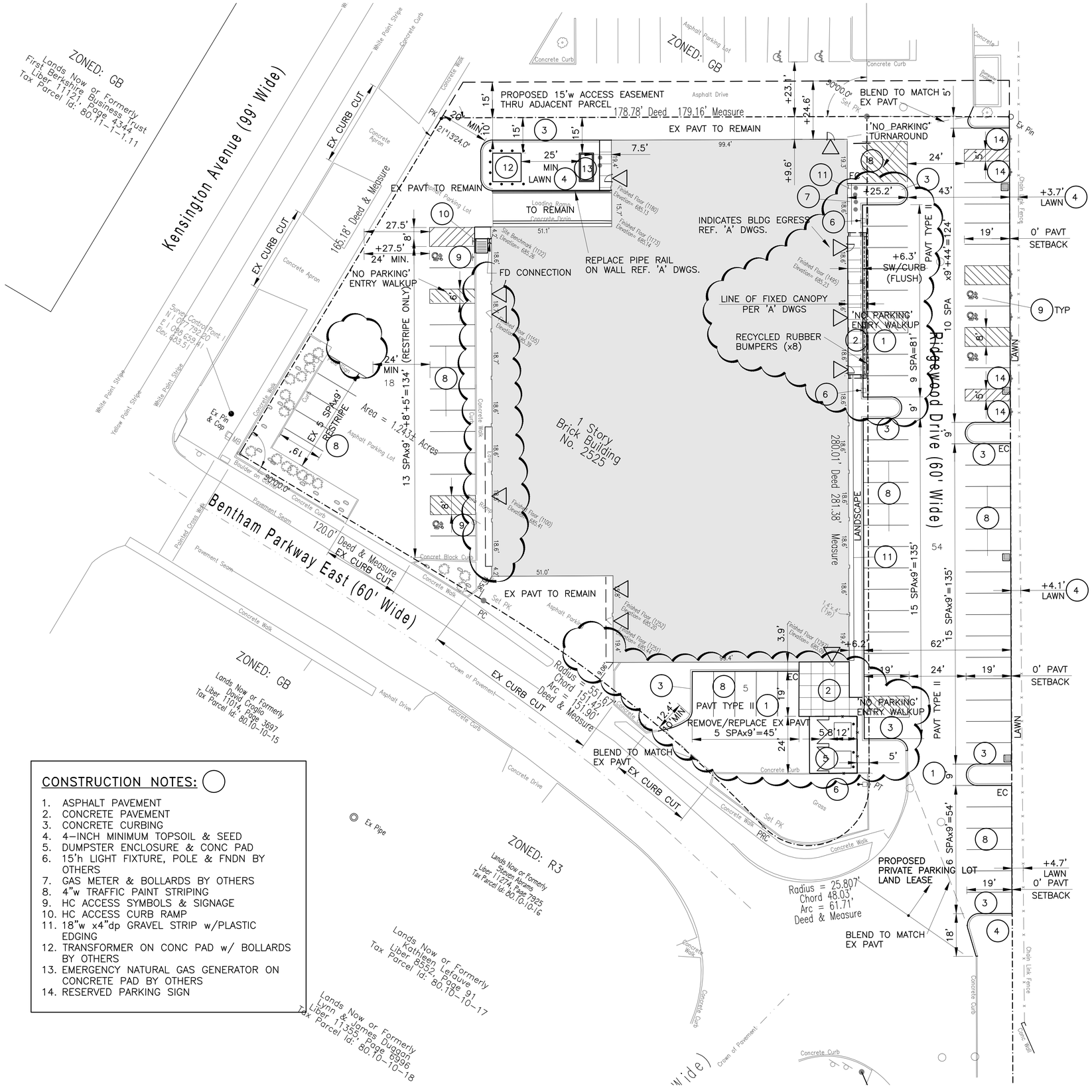
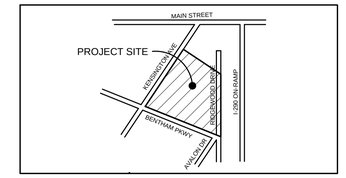

ZONED: GB
Lands Now or Formerly
First Berkshire Business Trust
Liber 11121, Page 4344
Tax Parcel Id: 80.11-1-1.11
Kensington Avenue (99' Wide)
EX CURB CUT
EX CURB CUT
165.18' Deed & Measure
White Point Stripe
Concrete Curb
Concrete Apron
Concrete Walk
Asphalt Parking Lot
Survey Control Point
N 1,077,792.60
E 1,063,539.41
Elev. 683.51
Ex Pin & Cap
MB
Boulder on Footing
Bentham Parkway East (60' Wide)
Pavement Seam
Painted Cross Walk
120.0' Deed & Measure
EX CURB CUT
Concrete Walk
Concrete Block Curb
PROPOSED 15'w ACCESS EASEMENT THRU ADJACENT PARCEL
178.78' Deed 179.16' Measure
EX PAVT TO REMAIN
25' MIN LAWN
7.5'
99.4'
Loading Ramp TO REMAIN
Concrete Drain
51.1'
Site Benchmark (1122) Elevation= 685.76
Finished Floor (1190) Elevation= 685.13
Finished Floor (1173) Elevation= 685.14
REPLACE PIPE RAIL ON WALL REF. 'A' DWGS.
INDICATES BLDG EGRESS REF. 'A' DWGS.
FD CONNECTION
27.5'
+27.5'
24' MIN.
'NO PARKING' ENTRY WALKUP
24' MIN
18
(RESTRIPE ONLY)
13 SPAx9' RESTRIPE
EX SPAx9' RESTRIPE
Area = 1.24± Acres
61'
30.0'
1 Story Brick Building No. 2525
Finished Floor (1156) Elevation= 685.9
Finished Floor (1100) Elevation= 685.71
Finished Floor (1092) Elevation= 685.29
Finished Floor (1091) Elevation= 685.27
Finished Floor (1074) Elevation= 685.23
Finished Floor (1393) Elevation= 685.22
EX PAVT TO REMAIN
Set PK
PC
Asphalt Parking Lot
Asphalt Drive
Crown of Pavement
Concrete Curb
Concrete Drive
Radius = 551.67'
Chord 151.42'
Arc = 151.90'
Deed & Measure
EX CURB CUT
BLEND TO MATCH EX PAVT
EX CURB CUT
PAVT TYPE II
REMOVE/REPLACE EX PAVT 5 SPAx9'=45'
12.4' MIN
24'
5.8'
12'
5'
Concrete Curb
Set PK
PRC
Grass
Ex Pipe
ZONED: R3
Lands Now or Formerly
Steven Abrams
Liber 11274, Page 7925
Tax Parcel Id: 80.10-10-16
Lands Now or Formerly
Kathleen Lefauve 91
Liber 8552, Page 91
Tax Parcel Id: 80.10-10-17
Lands Now or Formerly
James Duggan
Lynn A.
Liber 11355, Page 6996
Tax Parcel Id: 80.10-10-18
ZONED: GB
Lands Now or Formerly
David Coglio
Liber 11014, Page 3697
Tax Parcel Id: 80.10-10-15
Asphalt Drive
Crown of Pavement
Concrete Curb
Concrete Drive
Asphalt Parking Lot
ZONED: GB
Concrete Curb
Concrete Walk
Concrete Curb
PROPOSED 15'w ACCESS EASEMENT THRU ADJACENT PARCEL
178.78' Deed 179.16' Measure
EX PAVT TO REMAIN
BLEND TO MATCH EX PAVT
Set PK
Ex Pin
'NO PARKING' TURNAROUND
24'
43'
+25.2'
+3.7' LAWN
0' PAVT SETBACK
+9.6'
+23.1'
+24.6'
PAVT TYPE II
9 SPA=81'
x9'+44'=124'
10 SPA
+6.3' SW/CURB (FLUSH)
'NO PARKING' ENTRY WALKUP
LINE OF FIXED CANOPY PER 'A' DWGS
RECYCLED RUBBER BUMPERS (x8)
9 TYP
Finished Floor (1485) Elevation= 685.23
Finished Floor (1155) Elevation= 685.9
Finished Floor (1100) Elevation= 685.71
Finished Floor (1092) Elevation= 685.29
Finished Floor (1091) Elevation= 685.27
Finished Floor (1074) Elevation= 685.23
Finished Floor (1393) Elevation= 685.22
Finished Floor (1190) Elevation= 685.13
Finished Floor (1173) Elevation= 685.14
Concrete Curb
Concrete Walk
Curb
Low
Ramp
Concrete Block Curb
Concrete Walk
Concrete Curb
Concrete Walk
Concrete Curb
Concrete Walk
Concrete



CONSTRUCTION NOTES:

1. ASPHALT PAVEMENT
2. CONCRETE PAVEMENT
3. CONCRETE CURBING
4. 4–INCH MINIMUM TOPSOIL & SEED
5. DUMPSTER ENCLOSURE & CONC PAD
6. 15'h LIGHT FIXTURE, POLE & FNDN BY OTHERS
7. GAS METER & BOLLARDS BY OTHERS
8. 4"w TRAFFIC PAINT STRIPING
9. HC ACCESS SYMBOLS & SIGNAGE
10. HC ACCESS CURB RAMP
11. 18"w x4"dp GRAVEL STRIP w/PLASTIC EDGING
12. TRANSFORMER ON CONC PAD w/ BOLLARDS BY OTHERS
13. EMERGENCY NATURAL GAS GENERATOR ON CONCRETE PAD BY OTHERS
14. RESERVED PARKING SIGN



SITE LOCATION MAP

SITE LAYOUT PLAN

1" = 20'

N

SITE DATA

CURRENT ZONING: GB

PARCEL AREA: +1.24 ACRES (AC)

TOTAL AREA OF DISTURBANCE (INCL R.O.W.): 22,000SF~0.51AC

NEW PARKING LOT LICENSED AREA: 19636SF ~0.45 AC

INTERIOR GREENSPACE: 984SF (5.5% OF NEW PARKING LOT)

ANTICIPATED AVERAGE DAILY SEWER LOADING: 1120 GPD
OFFICES/DAY SCHOOL: (30 EMPLx15 GPD)+(52 STUDENTSx10 GPD = 450+520 =970 GPD
RETAIL/WAREHOUSE PER EMPLOYEE: (10 EMPLx15 GPD)= 150 GPD

PARKING DATA

SPACES REQUIRED BY NET SF, 2–STY (MEZZ), MULT–TENANT (75% OF GROSS SF), GENERAL OFFICE, RETAIL/WAREHOUSE USES:

GENERAL OFFICE: 15995NSF (INCLUDES MEZZ) x1/200NSF=80;
RETAIL AT >2000SF<25000SF: 5763NSFx 5.5/1000NSF=32;
WAREHOUSE: 12019NSFx 1= 12

TOTAL CAR–PARKS REQUIRED = 80+32+12=124
ACCESSIBLE SPA REQUIRED = CAR–PARKS/25=124/25=5

SPACES PROVIDED: 77
REGULAR: 68
ACCESSIBLE: 5; RESERVED STALLS: 4

DEFICIENT 47 CAR–PARKS, REFER TO ALTERNATE PARKING PLAN UNDER SEPARATE COVER

NOTES:

1. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THIS DRAWING IS FOR INFORMATION ONLY. REFER TO SURVEY(S) PROVIDED BY NIAGARA BOUNDARY & MAPPING JOB No 11187–21, DATED 6/2021.
2. REFER TO ARCHITECTURAL DRAWINGS FOR ALL BUILDING DIMENSIONS, FEATURES, AND UTILITY CONNECTIONS.
3. SITE LIGHTING, POWER AND GAS LINES ARE SHOWN FOR INFORMATION ONLY, AND ARE NOT DESIGNED BY TREDO ENGINEERS.
4. A KNOX BOX KEY HOLDER SHALL BE LOCATED AT THE BUILDING MAIN ENTRANCE.
5. THE BUILDING SHALL CONTAIN A SPRINKLER FIRE–PROTECTION SYSTEM.

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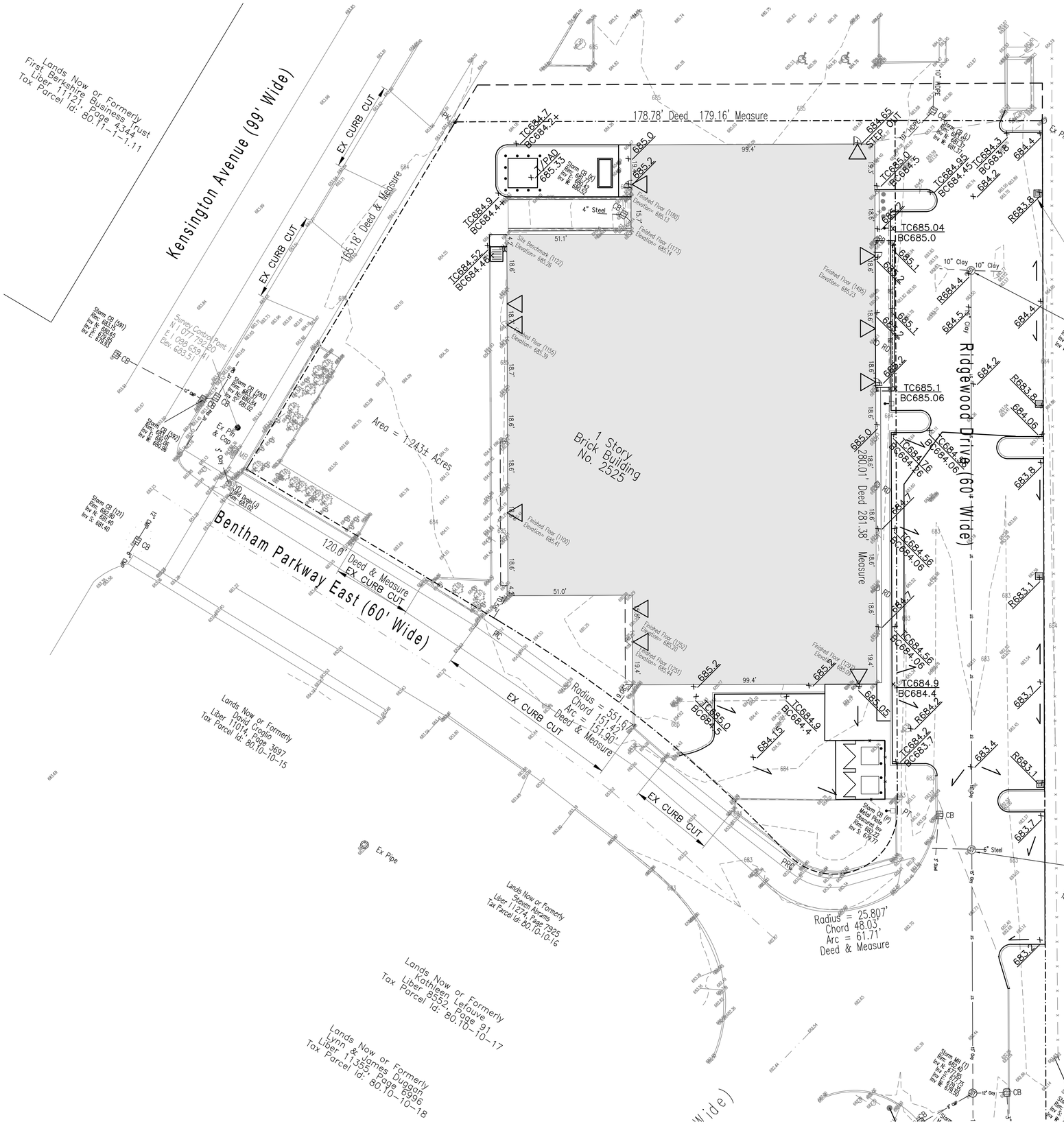
SITE LAYOUT PLAN

SP101

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)



LEGEND:

×	DENOTES PROPOSED SPOT ELEVATIONS	·	DENOTES EXISTING SPOT ELEVATIONS
■ ●	DENOTES PROPOSED CATCH BASIN/MANHOLE	DI	DENOTES EXISTING STORM SEWER DROP INLET
CO	DENOTES PROPOSED CLEANOUT	ST	DENOTES EXISTING STORM SEWER MANHOLE
C	DENOTES CONNECTION TO EXISTING UTILITY	SA	DENOTES EXISTING SANITARY SEWER MANHOLE
			DENOTES EXISTING HYDRANT
	DENOTES PROPOSED LIGHT POLE		DENOTES EXISTING LIGHT POLE
RD	DENOTES PROPOSED ROOF DRAIN		DENOTES EXISTING WATER VALVE
ELEV	DENOTES NEW CONTOURS	ELEV	DENOTES EXISTING CONTOURS
X X X X		X X X X	DENOTES EXISTING CHAIN LINK FENCE
OHE		OHE	DENOTES EXISTING UTILITY POLE AND OVERHEAD UTILITIES
ST		ST	DENOTES EXISTING STORM SEWER LINE
SAN		SAN	DENOTES EXISTING SANITARY SEWER LINE
W		W	DENOTES EXISTING WATER LINE
E		E	DENOTES EXISTING ELECTRIC LINE
G		G	DENOTES EXISTING GAS LINE
ST			DENOTES PROPOSED STORM SEWER LINE
SAN			DENOTES PROPOSED SANITARY SEWER LINE
W			DENOTES PROPOSED WATER LINE

SITE GRADING PLAN

1" = 20'

N

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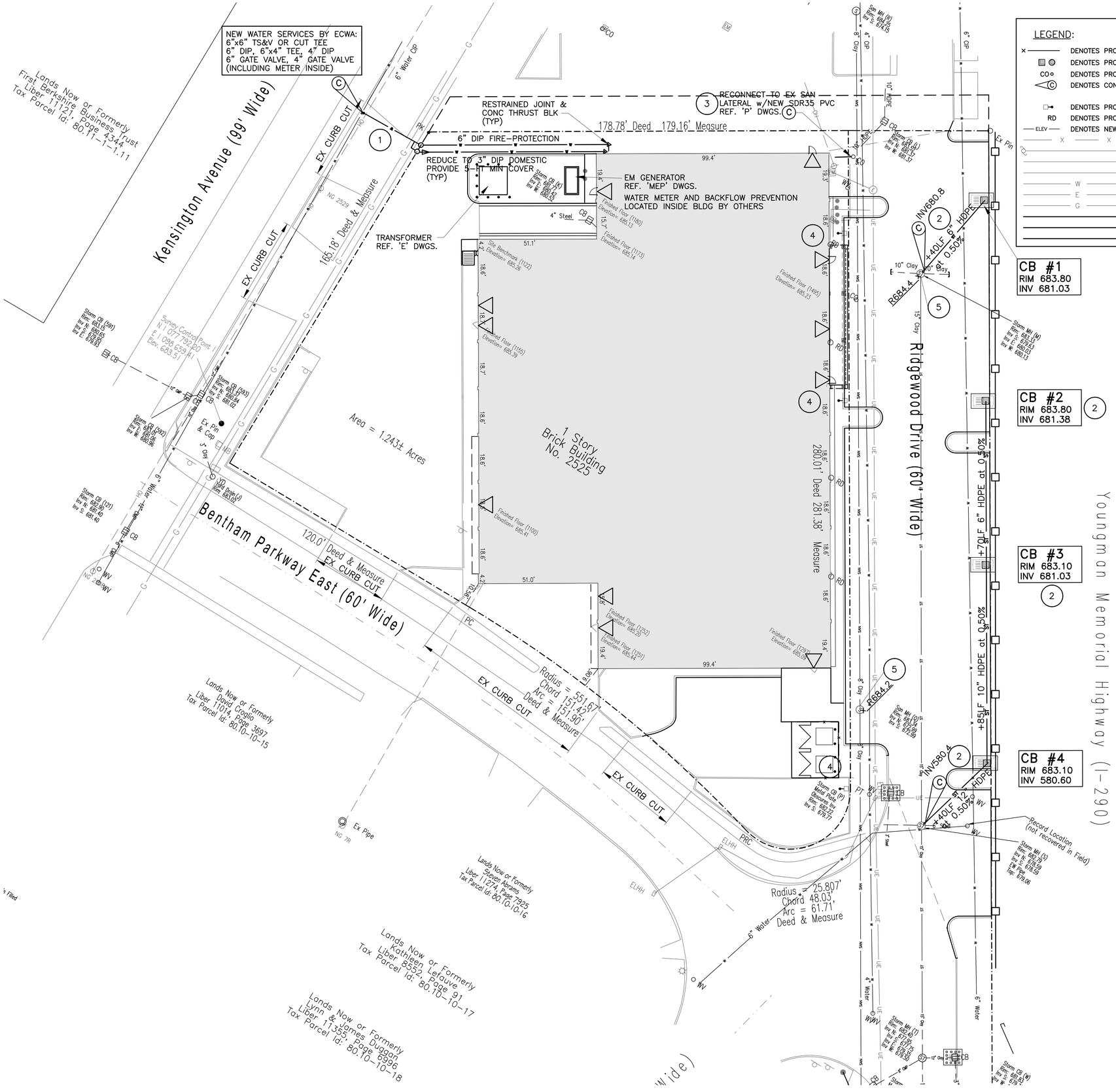
SITE GRADING PLAN

SP102

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)



LEGEND:

×	DENOTES PROPOSED SPOT ELEVATIONS	·	DENOTES EXISTING SPOT ELEVATIONS
▣ ◉	DENOTES PROPOSED CATCH BASIN/MANHOLE	(D)	DENOTES EXISTING STORM SEWER DROP INLET
CO	DENOTES PROPOSED CLEANOUT	(ST)	DENOTES EXISTING STORM SEWER MANHOLE
◁(C)	DENOTES CONNECTION TO EXISTING UTILITY	(SA)	DENOTES EXISTING SANITARY SEWER MANHOLE
			DENOTES EXISTING HYDRANT
	DENOTES PROPOSED LIGHT POLE		DENOTES EXISTING LIGHT POLE
RD	DENOTES PROPOSED ROOF DRAIN		DENOTES EXISTING WATER VALVE
ELEV	DENOTES NEW CONTOURS	ELEV	DENOTES EXISTING CONTOURS
		X X X X	DENOTES EXISTING CHAIN LINK FENCE
		OHE	DENOTES EXISTING UTILITY POLE AND OVERHEAD UTILITIES
		ST	DENOTES EXISTING STORM SEWER LINE
		SAN	DENOTES EXISTING SANITARY SEWER LINE
		W W	DENOTES EXISTING WATER LINE
		E E	DENOTES EXISTING ELECTRIC LINE
		G G	DENOTES EXISTING GAS LINE
	ST		DENOTES PROPOSED STORM SEWER LINE
	SAN		DENOTES PROPOSED SANITARY SEWER LINE
	W		DENOTES PROPOSED WATER LINE

SITE UTILITIES & EROSION CONTROL PLAN

1" = 20'

N

CONSTRUCTION NOTES:

1. NEW WATER SERVICE TO BLDG WATER ROOM –RPZ & METERING INSIDE FACILITY REF. 'P' & 'FP' DWGS
2. NEW STORM RECEIVER & HDPE PIPING –CORE–DRILL & GROUT NEW PIPING TO EXISTING MANHOLE (VERIFY CONDITIONS & NOTIFY ENGINEER OF CONFLICTS PRIOR TO PREPARING SHOP DRAWINGS AND ORDERING MATERIAL)
3. REPLACE WASTEWATER LATERAL CONN IN SAME LOCATION AS EXISTING (FIELD VERIFY) –REF. 'P' DWGS FOR NEW SAN PIPING & CONNECTION TO EXISTING.
4. SITE LIGHTING –REF. 'E' DWGS FOR POLE, FNDN, FIXTURE, CIRCUITING & CONDUIT
5. RAISE MH FRAME & COVER w/CONC RINGS TO ELEVATION SHOWN

SILT FENCE OR 12"DIA COMPOST FILTER SOCK

STONE & BLOCK DROP INLET PROTECTION STRUCTURE

EXCAVATED DROP INLET PROTECTION

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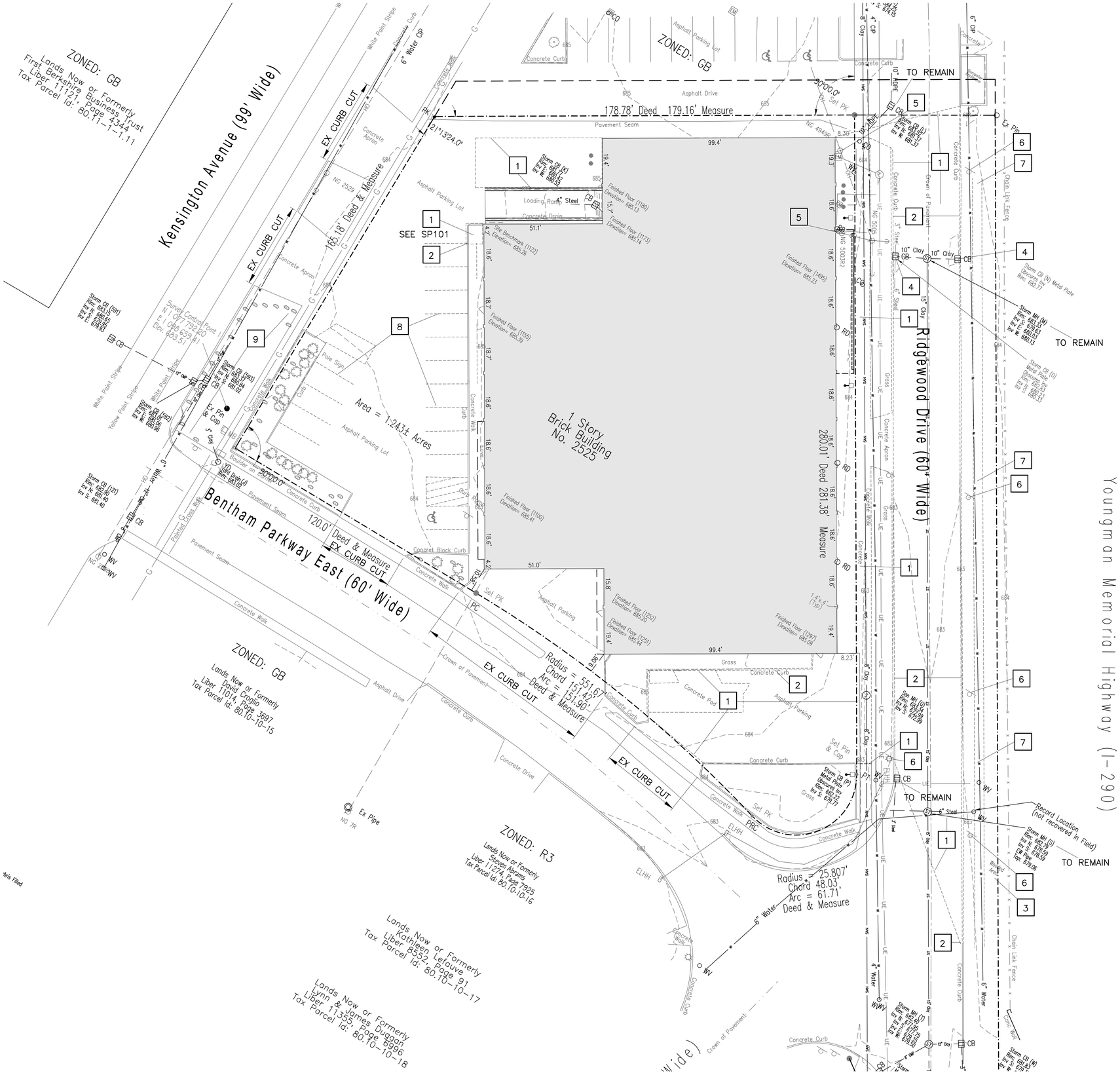
SITE UTILITIES & EROSION CONTROL PLAN

SP103

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)



SITE DEMOLITION PLAN

1" = 20'

N

SITE DEMOLITION NOTES:

1. SAWCUT & REMOVE EXISTING ASPHALT/ CONC PAVT AND SUBBASE STONE EXCEPT WHERE NEW PAVT OVER TO BE INSTALLED, SUBBASE TO BE PROOFROLLED & REUSED
2. SAWCUT & REMOVE CONCRETE CURBING
3. REMOVE TREES & BRUSH TO FENCELINE
4. DRAIN BODY TO BE REMOVED, PLUG EX PIPE END w/CONC
5. UTILITY POLE & OHE POWER TO BE REMOVED –COORD. w/SUPPLIER & 'E' DWGS.
6. SIGN OR LIGHT POLE & FNDN TO BE REMOVED
7. REMOVE REMAINS OF CONC SIDEWALK
8. REMOVE PAINT STRIPING THIS ROW BY INSTALLING SEALER OVER ROUGHENED EX ASPHALT
9. REMOVE ALL BOULDER STONES FROM RIGHT–OF–WAY

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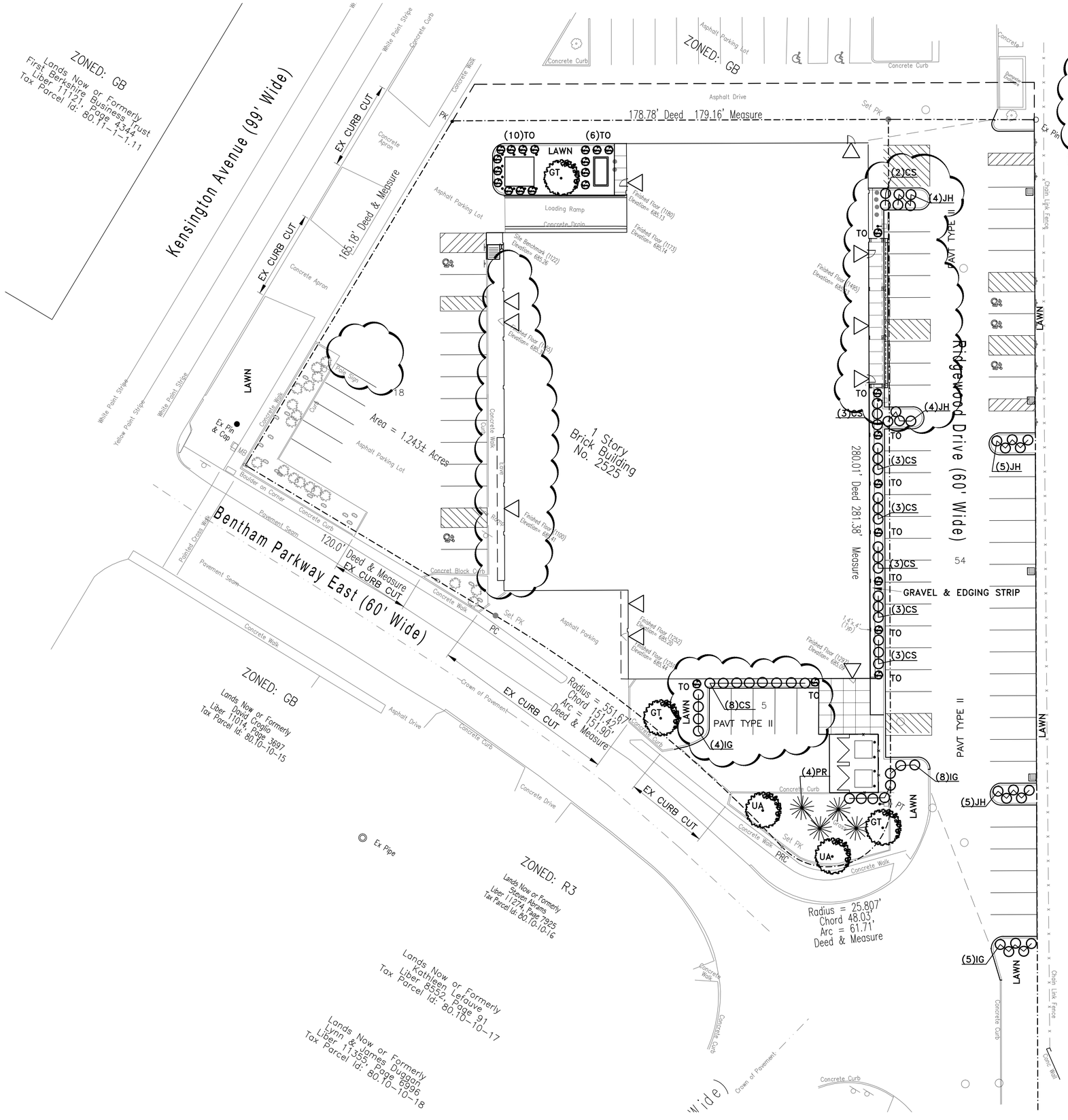
EXISTING CONDITIONS & SITE DEMOLITION PLAN

SP104

SP-2022-02 drawings 051922 (2549 : Sp-2022-02)
Attachment: SP-2022-02 (2549 : Sp-2022-02)



PLANTING SCHEDULE

MARK	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
SHRUBS/GRASSES					
TO	26	THUJA OCCIDENTALIS	EMERALD ARBORVITE	4'h MIN.	B&B
CS	24	CORNUS STOLONIFERA	ARCTIC FIRE DOGWOOD	24"h	CONT.
JH	18	JUNIPERUS HORIZONTALIS	BAR HARBOR JUNIPER	24"sp	CONT.
IG	17	ILEX GLABRA COMPACTA	SHAMROCK INKBERRY	24"h 5'OC	B&B
TREES					
GT	2	GLEDITSIA TRIACANTHOS INERMIS SUNBURST	SUNBURST LOCUST	2 1/2" CAL	B&B
UA	2	ULMUS AMERICANA 'PRINCETON'	AMERICAN ELM	2–1/2"CAL	B&B
PR	4	PINUS RESINOSA	RED PINE	6'h MIN.	

LANDSCAPE PLAN

1" = 20'

N

NOTES:

1. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING TREES AND PLANTINGS INDICATED TO REMAIN FROM ALL TYPES OF ROOT, TRUNK AND LIMB DAMAGE DURING DEMOLITION AND CONSTRUCTION.
2. EXISTING PLANTED AREAS SHALL REMAIN UNLESS OTHERWISE NOTED.
3. ALL DISTURBED AREAS SHALL RECEIVE 4" MIN. TOPSOIL AND GRASS SEED UNLESS OTHERWISE NOTED.
4. TREE AND SHRUB BEDS SHALL BE COVERED WITH 3" OF HARDWOOD MULCH. ALL ROOTS AND STONES OVER 1 1/2" SHALL BE REMOVED PRIOR TO SEEDING/ PLANTING.
5. ALL STREET AND ISLAND TREES SHALL HAVE FIRST BRANCHING at 6–FOOT MIN.
6. IF A CONFLICT EXISTS BETWEEN THE PLAN AND PLANTING SCHEDULE, THE PLAN SHALL GOVERN.
7. REFER TO ARCHITECTURAL DRAWINGS FOR ALL BUILDING DIMENSIONS, FEATURES & UTILITY CONNECTIONS
8. REFER TO GRADING AND UTILITY PLAN(S) FOR ADDITIONAL INFORMATION NOT SHOWN HEREIN.

LEGEND:

INDICATES NEW TREE PLANTING PER SCHEDULE

INDICATES NEW SHRUB PLANTING PER SCHEDULE

EXISTING TREE/SHRUB TO REMAIN & BE PROTECTED THRU–OUT CONSTRUCTION

EXISTING TREE/SHRUB TO BE REMOVED

LAWN SEED SCHEDULE

Mixtures		Rate per Acre (lbs)	Rate per 1,000 sq. ft. (lbs)
A.	Birdsfoot trefoil or ladino clover	8	0.20
	Tall fescue or mooth bromegrass	20	0.45
	Redtop	2	0.05
		30	0.70
OR			
B.	Kentucky bluegrass	25	0.60
	Creeping red fescue	20	0.50
	Perennial ryegrass	10	0.20
		55	1.30

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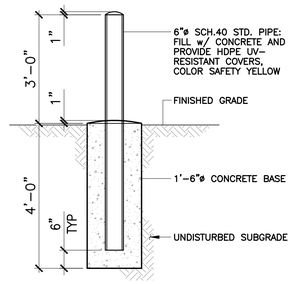
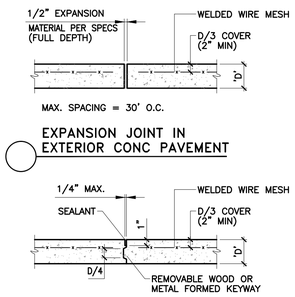
LANDSCAPE PLAN

L101

SP-2022-02 drawings 051922 (2549) : Sp-2022-02)
Attachment: SP-2022-02 (2549 : Sp-2022-02)



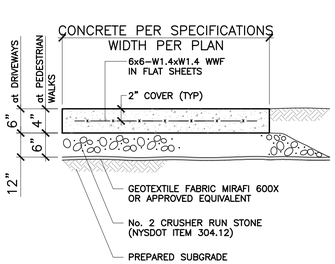
STEEL PIPE BOLLARD



EXPANSION JOINT IN EXTERIOR CONC PAVEMENT

CONSTRUCTION JOINT IN EXTERIOR CONC PAVEMENT

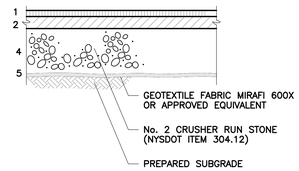
CONTROL JOINT IN EXTERIOR CONC PAVEMENT



NOTE: CONC. SHALL BE 4000 PSI at 28-DAYS, 6% AIR-ENTRAINED, 4" MAX. SLUMP-PROVIDE LT. BROOM FINISH PERPENDICULAR TO DIRECTION OF TRAFFIC

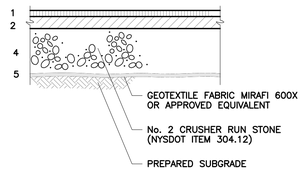
TYPICAL CONCRETE SIDEWALK

ITEM	DESCRIPTION	DEPTH
1	TOP COURSE 402.099803-9.5 F2-80	1-1/2"
2	BINDER 402.198203-19 F9-80	3"
3	NOT USED	
4	SUBBASE COURSE 304.12 (NYSDOT)	18"
5	GEOTEXTILE FABRIC (NONWOVEN/HEAT BONDED)	



TYPICAL TYPE II BITUMINOUS PAVEMENT SECTION DRIVEWAYS

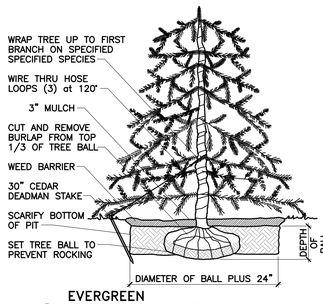
ITEM	DESCRIPTION	DEPTH
1	TOP COURSE 402.099803-9.5 F2-80	1-1/2"
2	BINDER 402.198203-19 F9-80	2"
3	NOT USED	
4	SUBBASE COURSE 304.12 (NYSDOT)	12"
5	GEOTEXTILE FABRIC (NONWOVEN/HEAT BONDED)	



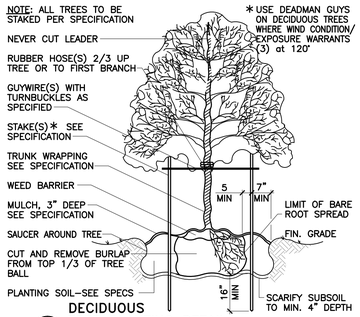
TYPICAL TYPE I BITUMINOUS PAVEMENT SECTION PARKING STALLS

GENERAL SITE NOTES

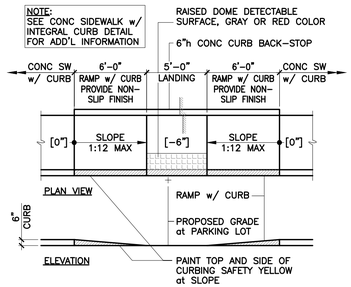
1. ALL WATERLINE, SANITARY SEWER AND OTHER WORK WITHIN THE R.O.W. SHALL BE IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE TOWN OF AMHERST, THE ERIE COUNTY WATER AUTHORITY AND NYSDOT SPECIFICATIONS.
2. INSTALL ALL MATERIALS TO THE MANUFACTURER'S RECOMMENDATIONS AND BEST STANDARDS OF THE TRADE INVOLVED.
3. SUBSTITUTIONS SHALL BE MADE ONLY WITH OWNER APPROVAL AND SHALL BE EQUIVALENT QUALITY TO WHAT IS SPECIFIED.
4. WORK SHALL BE COMPLETED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND OSHA SAFETY RULES AND REGULATIONS.
5. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE SITE. NOTIFY OWNER OF ANY DISCREPANCIES IN CONDITIONS SHOWN ON THE DRAWINGS PRIOR TO PROCEEDING WITH THE WORK.
6. CONTRACTORS SHALL BE RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING STRUCTURES TO REMAIN AND ANY FINISH MATERIAL INSTALLED WHILE WORKING ON OTHER COMPONENTS.
7. CONTRACTOR SHALL KEEP THE JOB SITE FREE OF DEBRIS AND MAKE FINAL CLEANUP TO THE SATISFACTION OF THE OWNER.
8. CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION SO THAT THIS WORK DOES NOT DISTURB EXISTING LINES AND/OR INSTALLATIONS. COORDINATE ALL WORK WITH THE APPLICABLE UTILITY COMPANIES.
9. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS NECESSARY TO PERFORM THE WORK.
10. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN CONTROL OF EROSION FROM THE SITE. SEE PROJECT EROSION CONTROL PLAN AND SWPPP MANUAL.
11. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS, FEATURES AND UTILITY CONNECTIONS.
12. ALL UTILITY TRENCHES UNDER PAVEMENT, CURBS, SIDEWALKS, AND DRIVEWAYS SHALL BE FULLY BACKFILLED WITH No 2 CRUSHER RUN STONE AND PROPERLY COMPACTED TO AVOID SETTLEMENT.
13. CONTRACTOR SHALL REPLACE IN KIND ANY EXISTING IMPROVEMENTS TO REMAIN THAT ARE DAMAGED DURING CONSTRUCTION. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, CURBS, ROAD PAVEMENTS, SIDEWALKS, AND EXISTING UTILITIES.



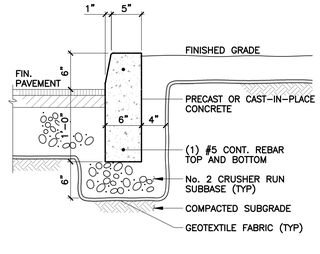
EVERGREEN TREE PLANTING DETAIL



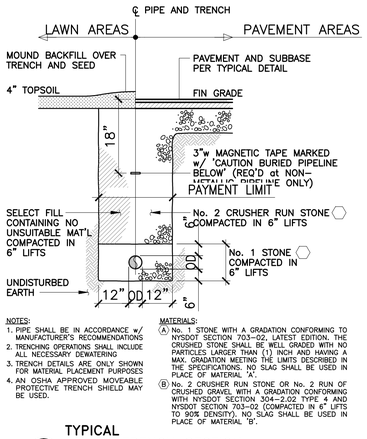
DECIDUOUS TREE PLANTING DETAIL



HANDICAP ACCESS RAMP



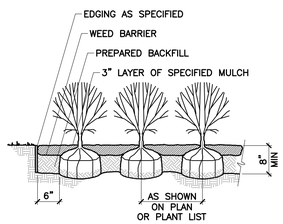
TYPICAL CONCRETE CURB



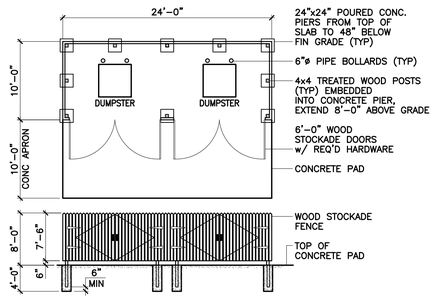
NOTES:
1. PIPE SHALL BE IN ACCORDANCE w/ MANUFACTURER'S RECOMMENDATIONS
2. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.
3. TRENCH DETAILS ARE ONLY SHOWN FOR MATERIAL PLACEMENT PURPOSES
4. AN OSHA APPROVED MOVEABLE PROTECTIVE TRENCH SHIELD MAY BE USED.

MATERIALS:
(A) No. 1 STONE WITH A GRADATION CONFORMING TO NYSDOT SECTION 703-02, LATEST EDITION. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN (1) INCH AND HAVING A MAX. GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. NO SLAG SHALL BE USED IN PLACE OF MATERIAL 'A'.
(B) No. 2 CRUSHER RUN STONE OR No. 2 RUN OF CRUSHED GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02 (COMPACTED IN 6" LIFTS TO 90% DENSITY). NO SLAG SHALL BE USED IN PLACE OF MATERIAL 'B'.

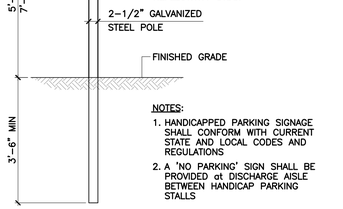
TYPICAL UTILITY TRENCH SECTION



SHRUB PLANTING DETAIL

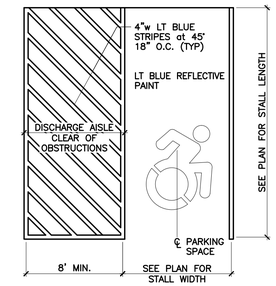


DUMPSTER ENCLOSURE WITH CONCRETE PAD

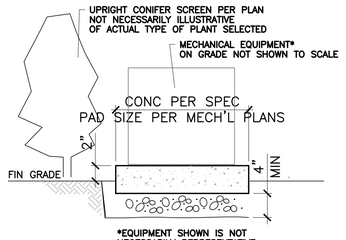


NOTES:
1. HANDICAPPED PARKING SIGNAGE SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS
2. A 'NO PARKING' SIGN SHALL BE PROVIDED at DISCHARGE AISLE BETWEEN HANDICAP PARKING STALLS

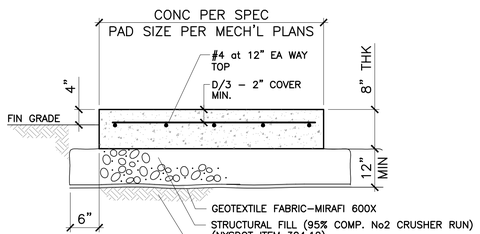
HANDICAPPED PARKING SIGNAGE
LOCATED IN LAWN AREAS



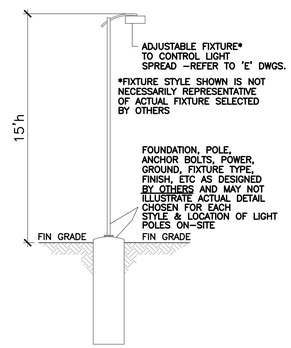
HANDICAP SYMBOL DETAIL



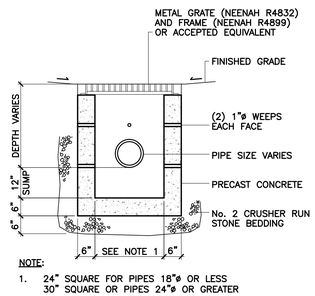
MECHANICAL EQUIP. SCREEN



GENERATOR PAD SECTION



LIGHT POLE HEIGHT DETAIL



NOTE:
1. 24" SQUARE FOR PIPES 18"ø OR LESS
30" SQUARE OR PIPES 24"ø OR GREATER

TYPICAL CATCH BASIN

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REVISIONS
1: REISSUED 3/28/22

DRAWN BY avm | CHECKED BY AVM

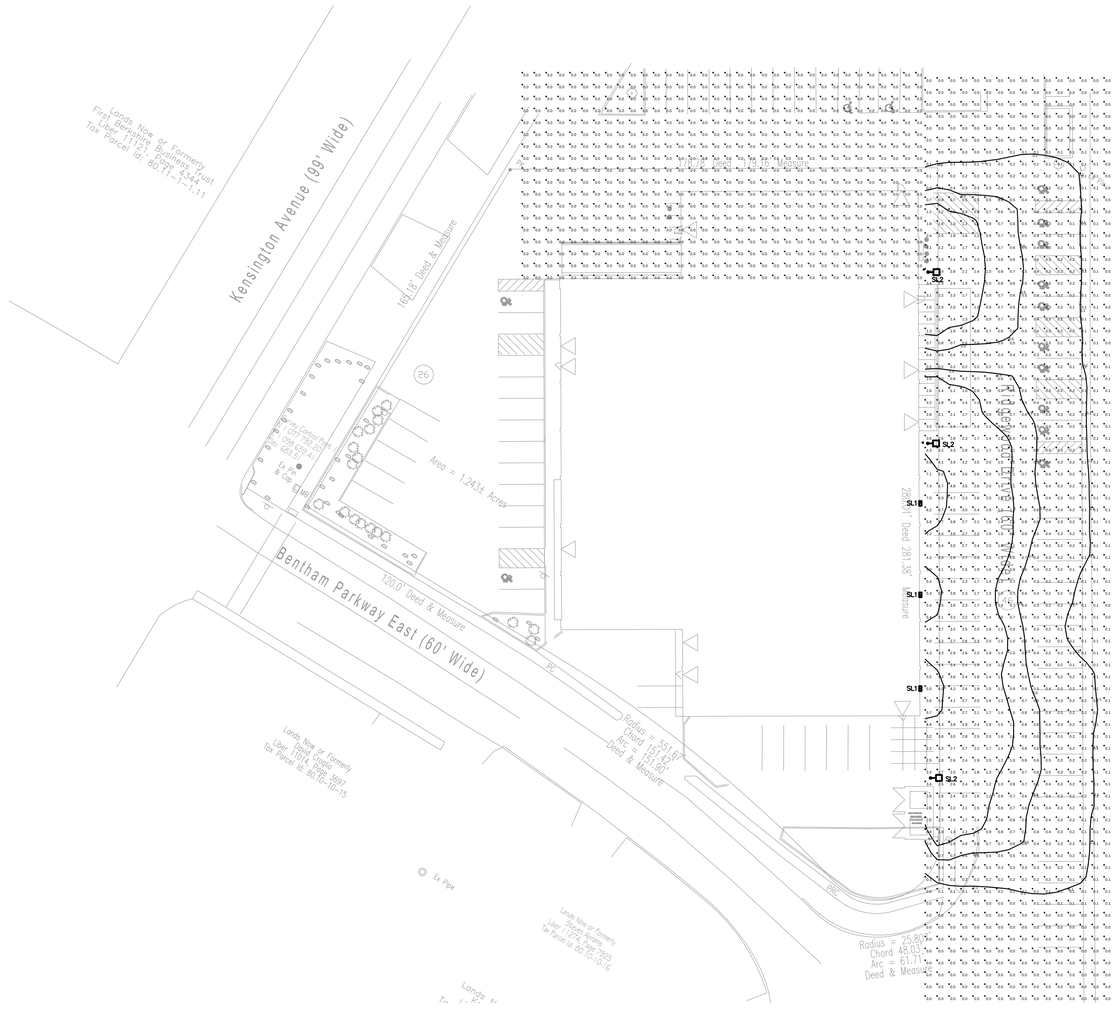
SCALE AS NOTED

DATE Feb 22, 2022

SITE DETAILS

SP201

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)



1 EL-100 ELECTRICAL SITE LIGHTING PLAN
SCALE: 1" = 20'-0"

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MOUNTING	LENS/DIFFUSER	VOLTAGE/ BALLAST	LAMPS/LUMEN PACKAGE	MANUFACTURER & CATALOG NO.
SL1	WALL MOUNTED LED SITE LUMINAIRE	WALL MOUNTED 10'-0" A.F.G.	LED OPTICS, TYPE 4 FORWARD THROW	UNV 120-277V	44W, 6019 LUMENS, 4000°K LED SYSTEM	MCGRAW EDISON 'GALLEON LED' #GLEON-SA1B-740-U-T4FT
SL2	POLE MOUNTED LED SITE LUMINAIRE	POLE MOUNTED 15'-0" A.F.G.	LED OPTICS, TYPE 4 FORWARD THROW	UNV 120-277V	44W, 6019 LUMENS, 4000°K LED SYSTEM	MCGRAW EDISON 'GALLEON LED' #GLEON-SA1B-740-U-T4FT

2.e

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REVISIONS

DRAWN BY DTB
CHECKED BY

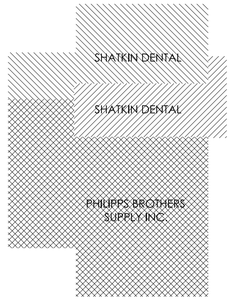
SCALE AS NOTED

DATE 03/24/22

ELECTRICAL SITE LIGHTING PLAN

EL-100

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)



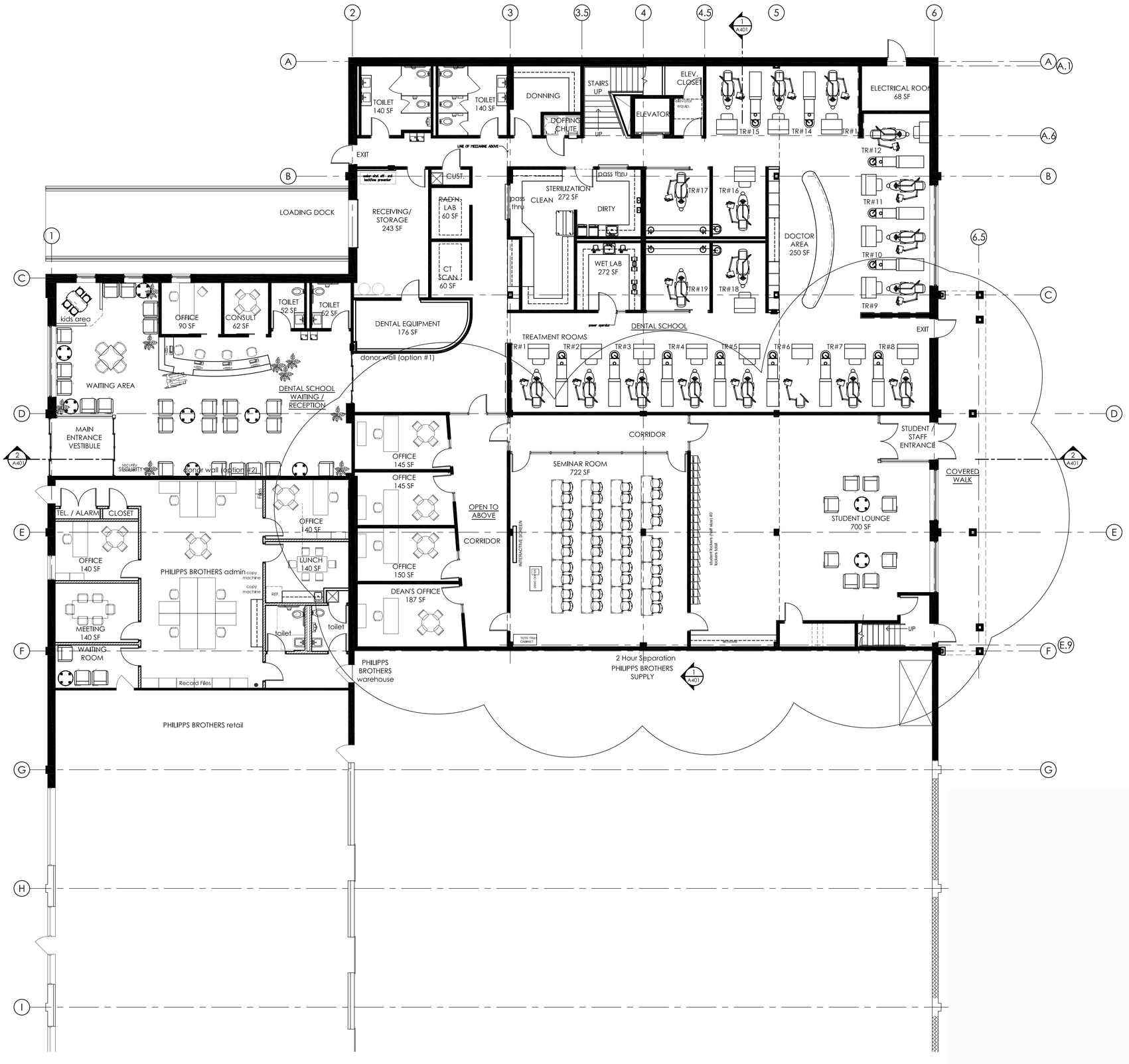
KEY PLAN
SCALE NTS

SHATKIN DENTAL
16,253 SF
W/ 2ND FL

PHILIPPS ADMIN
1,907 SF

PHILIPPS BROTHERS RETAIL
3,748 SF

PHILIPPS BROTHERS WAREHOUSE
11,621 SF



GROUND FLOOR PLAN
SCALE 1/8" = 1'-0"

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REVISIONS
SITE PLAN APPLICATION

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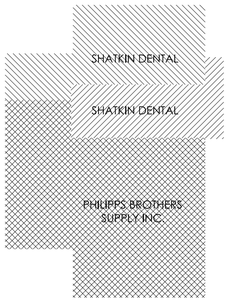
CHECKED BY

SCALE
AS NOTED

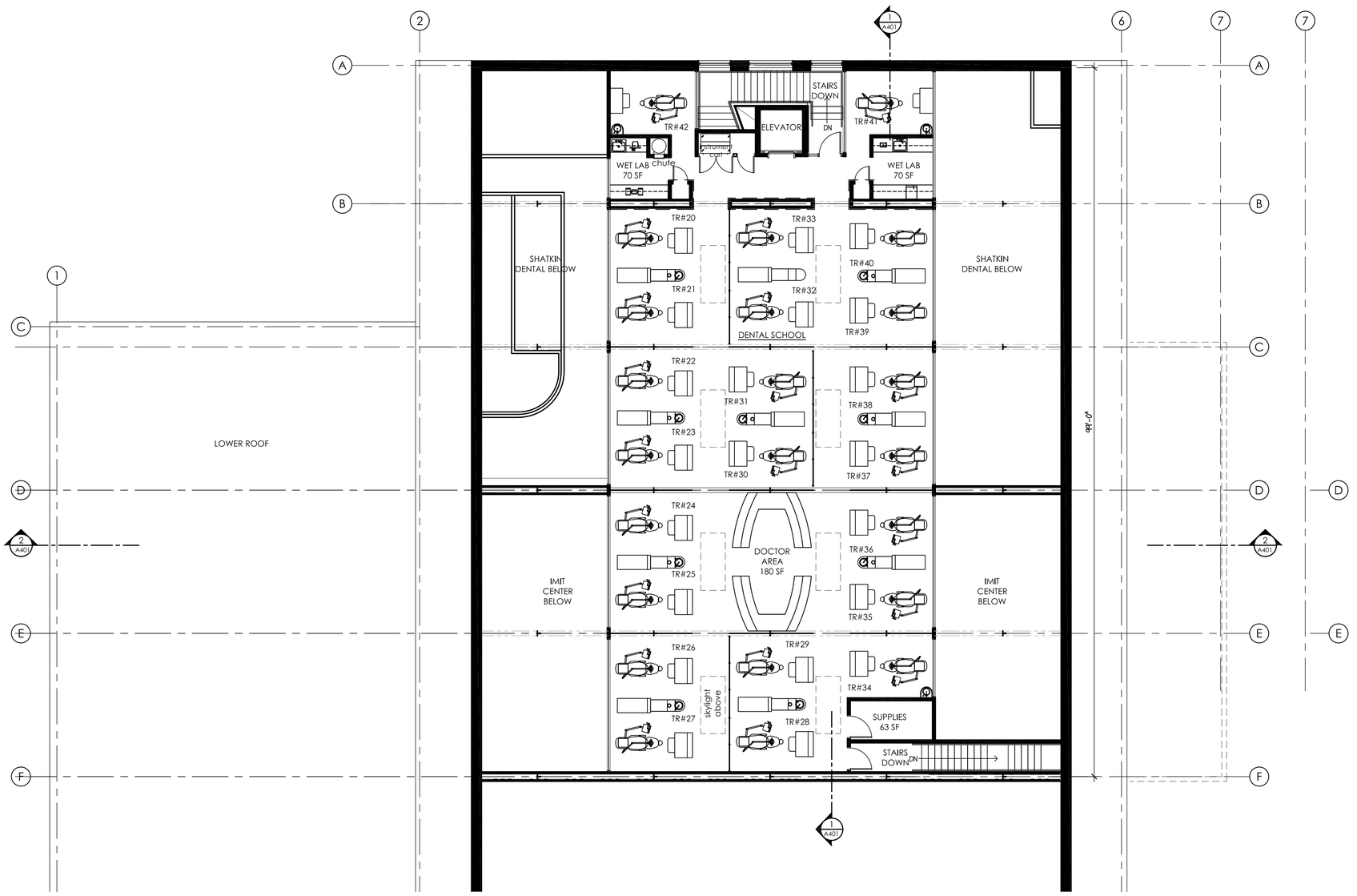
DATE
April 25 2022

GROUND FLOOR PLAN

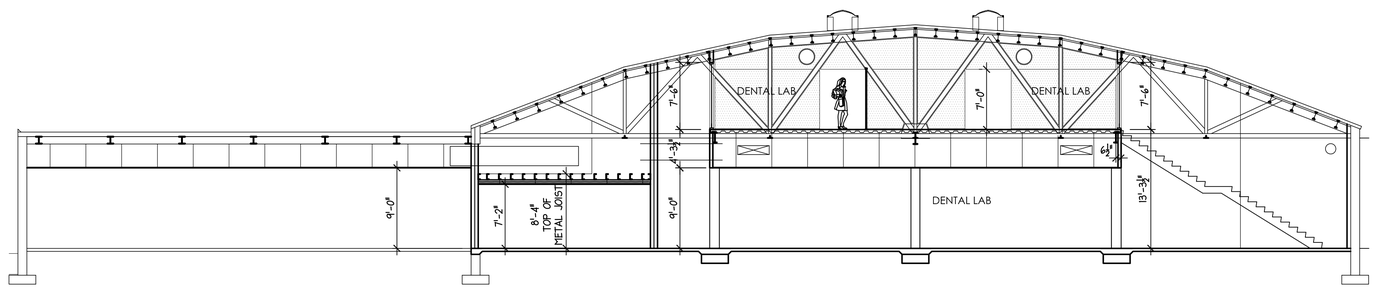
A101



KEY PLAN 1
SCALE NTS



UPPER FLOOR PLAN 1
SCALE 1/8" = 1'-0"



TYPICAL CROSS SECTION 2
SCALE 1/8" = 1'-0"

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REVISIONS
SITE PLAN APPLICATION

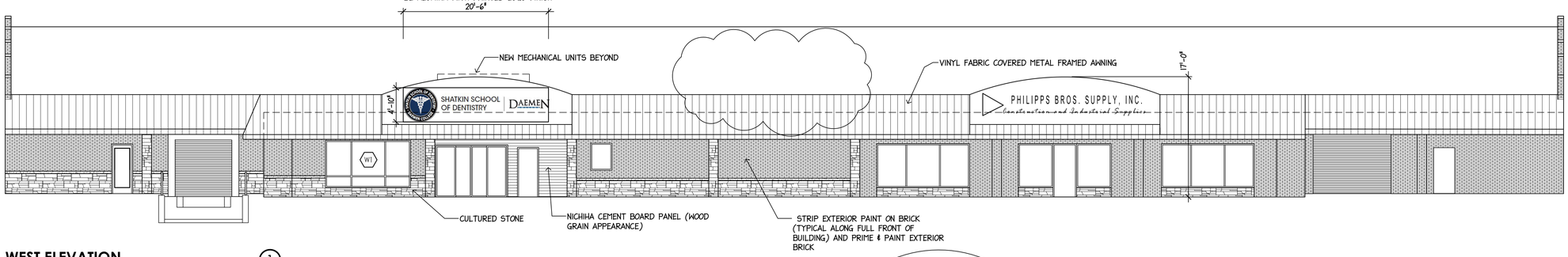
DRAWN BY JRM
CHECKED BY

SCALE
AS NOTED

DATE
April 25 2022

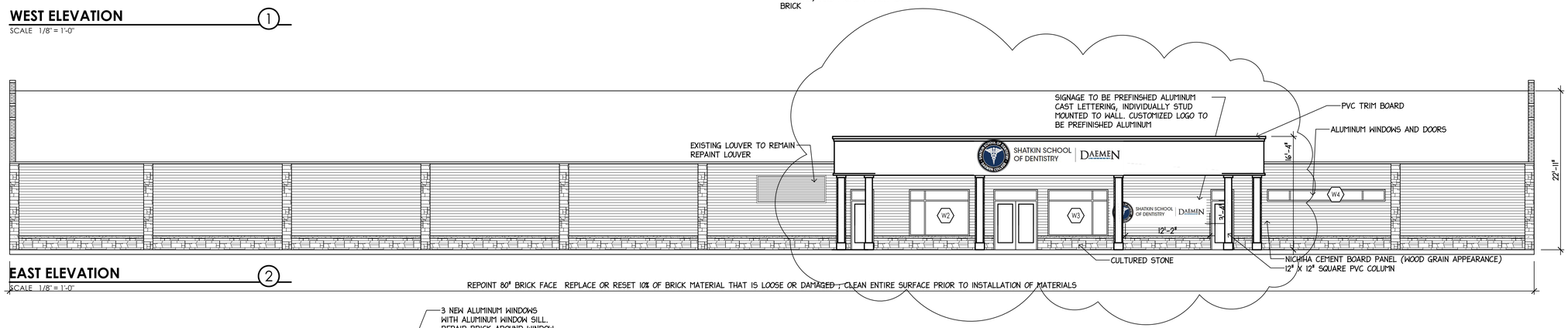
SECOND FLOOR PLAN

A102



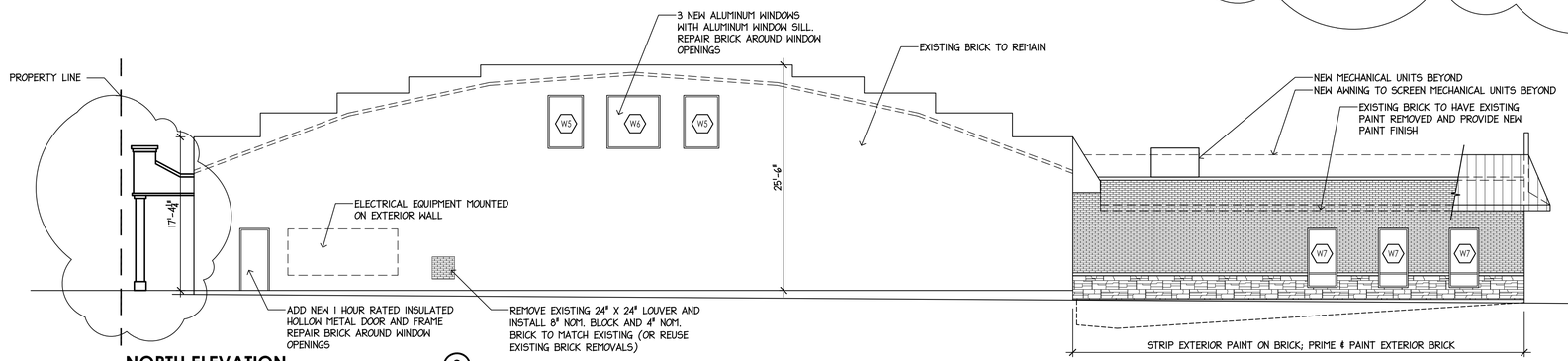
WEST ELEVATION 1

SCALE 1/8" = 1'-0"



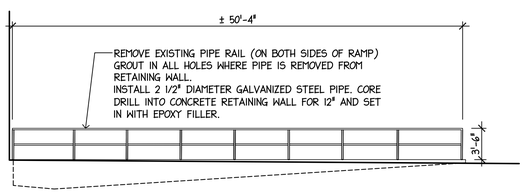
EAST ELEVATION 2

SCALE 1/8" = 1'-0"



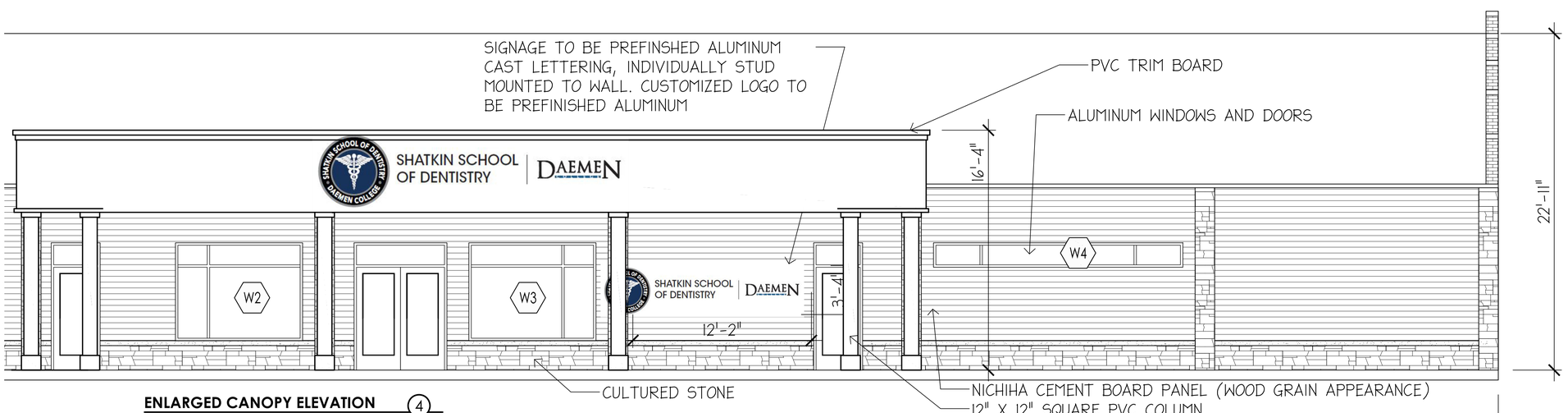
NORTH ELEVATION 3

SCALE 1/8" = 1'-0"



RAMP RAILING ELEVATION 5

SCALE 1/8" = 1'-0"



ENLARGED CANOPY ELEVATION 4

SCALE 1/8" = 1'-0"

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REVISIONS
SITE PLAN APPLICATION

DRAWN BY JRM
CHECKED BY
SCALE AS NOTED
DATE April 25 2022

EXTERIOR ELEVATIONS

A300

KOHLER®

Model: 200REOZJF

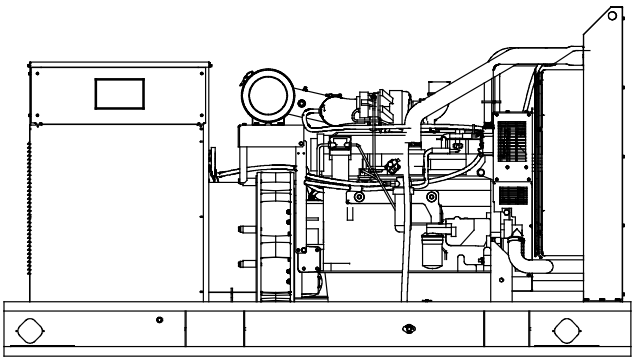
208- 600 V **Diesel**

ISO 9001 KOHLER® NATIONALLY REGISTERED

Tier 3 EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz
Standby:	**kW**	168- 200
	kVA	195- 250
Prime:	**kW**	158- 180
	kVA	175- 225



Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating kW/kVA	130°C Rise Standby Rating Amps	105°C Rise Prime Rating kW/kVA	105°C Rise Prime Rating Amps
4S13X	120/208	3	60	184/230	638	173/216	600
	127/220	3	60	194/243	636	180/225	590
	120/240	3	60	184/230	553	173/216	520
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	168/210	319	158/198	300
	277/480	3	60	200/250	301	180/225	271
4UA9	120/208	3	60	200/250	694	180/225	625
	127/220	3	60	200/250	656	180/225	590
	120/240	3	60	200/250	601	180/225	541
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	200/250	380	180/225	342
	277/480	3	60	200/250	301	180/225	271
	347/600	3	60	200/250	241	180/225	217
4UA13	120/208	3	60	200/250	694	180/225	625
	127/220	3	60	200/250	656	180/225	590
	120/240	3	60	200/250	601	180/225	541
	120/240	1	60	195/195	813	175/175	729
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	200/250	380	180/225	342
	277/480	3	60	200/250	301	180/225	271
	347/600	3	60	200/250	241	180/225	217

Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
  - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
    (4S13X alternator)
  - The unique Fast-Response® II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator.
    (4UA9 and 4UA13 alternators)
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
- Multiple circuit breaker configurations.
- Mount up to three circuit breakers to allow circuit protection of selected priority loads.

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. *Standby Ratings:* The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. *Prime Power Ratings:* At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	
4SX, 4UA	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Specifications		Alternator
Peak motor starting kVA:		(35% dip for voltages below)
480 V	4S13X (12 lead)	570
480 V	4UA9 (12 lead)	700
480 V	4UA13 (12 lead)	960

Application Data

Engine

Engine Specifications	
Manufacturer	John Deere
Engine model	6068HFG85A
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	6 Inline
Displacement, L (cu. in.)	6.8 (415)
Bore and stroke, mm (in.)	106 x 127 (4.19 x 5.00)
Compression ratio	17.0:1
Piston speed, m/min. (ft./min.)	457 (1500)
Main bearings: quantity, type	7, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	235 (315)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve material:	
Intake	Chromium-Silicon Steel
Exhaust	Stainless Steel
Governor: type, make/model	JDEC Electronic L14 Denso HP3
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m^3/min. (cfm)	42.8 (1510)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	527 (980)
Maximum allowable back pressure, kPa (in. Hg)	Min. 4 (1.2) Max. 10 (3.0)
Exhaust outlet size at engine hookup, mm (in.)	98 (3.86)

Engine Electrical

Engine Electrical System	
Battery charging alternator:	24 Volt
Ground (negative/positive)	Negative
Volts (DC)	24
Ampere rating	45
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each	Two, 925
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, fuel pump: type, m (ft.)	Mechanical, 1.8 (6.0)
Max. fuel flow, Lph (gph)	92.7 (24.5)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel prime pump	Manual
Fuel filter	
Primary	30 Microns
Secondary	2 Microns @ 98% Efficiency
Water Separator	Yes
Recommended fuel	#2 Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.) §	32.5 (34.4)
Oil pan capacity with filter, L (qt.) §	33.4 (35.3)
Oil filter: quantity, type §	1, Cartridge
Oil cooler	Water-Cooled

§ Kohler recommends the use of Kohler Genuine oil and filters.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Application Data

Cooling

Radiator System	
Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	11.3 (3.0)
Radiator system capacity, including engine, L (gal.)	27.6 (7.3)
Engine jacket water flow, Lpm (gpm)	230.9 (61)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	94.2 (5360)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	56.1 (3190)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	787 (31)
Fan, kWm (HP)	8.6 (11.5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)

* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

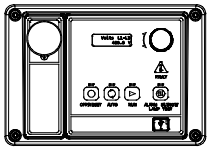
Air Requirements	
Radiator-cooled cooling air, m^3/min. (scfm)‡	368.1 (13000)
Combustion air, m^3/min. (cfm)	17.6 (620)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	46.9 (2670)
Alternator, kW (Btu/min.)	18.5 (1050)

‡ Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

Fuel Consumption

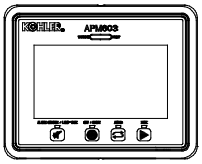
Diesel, Lph (gph) at % load	Standby Rating	
100%	58.0	(15.3)
75%	43.3	(11.4)
50%	31.4	(8.3)
25%	19.7	(5.2)
Diesel, Lph (gph) at % load	**Prime Rating**	
100%	50.1	(13.2)
75%	36.1	(9.5)
50%	25.7	(6.8)
25%	16.6	(4.4)

Controllers



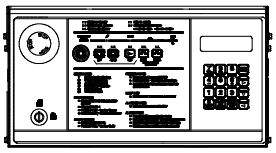
APM402 Controller
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.
- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.



APM603 Controller
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.
- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.



Decision-Maker® 6000 Paralleling Controller
Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other Decision-Maker® 6000 controllers only
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-107 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

BACnet® is a registered trademark of ASHRAE.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

KOHLER

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

Standard Features

- Alternator Protection
- Battery Rack and Cables
- Customer Connection (standard with Decision-Maker® 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Circuit Breakers

Type

- ❑ Magnetic Trip
- ❑ Thermal Magnetic Trip
- ❑ Electronic Trip (LI)
- ❑ Electronic Trip with Short Time (LSI)
- ❑ Electronic Trip with Ground Fault (LSIG)

Rating

- ❑ 80%
- ❑ 100%

Operation

- ❑ Manual
- ❑ Electrically Operated (for paralleling)

Circuit Breaker Mounting

- ❑ Generator Mounted
- ❑ Remote Mounted
- ❑ Bus Bar (for remote mounted breakers)

Enclosures for Remote Mounted Circuit Breakers

- ❑ NEMA 1
- ❑ NEMA 3R

Approvals and Listings

- ❑ California OSHPD Pre- Approval
- ❑ CSA Certified
- ❑ IBC Seismic Certification
- ❑ UL 2200 Listing
- ❑ Hurricane Rated Enclosure

Enclosed Unit

- ❑ Sound Enclosure (with enclosed critical silencer)
- ❑ Weather Enclosure (with enclosed critical silencer)

Open Unit

- ❑ Exhaust Silencer, Critical (kit: PA-354809)
- ❑ Flexible Exhaust Connector, Stainless Steel

Fuel System

- ❑ Flexible Fuel Lines
- ❑ Fuel Pressure Gauge
- ❑ Subbase Fuel Tanks

Controller

- ❑ Common Failure Relay (Decision-Maker® 6000 and APM603 controllers only)
- ❑ Decision-Maker® Paralleling System (DPS) (Decision-Maker® 6000 controller only)
- ❑ Dry Contact (isolated alarm) (Decision-Maker® 6000 controller only)
- ❑ Two Input/Five Output Module (APM402 controller only)
- ❑ Four Input/Fifteen Output Module (APM603 controller only)
- ❑ Lockable Emergency Stop Switch
- ❑ Remote Emergency Stop Switch
- ❑ Remote Serial Annunciator Panel
- ❑ Run Relay (standard with APM603, optional with others)
- ❑ Manual Key Switch (APM603 controller only)
- ❑ Manual Speed Adjust (APM402 controller only)

Cooling System

- ❑ Block Heater, 1800 W, 90- 120 V, 1 Ph
- ❑ Block Heater, 2000 W, 190- 240 V, 1 Ph Required for ambient temperature below 0°C (32°F)
- ❑ Radiator Duct Flange

Electrical System

- ❑ Generator Heater
- ❑ Battery
- ❑ Battery Charger, Equalize/Float Type
- ❑ Battery Heater

Miscellaneous

- ❑ Air Cleaner, Heavy Duty
- ❑ Air Cleaner Restriction Indicator
- ❑ Certified Test Report
- ❑ Crankcase Emissions Canister
- ❑ Engine Fluids Added
- ❑ Rated Power Factor Testing
- ❑ Rodent Guards

Literature

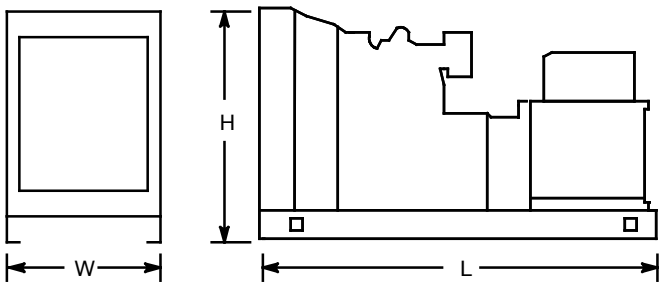
- ❑ General Maintenance
- ❑ NFPA 110
- ❑ Overhaul
- ❑ Production

Warranty

- ❑ 2-Year Basic Limited Warranty
- ❑ 5-Year Basic Limited Warranty
- ❑ 5-Year Comprehensive Limited Warranty

Dimensions and Weights

Overall Size, L x W x H, mm (in.):	3000 x 1300 x 1672 (118.1 x 51.2 x 65.8)
Weight (radiator model), wet, kg (lb.):	1923 (4240)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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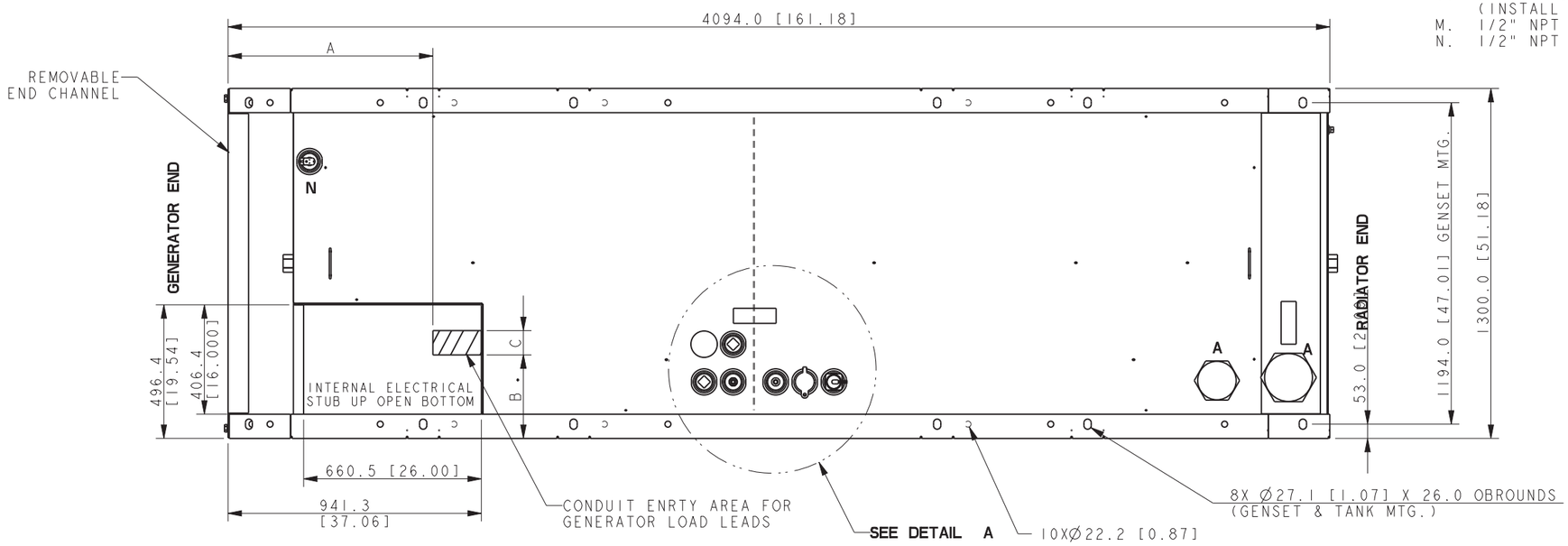
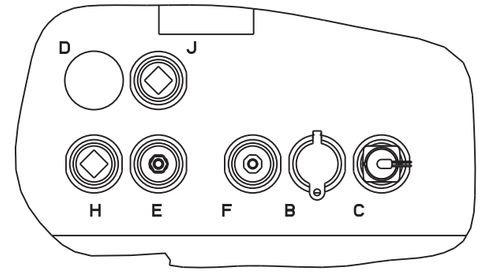
Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

MODEL	CAPACITY		WEIGHT		HEIGHT		E-Vent	
	LITERS	GAL	KG	LBS	MM	IN	SIZE (IN)	QTY
180/200kW	1514	400	933	2057	482.6	19.0	4.0	2.0
180/200kW	2871	758	1327	2926	889.0	35.0	5.0	2.0

TANK FITTINGS:

A. 'A' NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS
B. 2" NPT FUEL FILL FITTING WITH LOCKABLE CAP
C. 2" NPT FUEL LEVEL GAUGE FITTING
D. 2" NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE)
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE)
H. 2" NPT FOR LOW LEVEL SWITCH (SET AT 50% FULL, SILICONE PACKED)
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY (INSTALL STEEL 2" NPT PIPE PLUG)
M. 1/2" NPT BASIN DRAIN (INSTALL STEEL 1/2" NPT PIPE PLUG)
N. 1/2" NPT FOR FUEL IN BASIN SWITCH (INSTALL STEEL 1/2" NPT PIPE PLUG)





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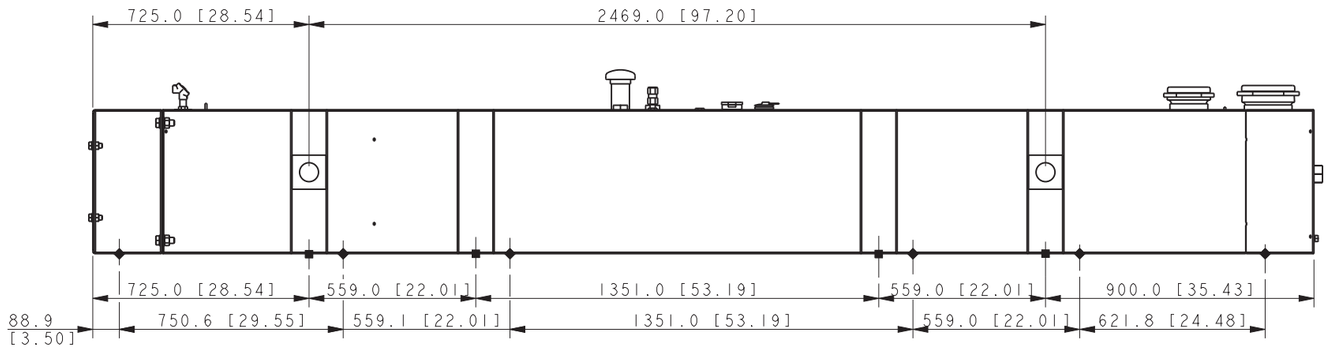

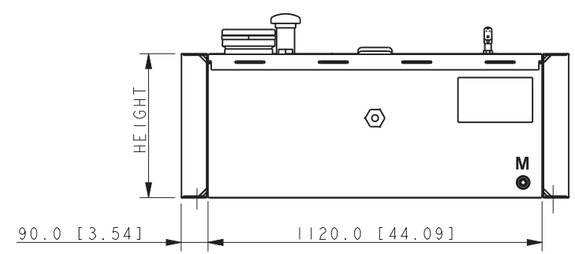

■ 8XØ25.4 [1.0] STANDARD MOUNTING

◆ 12XØ22.2 [0.88] IBC/WINDLOAD MOUNTING

GENSET	A	B	C
180KW	761 [30.0]	310 [12.2]	90 [3.5]
200KW	561 [22.1]	303 [11.9]	100 [3.9]

STANDARD TANK

180 MODEL 60HZ 4S15, 4S12X & 4S13X
200 MODEL 4UA9, 4UA13 & 4S13X
RECONNECTABLE
IMPROVED MOTOR STARTING (IMS) &
600V ALTERNATOR
JOHN DEERE 6068HF485, TIER III

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
F	08-11-14	(A-4) STANDARD TANK NOTE ADDED & SEE SHEET 2 [CT89102]	PAS
G	2-28-17	(A-8, A-7) 761 WAS 571, 303 WAS 195, (8-D, C-7) DELETE 50.0 UPDATE CONDUIT AREA, SEE SHEET 2, [CT170607]	RMJ
H	2-19-18	SEE SHEET 3 [CT184671]	PAS
J	2-26-19	(A-5) IBC/WINDLOAD MOUNTING WAS IBC MOUNTING; SEE SHEET 2 & 3 [CT193852]	TKK
K	7-2-19	SEE SHEET 2 [CT196925]	JB2

UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

APPROVALS	DATE
DRAWN PKD	1-20-10
CHECKED AJD	1-20-10
APPROVED AJD	1-20-10

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POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
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TITLE
DIMENSION PRINT

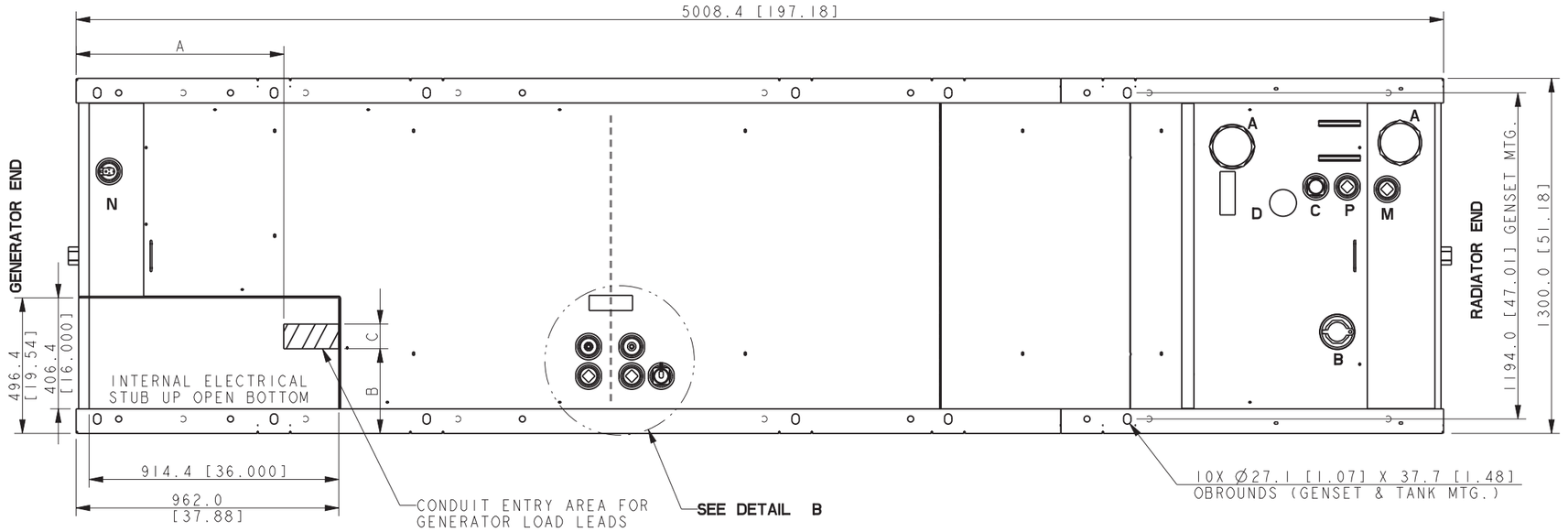
SCALE 0.10 | CAD NO. | SHEET 1 of 3
DWG NO. ADV-

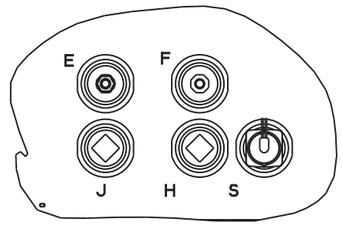
Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

MODEL	CAPACITY		WEIGHT		HEIGHT		E-Vent	
	LITERS	GAL	KG	LBS	MM	IN	SIZE (IN)	QTY
180/200kW	1576	416	1234	2721	457.2	18.0	5.0	2.0
180/200kW	2896	765	1560	3440	762.0	30.0	5.0	2.0

TANK FITTINGS:

A. 'A' NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS
B. 4" NPT FUEL FILL FITTING WITH LOCKABLE CAP AND RISER. PLUG & SHIP WITH TANK IN BOX ATTACHED TO TANK
C. 2" NPT FUEL LEVEL GAUGE FITTING
D. 2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER.
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE)
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE)
H. 2" NPT FOR LOW LEVEL SWITCH (SET AT 50% FULL, SILICONE PACKED)
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY (INSTALL 2" NPT PIPE PLUG)
M. 2" NPT BASIN DRAIN (PLUGGED
N. 2" NPT FOR FUEL IN BASIN SWITCH
P. 2" NPT ADDITIONAL FITTING FOR OTPIONAL ACCESORY (INSTALL 2" NPT PIPE PLUG)
S. 2" NPT FUEL LEVEL GAUGE FITTING WITH SENDER





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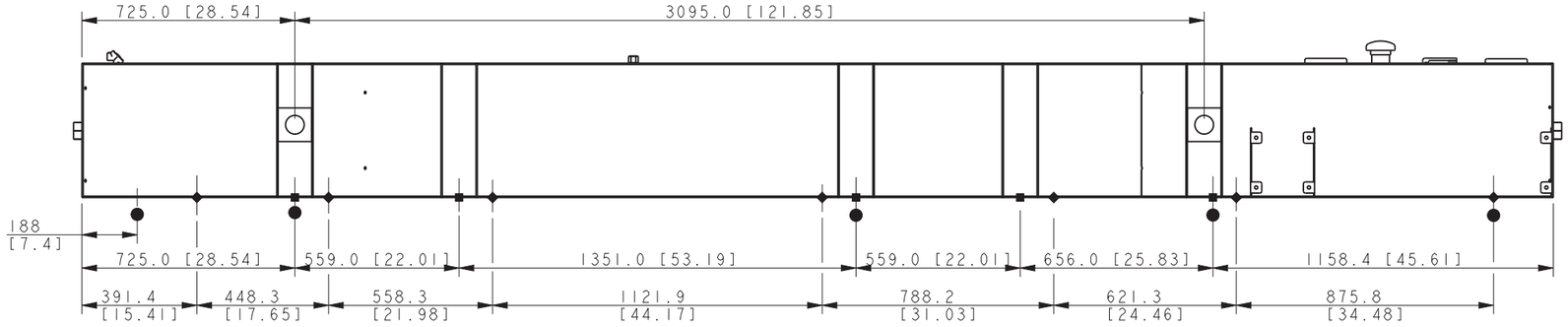

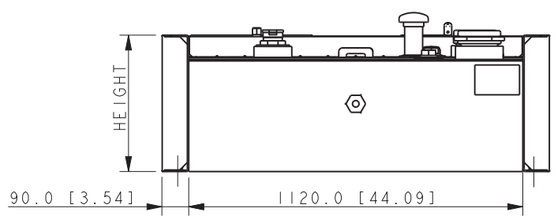

■ 10XØ25.4 [1.0] STANDARD MOUNTING
◆ 14XØ22.2 [0.88] IBC/WINDLOAD MOUNTING
● 10XØ25.4 [1.0] BOTTOM BEAM MOUNTING

GENSET	A	B	C
180KW	761 [30.0]	310 [12.2]	90 [3.5]
200KW	561 [22.1]	303 [11.9]	100 [3.9]

STATE TANK
180 MODEL 60HZ 4S15, 4S12X & 4S13X
200 MODEL 4UA9, 4UA13 & 4S13X
RECONNECTABLE
IMPROVED MOTOR STARTING (IMS) &
600V ALTERNATOR
JOHN DEERE 6068HF485, TIER III

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
G	2-28-17	(A-8, A-7) 761 WAS 571, 303 WAS 195,	
		(8-D, C-7) DELETE 50.0 UPDATE CONDUIT AREA,	
		SEE SHEET 1, [CT170607]	RMJ
H	2-19-18	SEE SHEET 3 [CT184671]	PAS
J	2-26-19	(A-5,6) IBC/WINDLOAD MOUNTING WAS IBC	
		MOUNTING; SEE SHEET 1 & 3 [CT193852]	TKK
K	7-2-19	(D-6)5.0 WAS 4.0, (B-4) CORRECTED ACCURACY	
		TO GENSET / TANK MOUNTING [CT196925]	JB2

UNLESS OTHERWISE SPECIFIED: - 1) DIMENSIONS ARE IN MILLIMETERS 2) TOLERANCES ARE: X.XX ± 0.25, X.X ± 1.0, X ± 1.5, ANGLES ± 0° 30' — SURFACE FINISH MAX. — THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	PKD	1-20-10
CHECKED	AJD	1-20-10
APPROVED	AJD	1-20-10

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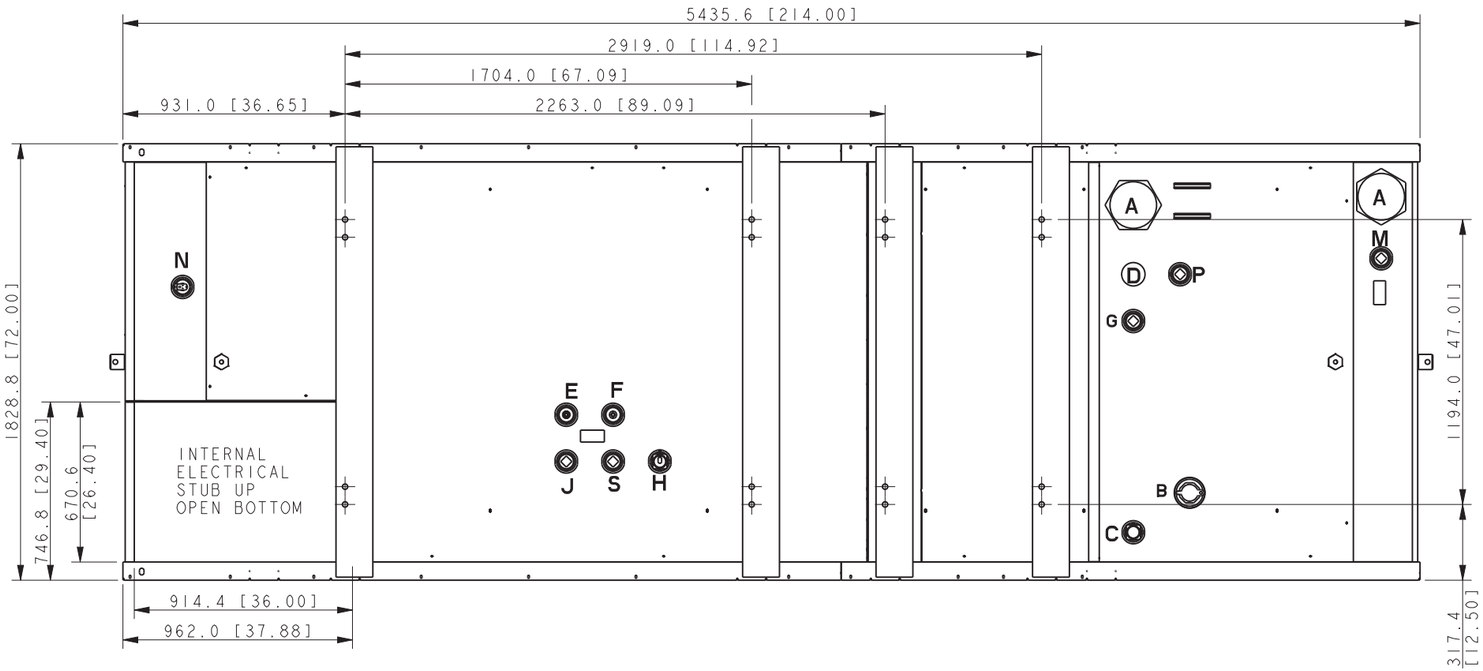
SCALE 0.10 | CAD NO. | SHEET 2 of 3
DWG NO. ADV-

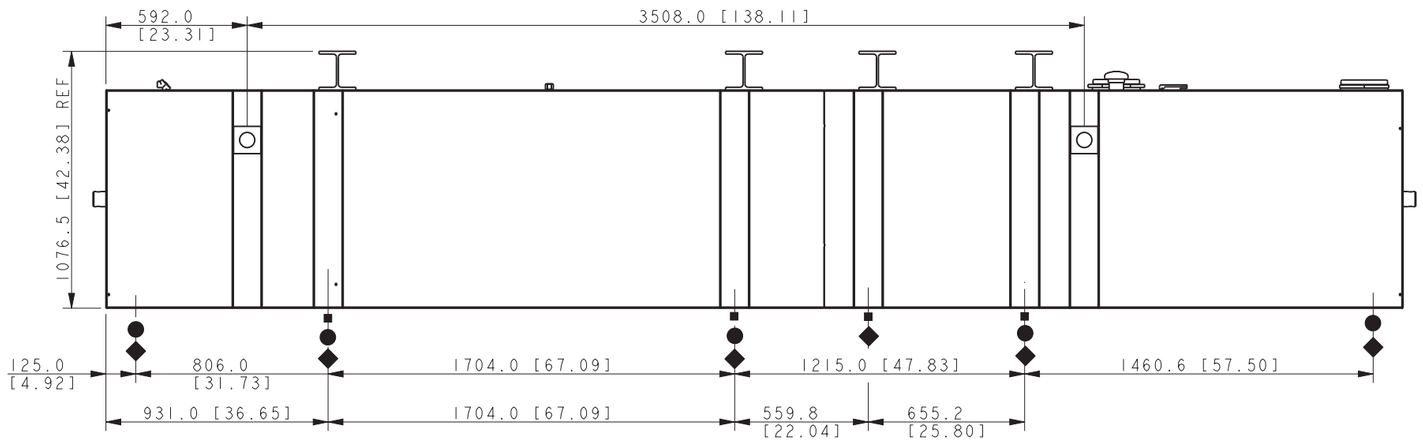
Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

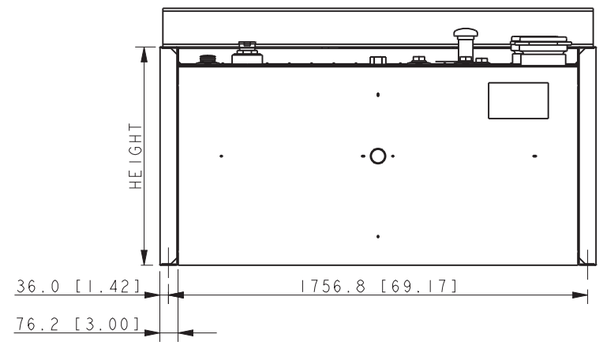
MODEL	CAPACITY		WEIGHT		HEIGHT		E-Vent	
	LITERS	GAL	KG	LBS	MM	IN	SIZE (IN)	QTY
180/200kW	5742	1517	1727	3809	914.4	36.0	6.0	2.0

TANK FITTINGS:

A. 'A' NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS
B. 4" NPT FUEL FILL FITTING WITH LOCKABLE CAP AND RISER.
C. 2" NPT FUEL LEVEL GAUGE FITING WITH DIRECT READING MECHANICAL GAUGE.
D. 2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER.
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE).
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE).
G. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY. (INSTALL STEEL 2" NPT PIPE PLUG).
H. 2" NPT FOR FUEL LEVEL SENDING UNIT.
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY. (INSTALL STEEL 2" NPT PIPE PLUG).
M. 2" NPT BASIN DRAIN (INSTALL STEEL 2" NPT PIPE PLUG).
N. 2" NPT FOR FUEL IN BASIN SWITCH.
P. 2" NPT ADDITIONAL FITTING FOR OTPIONAL ACCESORY (INSTALL STEEL 2" NPT PIPE PLUG).
S. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY. (INSTALL STEEL 2" NPT PIPE PLUG).







NOTE:
FOR FURTHER TANK DETAIL SEE INDIVIDUAL DRAWINGS

■ 8X Ø25.40 [1.0] STANDARD MOUNTING
● 10X Ø25.40 [1.0] BOTTOM BEAM MOUNTING
◆ 12X Ø25.40 [1.0] WINDLOAD MOUNTING

96 HOUR STATE TANK

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
H	2-19-18	SHEET 3 ADDED [CTI84671]	PAS
J	2-26-19	(A-4,5) 12X Ø25.40 [1.0] WINDLOAD MOUNTING	
		NOTE ADDED; SEE SHEET 1 & 2 [CTI93852]	TKK
K	7-2-19	SEE SHEET 2 [CTI96925]	JB2

UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	PAS	2-19-18
CHECKED	JB2	2-19-18
APPROVED	KJB	2-19-18

KOHLER CO. METRIC PRO
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
THIS DRAWING IN DESIGN AND DETAIL IS KOHLER PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH KOHLER CO. WORK. ALL RIGHTS DESIGN OR INVENTION ARE RESERVED.

TITLE
DIMENSION PRINT

SCALE 0.08 | CAD NO. | SHEET 3 of 3
DWG NO. ADV-

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GLEON Galleon

Area / Site Luminaire

Product Features

LumenSafe Technology

Light ARchitect™

Product Certifications

Interactive Menu

- Ordering Information page 2
- Mounting Details page 3
- Optical Distributions page 4
- Product Specifications page 4
- Energy and Performance Data page 4
- Control Options page 9

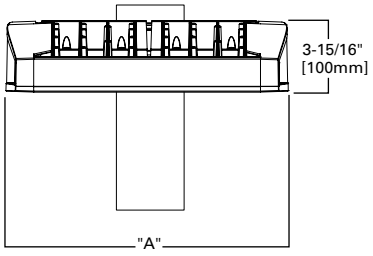
Quick Facts

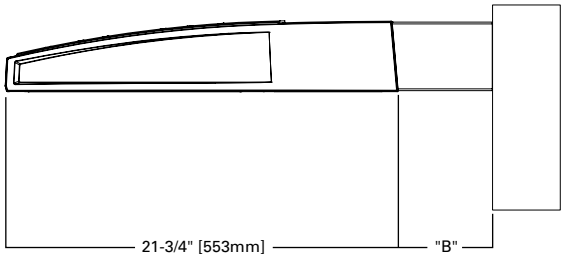
- Lumen packages range from 4,200 - 80,800 (34W - 640W)
- Efficacy up to 156 lumens per watt
- Options to meet Buy American and other domestic preference requirements

Connected Systems

- WaveLinx
- Enlighted

Dimensional Details





Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Extended Arm Length [1]	"B" Quick Mount Arm Length	"B" Quick Mount Extended Arm Length
1-4	15-1/2"	7"	10"	10-5/8"	16-9/16"
5-6	21-5/8"	7"	10"	10-5/8"	16-9/16"
7-8	27-5/8"	7"	13"	10-5/8"	--
9-10	33-3/4"	7"	16"	--	--

NOTES:
For arm selection requirements and additional line art, see Mounting Details section.

NOTES:
1. Visit https://www.designlights.org/search/ to confirm qualification. Not all product variations are DLC qualified.
2. IDA Certified for 3000K CCT and warmer only.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Ordering Information

SAMPLE NUMBER: **GLEON-SA4C-740-U-T4FT-GM**

Product Family [1, 2]	Light Engine		Color Temperature	Voltage	Distribution	Mounting	Finish
	Configuration	Drive Current					
GLEON=Galleon **BAA-GLEON**=Galleon, Buy American Act Compliant [35] **TAA-GLEON**=Galleon, Trade Agreements Act Compliant [35]	**SA1**=1 Square **SA2**=2 Squares **SA3**=3 Squares **SA4**=4 Squares **SA5**=5 Squares [4] **SA6**=6 Squares **SA7**=7 Squares [5] **SA8**=8 Squares [5] **SA9**=9 Squares [6] **SA0**=10 Squares [6]	**A**=600mA **B**=800mA **C**=1000mA **D**=1200mA [16]	**722**=70CRI, 2200K **727**=70CRI, 2700K **730**=70CRI, 3000K **735**=70CRI, 3500K **740**=70CRI, 4000K **750**=70CRI, 5000K **760**=70CRI, 6000K **827**=80CRI, 2700K **830**=80CRI, 3000K **AMB**=Amber, 590nm [14, 16]	**U**=120-277V **1**=120V **2**=208V **3**=240V **4**=277V **8**=480V [7, 8] **9**=347V [7]	**T2**=Type II **T2R**=Type II Roadway **T3**=Type III **T3R**=Type III Roadway **T4FT**=Type IV Forward Throw **T4W**=Type IV Wide **5NQ**=Type V Narrow **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right **RW**=Rectangular Wide Type I **AFL**=Automotive Frontline	**[Blank]**=Arm for Round or Square Pole **EA**=Extended Arm [9] **MA**=Mast Arm Adapter [10] **WM**=Wall Mount **QM**=Quick Mount Arm (Standard Length) [11] **QML**=Quick Mount Arm (Standard Length, Large) [37] **QMEA**=Quick Mount Arm (Extended Length) [12]	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White **RALXX**=Custom Color

Options (Add as Suffix)	Controls and Systems Options (Add as Suffix)	Accessories (Order Separately)[35]
DIM=External 0-10V Dimming Leads [19, 20] **F**=Single Fuse (120, 277 or 347V Specify Voltage) **FF**=Double Fuse (208, 240 or 480V Specify Voltage) **20K**=Series 20kV UL 1449 Surge Protective Device **2L**=Two Circuits [17, 18] **HA**=50°C High Ambient **HSS**=Installed House Side Shield [28] **GRSBK**=Glare Reducing Shield, Black [23] **GRSWH**=Glare Reducing Shield, White [23] **LCF**=Light Square Trim Painted to Match Housing [27] **MT**=Installed Mesh Top **TH**=Tool-less Door Hardware **CC**=Coastal Construction finish [3] **L90**=Optics Rotated 90° Left **R90**=Optics Rotated 90° Right **CE**=CE Marking [29] **AHD145**=After Hours Dim, 5 Hours [22] **AHD245**=After Hours Dim, 6 Hours [22] **AHD255**=After Hours Dim, 7 Hours [22] **AHD355**=After Hours Dim, 8 Hours [22] **DALI**=DALI Drivers	**BPC**=Button Type Photocontrol **PR**=NEMA 3-PIN Photocontrol Receptacle **PR7**=NEMA 7-PIN Photocontrol Receptacle [21] **SPB2**=Dimming Occupancy Sensor with Bluetooth Interface, 8' - 20' Mounting [34] **SPB4**=Dimming Occupancy Sensor with Bluetooth Interface, 21' - 40' Mounting [34] **MS-L20**=Motion Sensor for ON/OFF Operation, 9' - 20' Mounting Height [24] **MS-L40W**=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height [24] **MS/X-L20**=Bi-Level Motion Sensor, 9' - 20' Mounting Height [24, 25] **MS/X-L40W**=Bi-Level Motion Sensor, 21' - 40' Mounting Height [24, 25] **MS/DIM-L20**=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height [24] **MS/DIM-L40W**=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height [24] **ZW**=WaveLinx Module and 4-PIN Receptacle **ZD**=WaveLinx Module with DALI driver and 4-PIN Receptacle **SWPD4XX**=WaveLinx Sensor Only, 7'-15' [13, 32, 33] **SWPD5XX**=WaveLinx Sensor Only, 15'-40' [13, 32, 33] **WOBXX**=WaveLinx Sensor with Bluetooth, 7'-15' [13, 32] **WOFXX**=WaveLinx Sensor with Bluetooth, 15'-40' [13, 32] **LWR-LW**=Enlighted Sensor, 8'–16' Mounting Height [26] **LWR-LN**=Enlighted Sensor, 16'–40' Mounting Height [26] **DIM10-MS/DIM-L08**=Synapse Occupancy Sensor (<8' Mounting) [19] **DIM10-MS/DIM-L20**=Synapse Occupancy Sensor (9'-20' Mounting) [19] **DIM10-MS/DIM-L40**=Synapse Occupancy Sensor (21'-40' Mounting) [19]	**OA/RA1016**=NEMA Photocontrol Multi-Tap - 105-285V **OA/RA1027**=NEMA Photocontrol - 480V **OA/RA1201**=NEMA Photocontrol - 347V **OA/RA1013**=Photocontrol Shorting Cap **OA/RA1014**=120V Photocontrol **MA1252**=10kV Surge Module Replacement **MA1036-XX**=Single Tenon Adapter for 2-3/8" O.D. Tenon **MA1037-XX**=2@180° Tenon Adapter for 2-3/8" O.D. Tenon **MA1197-XX**=3@120° Tenon Adapter for 2-3/8" O.D. Tenon **MA1188-XX**=4@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1189-XX**=2@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1190-XX**=3@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1191-XX**=2@120° Tenon Adapter for 2-3/8" O.D. Tenon **MA1038-XX**=Single Tenon Adapter for 3-1/2" O.D. Tenon **MA1039-XX**=2@180° Tenon Adapter for 3-1/2" O.D. Tenon **MA1192-XX**=3@120° Tenon Adapter for 3-1/2" O.D. Tenon **MA1193-XX**=4@90° Tenon Adapter for 3-1/2" O.D. Tenon **MA1194-XX**=2@90° Tenon Adapter for 3-1/2" O.D. Tenon **MA1195-XX**=3@90° Tenon Adapter for 3-1/2" O.D. Tenon **FSIR-100**=Wireless Configuration Tool for Occupancy Sensor [24] **GLEON-MT1**=Field Installed Mesh Top for 1-4 Light Squares **GLEON-MT2**=Field Installed Mesh Top for 5-6 Light Squares **GLEON-MT3**=Field Installed Mesh Top for 7-8 Light Squares **GLEON-MT4**=Field Installed Mesh Top for 9-10 Light Squares **GLEON-QM**=Quick Mount Arm Kit [11] **GLEON-QMEA**=Quick Mount Extended Arm Kit [12] **LS/HSS**=Field Installed House Side Shield [28, 30] **LS/GRSBK**=Glare Reducing Shield, Black [23, 30] **LS/GRSWH**=Glare Reducing Shield, White [23, 30] **LS/PFS**=Perimeter Shield, Black [15] **WOLC-7P-10A**=WaveLinx Outdoor Control Module [19, 31] **SWPD4-XX**=Wavelinx Wireless Sensor, 7'–15' Mounting Height [13, 19, 32, 33] **SWPD5-XX**=Wavelinx Wireless Sensor, 15'–40' Mounting Height [13, 19, 32, 33]

NOTES:

1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
2. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
3. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654. Not available with TH option.
4. Not compatible with MS/4-LXX or MS/1-LXX sensors.
5. Not compatible with extended quick mount arm (QMEA).
6. Not compatible with standard quick mount arm (QM) or extended quick mount arm (QMEA).
7. Requires the use of an internal step down transformer when combined with sensor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A.
8. 480V must utilize Wye system only. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems.)
9. May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
10. Factory installed.
11. Maximum 8 light squares.
12. Maximum 6 light squares.
13. Requires ZW or ZD receptacle.
14. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose drive current A; supplied at 500mA drive current only. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option.
15. Set of 4 pcs. One set required per Light Square.
16. Not available with HA option.
17. 2L is not available with MS, MS/X or MS/DIM at 347V or 480V. 2L in SA2 through SA4 requires a larger housing, normally used for SA5 or SA6. Extended arm option may be required when mounting two or more fixtures per pole at 90° or 120°. Refer to arm mounting requirement table.
18. Not available with Enlighted wireless sensors.
19. Cannot be used with other control options.
20. Low voltage control lead brought out 18" outside fixture.
21. Not available if any "MS" sensor is selected. Motion sensor has an integral photocell.
22. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
23. Not for use with T4FT, T4W or SL4 optics. See IES files for details.
24. The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Cooper Lighting Solutions for more information.
25. Replace X with number of Light Squares operating in low output mode.
26. Enlighted wireless sensors are factory installed only requiring network components LWP-EM-1, LWP-GW-1 and LWP-PoE8 in appropriate quantities.
27. Not available with house side shield (HSS).
28. Not for use with 5NQ, 5MQ, 5WQ or RW optics. A black trim plate is used when HSS is selected.
29. CE is not available with the LWR, MS, MS/X, MS/DIM, BPC, PR or PR7 options. Available in 120-277V only.
30. One required for each Light Square.
31. Requires PR7.
32. Replace XX with sensor color (WH, BZ or BK.)
33. WAC Gateway required to enable field-configurability: Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed.
34. Smart device with mobile application required to change system defaults. See controls section for details.
35. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.
36. For BAA or TAA requirements, Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information.
37. Available for 7-10 squares.

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

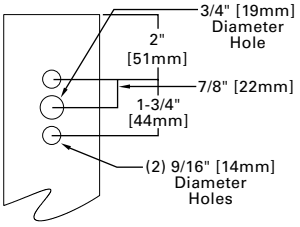
Product Family	Camera Type	Data Backhaul	
L=LumenSafe Technology	**D**=Standard Dome Camera **H**=Hi-Res Dome Camera **Z**=Remote PTZ Camera	**C**=Cellular, No SIM **A**=Cellular, AT&T **V**=Cellular, Verizon **S**=Cellular, Sprint	**R**=Cellular, Rogers **W**=Wi-Fi Networking w/ Omni-Directional Antenna **E**=Ethernet Networking

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

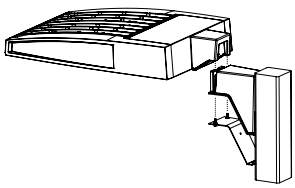
Mounting Details

Standard Arm (Drilling Pattern)

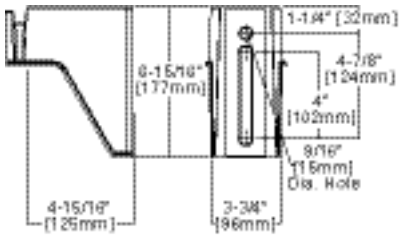
TYPE "N"



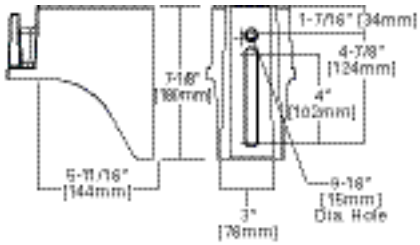
Quick Mount Arm (Includes fixture adapter)



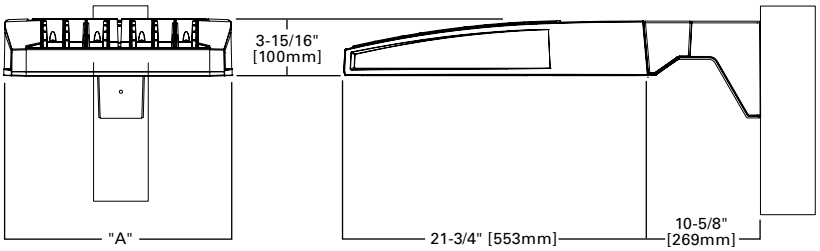
QM and QMEA Pole Mount



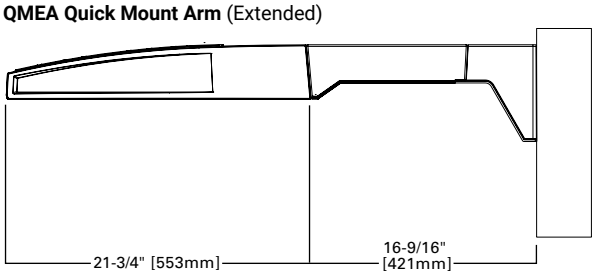
QML Pole Mount



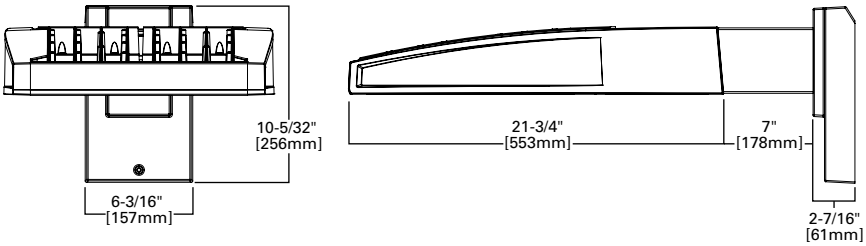
QM Quick Mount Arm (Standard)



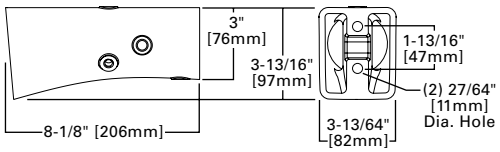
QMEA Quick Mount Arm (Extended)



Standard Wall Mount

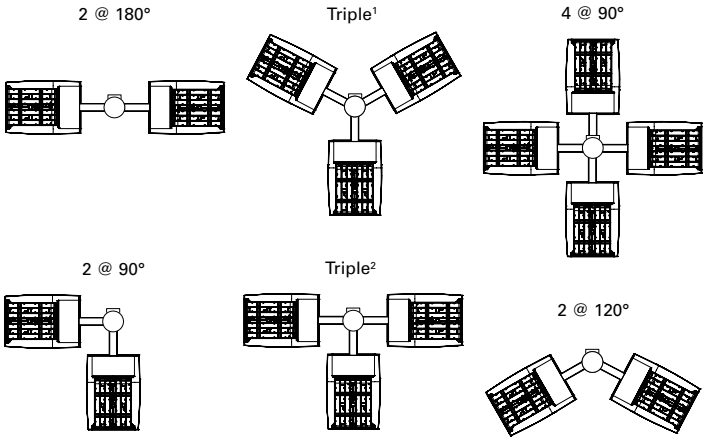


Mast Arm Mount



Arm Mounting Requirements

Number of Light Squares	Standard Arm @ 90° Apart	Standard Arm @ 120° Apart	Quick Mount Arm @ 90° Apart	Quick Mount Arm @ 120° Apart
1	Standard	Standard	QM Extended	Quick Mount
2	Standard	Standard	QM Extended	Quick Mount
3	Standard	Standard	QM Extended	Quick Mount
4	Standard	Standard	QM Extended	Quick Mount
5	Extended	Standard	QM Extended	Quick Mount
6	Extended	Standard	QM Extended	Quick Mount
7	Extended	Extended	--	Quick Mount
8	Extended	Extended	--	Quick Mount
9	Extended	Extended	--	--
10	Extended	Extended	--	--



NOTES: 1 Round poles are 3 @ 120°. Square poles are 3 @ 90°. **2** Round poles are 3 @ 90°. **3** Shown with 4 square configurations.

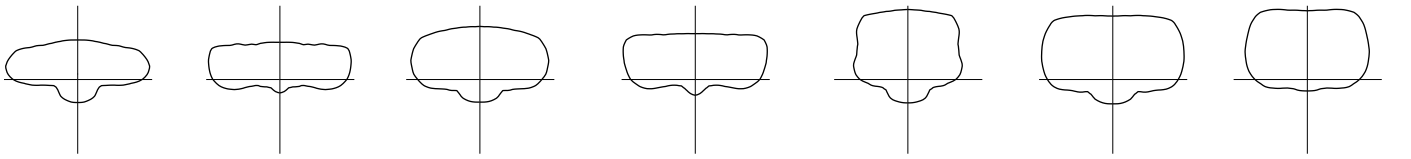
Fixture Weights and EPAs

Number of Light Squares	Weight with Standard and Extended Arm (lbs.)	EPA with Standard and Extended Arm (Sq. Ft.)	Weight with QM Arm (lbs.)	EPA with QM Arm (Sq. Ft.)	Weight with QML (lbs.)	EPA with QML (Sq. Ft.)	Weight with QMEA (lbs.)	EPA with QMEA (Sq. Ft.)
1-4	33	0.96	35	1.11	--	--	38	1.11
5-6	44	1.00	46	1.11	--	--	49	1.11
7-8	54	1.07	56	1.11	58	1.11	--	--
9-10	63	1.12	--	--	67	1.11	--	--

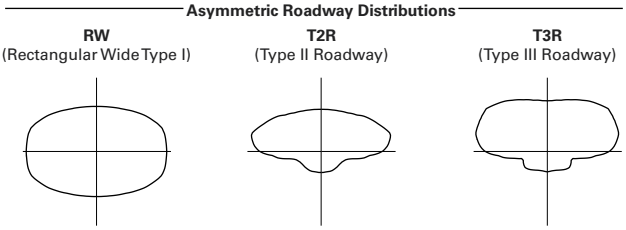
Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Optical Distributions

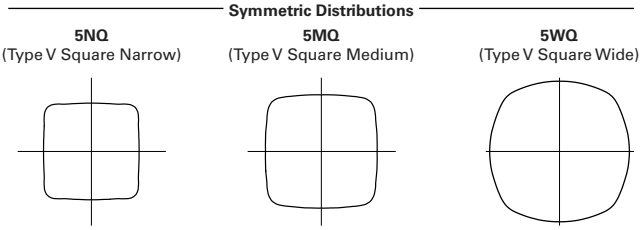
Asymmetric Area Distributions



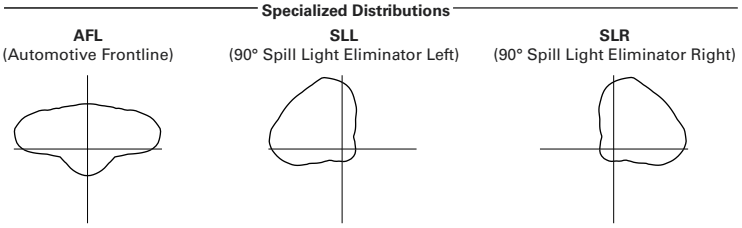
Asymmetric Roadway Distributions



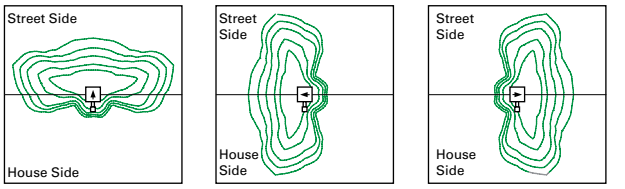
Symmetric Distributions



Specialized Distributions



Rotated Optics



Product Specifications

Construction

- Extruded aluminum driver enclosure
- Heavy-wall, die-cast aluminum end caps
- Die-cast aluminum heat sinks
- Patent pending interlocking housing and heat sink

Optics

- Patented, high-efficiency injection-molded AccuLED Optics technology
- 16 optical distributions
- 3 shielding options including HSS, GRS and PFS
- IDA Certified (3000K CCT and warmer only)

Electrical

- LED drivers are mounted to removable tray assembly for ease of maintenance
- Standard with 0-10V dimming
- Standard with Cooper Lighting Solutions proprietary circuit module designed to withstand 10kV of transient line surge
- Suitable for operation in -40°C to 40°C ambient environments. Optional 50°C high ambient (HA) configuration.

Mounting

- Standard extruded arm includes internal bolt guides and round pole adapter
- Extended arms (EA and QMEA) may be required in 90° or 120° pole mount configurations, see arm mounting requirements table
- Mast arm (MA) factory installed
- Wall mount (WM) option available
- Quick mount arm (QM and QMEA) includes pole adapter and factory installed fixture mount for fast installation to square or round poles

Finish

- Super housing durable TGIC polyester powder coat paint, 2.5 mil nominal thickness
- Heat sink is powder coated black
- RAL and custom color matches available
- Coastal Construction (CC) option available

Warranty

- Five year warranty

Energy and Performance Data

Lumen Maintenance (TM-21)

Drive Current	Ambient Temperature	25,000 hours*	50,000 hours*	60,000 hours*	100,000 hours**	Theoretical L70 hours**
Up to 1A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.7%	98.3%	98.1%	97.4%	> 1.9M
	50°C	98.2%	97.2%	96.8%	95.2%	> 851,000
1.2A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.5%	97.9%	97.7%	96.7%	> 1.3M

* Supported by IES TM-21 standards
** Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, explaining proper use of IES TM-21 and LM-80.

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

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Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (1.2A)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		67	129	191	258	320	382	448	511	575	640
Input Current @ 120V (A)		0.58	1.16	1.78	2.31	2.94	3.56	4.09	4.71	5.34	5.87
Input Current @ 208V (A)		0.33	0.63	0.93	1.27	1.57	1.87	2.22	2.52	2.8	3.14
Input Current @ 240V (A)		0.29	0.55	0.80	1.10	1.35	1.61	1.93	2.18	2.41	2.71
Input Current @ 277V (A)		0.25	0.48	0.70	0.96	1.18	1.39	1.69	1.90	2.09	2.36
Input Current @ 347V (A)		0.20	0.39	0.57	0.78	0.96	1.15	1.36	1.54	1.72	1.92
Input Current @ 480V (A)		0.15	0.30	0.43	0.60	0.73	0.85	1.03	1.16	1.28	1.45
Optics											
T2	4000K Lumens	7,972	15,580	23,245	30,714	38,056	45,541	53,857	61,024	68,072	75,366
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	121	122	119	119	119	120	119	118	118
T2R	4000K Lumens	8,462	16,539	24,680	32,609	40,401	48,348	57,176	64,783	72,266	80,010
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	129	126	126	127	128	127	126	125
T3	4000K Lumens	8,125	15,879	23,693	31,307	38,787	46,417	54,893	62,197	69,381	76,818
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	123	124	121	121	122	123	122	121	120
T3R	4000K Lumens	8,306	16,232	24,220	32,001	39,651	47,447	56,114	63,580	70,924	78,523
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	124	126	127	124	124	124	125	124	123	123
T4FT	4000K Lumens	8,173	15,970	23,831	31,488	39,014	46,686	55,212	62,558	69,783	77,261
	BUG Rating	B1-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	122	124	125	122	122	122	123	122	121	121
T4W	4000K Lumens	8,067	15,764	23,522	31,080	38,510	46,082	54,499	61,751	68,881	76,263
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	120	122	123	120	120	121	122	121	120	119
SL2	4000K Lumens	7,958	15,552	23,206	30,662	37,989	45,462	53,763	60,920	67,952	75,235
	BUG Rating	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	121	121	119	119	119	120	119	118	118
SL3	4000K Lumens	8,124	15,877	23,690	31,302	38,784	46,410	54,885	62,189	69,372	76,805
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	123	124	121	121	121	123	122	121	120
SL4	4000K Lumens	7,719	15,085	22,510	29,741	36,850	44,097	52,148	59,089	65,913	72,977
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	115	117	118	115	115	115	116	116	115	114
5NQ	4000K Lumens	8,380	16,375	24,436	32,287	40,003	47,870	56,610	64,144	71,552	79,221
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	125	127	128	125	125	125	126	126	124	124
5MQ	4000K Lumens	8,534	16,676	24,885	32,881	40,739	48,752	57,653	65,326	72,868	80,679
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	127	129	130	127	127	128	129	128	127	126
5WQ	4000K Lumens	8,556	16,723	24,951	32,968	40,847	48,881	57,808	65,499	73,063	80,894
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	128	130	131	128	128	128	129	128	127	126
SLL/ SLR	4000K Lumens	7,140	13,951	20,817	27,506	34,081	40,783	48,231	54,649	60,959	67,492
	BUG Rating	B1-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	107	108	109	107	107	107	108	107	106	105
RW	4000K Lumens	8,304	16,228	24,215	31,994	39,641	47,437	56,100	63,566	70,907	78,504
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	124	126	127	124	124	124	125	124	123	123
AFL	4000K Lumens	8,335	16,287	24,302	32,110	39,784	47,610	56,303	63,796	71,163	78,790
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5
	Lumens per Watt	124	126	127	124	124	125	126	125	124	123

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (1A)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		59	113	166	225	279	333	391	445	501	558
Input Current @ 120V (A)		0.51	1.02	1.53	2.03	2.55	3.06	3.56	4.08	4.60	5.07
Input Current @ 208V (A)		0.29	0.56	0.82	1.11	1.37	1.64	1.93	2.19	2.46	2.75
Input Current @ 240V (A)		0.26	0.48	0.71	0.96	1.19	0.41	1.67	1.89	2.12	2.39
Input Current @ 277V (A)		0.23	0.42	0.61	0.83	1.03	1.23	1.45	1.65	1.84	2.09
Input Current @ 347V (A)		0.17	0.32	0.50	0.64	0.82	1.00	1.14	1.32	1.50	1.68
Input Current @ 480V (A)		0.14	0.24	0.37	0.48	0.61	0.75	0.91	0.99	1.12	1.28
Optics											
T2	4000K Lumens	7,267	14,201	21,190	28,000	34,692	41,515	49,096	55,627	62,053	68,703
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	126	128	124	124	125	126	125	124	123
T2R	4000K Lumens	7,715	15,077	22,497	29,725	36,829	44,073	52,122	59,056	65,876	72,937
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	133	136	132	132	132	133	133	131	131
T3	4000K Lumens	7,408	14,475	21,598	28,539	35,358	42,313	50,039	56,698	63,246	70,024
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	130	127	127	127	128	127	126	125
T3R	4000K Lumens	7,571	14,798	22,078	29,172	36,145	43,253	51,153	57,959	64,653	71,581
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	128	131	133	130	130	130	131	130	129	128
T4FT	4000K Lumens	7,451	14,559	21,725	28,703	35,564	42,558	50,330	57,027	63,613	70,430
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	129	131	128	127	128	129	128	127	126
T4W	4000K Lumens	7,354	14,371	21,442	28,333	35,105	42,007	49,681	56,291	62,792	69,521
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	127	129	126	126	126	127	126	125	125
SL2	4000K Lumens	7,254	14,178	21,155	27,951	34,631	41,443	49,011	55,533	61,944	68,584
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	125	127	124	124	124	125	125	124	123
SL3	4000K Lumens	7,406	14,474	21,596	28,534	35,355	42,307	50,033	56,690	63,237	70,014
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	130	127	127	127	128	127	126	125
SL4	4000K Lumens	7,037	13,751	20,519	27,112	33,592	40,198	47,538	53,864	60,087	66,524
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	119	122	124	120	120	121	122	121	120	119
5NQ	4000K Lumens	7,640	14,928	22,275	29,431	36,465	43,637	51,606	58,472	65,226	72,218
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	129	132	134	131	131	131	132	131	130	129
5MQ	4000K Lumens	7,779	15,203	22,684	29,973	37,137	44,441	52,555	59,549	66,427	73,545
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	132	135	137	133	133	133	134	134	133	132
5WQ	4000K Lumens	7,800	15,243	22,744	30,052	37,236	44,560	52,697	59,708	66,603	73,742
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	132	135	137	134	133	134	135	134	133	132
SLL/ SLR	4000K Lumens	6,510	12,719	18,977	25,075	31,067	37,176	43,967	49,817	55,569	61,525
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	110	113	114	111	111	112	112	112	111	110
RW	4000K Lumens	7,570	14,793	22,073	29,165	36,137	43,243	51,140	57,945	64,637	71,564
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	128	131	133	130	130	130	131	130	129	128
AFL	4000K Lumens	7,598	14,847	22,154	29,272	36,267	43,400	51,326	58,156	64,872	71,824
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G4
	Lumens per Watt	129	131	133	130	130	130	131	131	129	129

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (800mA)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		44	85	124	171	210	249	295	334	374	419
Input Current @ 120V (A)		0.39	0.77	1.13	1.54	1.90	2.26	2.67	3.03	3.39	3.80
Input Current @ 208V (A)		0.22	0.44	0.62	0.88	1.06	1.24	1.50	1.68	1.87	2.12
Input Current @ 240V (A)		0.19	0.38	0.54	0.76	0.92	1.08	1.30	1.46	1.62	1.84
Input Current @ 277V (A)		0.17	0.36	0.47	0.72	0.83	0.95	1.19	1.31	1.42	1.67
Input Current @ 347V (A)		0.15	0.24	0.38	0.49	0.63	0.77	0.87	1.01	1.15	1.52
Input Current @ 480V (A)		0.11	0.18	0.29	0.37	0.48	0.59	0.66	0.77	0.88	0.96
Optics											
T2	4000K Lumens	5,871	11,474	17,121	22,622	28,029	33,542	39,667	44,944	50,134	55,508
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	133	135	138	132	133	135	134	135	134	132
T2R	4000K Lumens	6,233	12,181	18,176	24,016	29,756	35,608	42,111	47,714	53,224	58,929
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5
	Lumens per Watt	142	143	147	140	142	143	143	143	142	141
T3	4000K Lumens	5,986	11,695	17,450	23,057	28,568	34,186	40,430	45,809	51,099	56,576
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	136	138	141	135	136	137	137	137	137	135
T3R	4000K Lumens	6,117	11,955	17,838	23,569	29,203	34,946	41,328	46,827	52,235	57,832
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	139	141	144	138	139	140	140	140	140	138
T4FT	4000K Lumens	6,019	11,763	17,551	23,190	28,734	34,384	40,663	46,074	51,396	56,904
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	137	138	142	136	137	138	138	138	137	136
T4W	4000K Lumens	5,942	11,610	17,324	22,891	28,363	33,940	40,138	45,480	50,732	56,169
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	135	137	140	134	135	136	136	136	136	134
SL2	4000K Lumens	5,862	11,454	17,091	22,583	27,980	33,484	39,598	44,867	50,048	55,411
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	133	135	138	132	133	134	134	134	134	132
SL3	4000K Lumens	5,985	11,694	17,447	23,053	28,565	34,182	40,424	45,804	51,092	56,568
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	136	138	141	135	136	137	137	137	137	135
SL4	4000K Lumens	5,685	11,111	16,577	21,905	27,140	32,478	38,409	43,520	48,546	53,748
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	129	131	134	128	129	130	130	130	130	128
5NQ	4000K Lumens	6,172	12,061	17,997	23,778	29,462	35,256	41,694	47,242	52,699	58,347
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	140	142	145	139	140	142	141	141	141	139
5MQ	4000K Lumens	6,285	12,283	18,328	24,217	30,004	35,907	42,462	48,112	53,669	59,421
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	143	145	148	142	143	144	144	144	144	142
5WQ	4000K Lumens	6,303	12,317	18,377	24,281	30,085	36,001	42,575	48,241	53,812	59,579
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	143	145	148	142	143	145	144	144	144	142
SLL/ SLR	4000K Lumens	5,260	10,276	15,332	20,259	25,101	30,037	35,522	40,249	44,898	49,708
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	120	121	124	118	120	121	120	121	120	119
RW	4000K Lumens	6,116	11,952	17,834	23,563	29,196	34,938	41,317	46,817	52,224	57,819
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	139	141	144	138	139	140	140	140	140	138
AFL	4000K Lumens	6,139	11,996	17,899	23,650	29,302	35,064	41,468	46,987	52,412	58,030
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4
	Lumens per Watt	140	141	144	138	140	141	141	141	140	138

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (600mA)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		34	66	96	129	162	193	226	257	290	323
Input Current @ 120V (A)		0.30	0.58	0.86	1.16	1.44	1.73	2.03	2.33	2.59	2.89
Input Current @ 208V (A)		0.17	0.34	0.49	0.65	0.84	0.99	1.14	1.30	1.48	1.63
Input Current @ 240V (A)		0.15	0.30	0.43	0.56	0.74	0.87	1.00	1.13	1.30	1.43
Input Current @ 277V (A)		0.14	0.28	0.41	0.52	0.69	0.81	0.93	1.04	1.22	1.33
Input Current @ 347V (A)		0.11	0.19	0.30	0.39	0.49	0.60	0.69	0.77	0.90	0.99
Input Current @ 480V (A)		0.08	0.15	0.24	0.30	0.38	0.48	0.53	0.59	0.71	0.77
Optics											
T2	4000K Lumens	4,787	9,357	13,961	18,448	22,856	27,353	32,347	36,651	40,884	45,265
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	141	142	145	143	141	142	143	143	141	140
T2R	4000K Lumens	5,083	9,934	14,822	19,585	24,266	29,038	34,341	38,911	43,404	48,055
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
	Lumens per Watt	150	151	154	152	150	150	152	151	150	149
T3	4000K Lumens	4,880	9,537	14,231	18,803	23,296	27,878	32,970	37,358	41,671	46,137
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	144	145	148	146	144	144	146	145	144	143
T3R	4000K Lumens	4,988	9,749	14,547	19,220	23,814	28,497	33,703	38,188	42,598	47,162
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	147	148	152	149	147	148	149	149	147	146
T4FT	4000K Lumens	4,909	9,591	14,312	18,911	23,432	28,040	33,161	37,574	41,913	46,404
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	144	145	149	147	145	145	147	146	145	144
T4W	4000K Lumens	4,845	9,468	14,128	18,668	23,130	27,678	32,732	37,088	41,371	45,805
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	143	143	147	145	143	143	145	144	143	142
SL2	4000K Lumens	4,779	9,341	13,937	18,416	22,818	27,305	32,292	36,589	40,813	45,188
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	141	142	145	143	141	141	143	142	141	140
SL3	4000K Lumens	4,879	9,536	14,229	18,800	23,294	27,874	32,965	37,351	41,666	46,130
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	144	144	148	146	144	144	146	145	144	143
SL4	4000K Lumens	4,637	9,059	13,519	17,863	22,132	26,486	31,322	35,490	39,589	43,831
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	136	137	141	138	137	137	139	138	137	136
5NQ	4000K Lumens	5,033	9,835	14,676	19,392	24,026	28,751	34,002	38,526	42,975	47,581
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	148	149	153	150	148	149	150	150	148	147
5MQ	4000K Lumens	5,126	10,015	14,946	19,747	24,468	29,281	34,628	39,236	43,766	48,457
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	151	152	156	153	151	152	153	153	151	150
5WQ	4000K Lumens	5,139	10,043	14,985	19,801	24,533	29,359	34,721	39,339	43,883	48,586
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	151	152	156	153	151	152	154	153	151	150
SLL/ SLR	4000K Lumens	4,289	8,380	12,502	16,520	20,469	24,494	28,967	32,823	36,613	40,537
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	126	127	130	128	126	127	128	128	126	126
RW	4000K Lumens	4,987	9,746	14,543	19,215	23,808	28,491	33,695	38,178	42,587	47,151
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	147	148	151	149	147	148	149	149	147	146
AFL	4000K Lumens	5,007	9,782	14,597	19,285	23,896	28,594	33,817	38,317	42,742	47,322
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
	Lumens per Watt	147	148	152	149	148	148	150	149	147	147

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Control Options

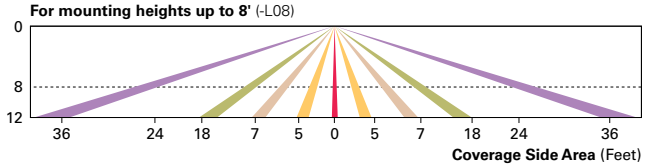
0-10V (DIM)
This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (BPC, PR and PR7)
Optional button-type photocontrol (BPC) and photocontrol receptacles (PR and PR7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PR7 receptacle.

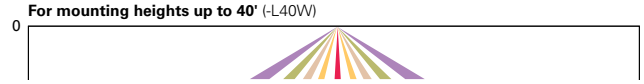
After Hours Dim (AHD)
This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a "dusk-to-dawn" period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

Dimming Occupancy Sensor (SPB, MS/DIM-LXX, MS/X-LXX and MS-LXX)
These sensors are factory installed in the luminaire housing. When the SPB or MS/DIM sensor options are selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines. SPB motion sensors require the Sensor Configuration mobile application by Wattstopper to change factory default dimming level, time delay, sensitivity and other parameters. Available for iOS and Android devices. The SPB sensor is factory preset to dim down to approximately 10% power with a time delay of five minutes. The MS/DIM occupancy sensors require the FSIR-100 programming tool to adjust factory defaults.

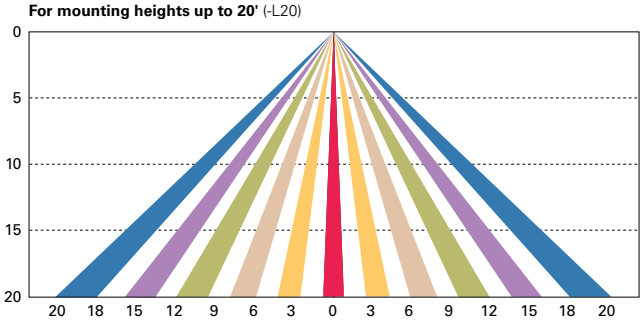
For mounting heights up to 8' (-L08)



For mounting heights up to 40' (-L40W)

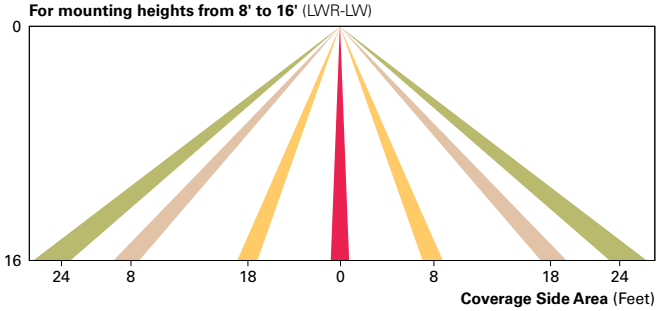


For mounting heights up to 20' (-L20)

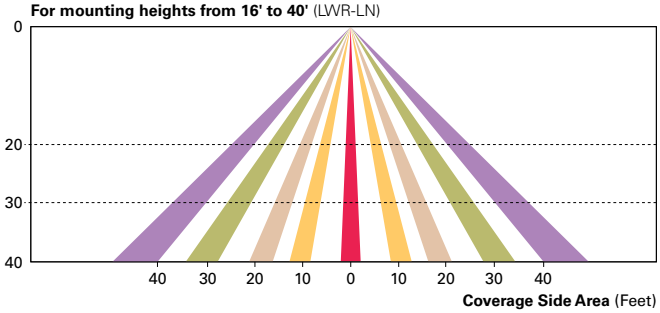


Enlighted Wireless Control and Monitoring System (LWR-LW and LWR-LN)
Enlighted is a connected lighting solution that combines a broad selection of energy-efficient LED luminaires with a powerful integrated wireless sensor system. The sensor controls the lighting system in compliance with the latest energy codes and collects valuable data about building performance and use. Software applications turn the granular data into information through energy dashboards and specialized apps that make it simple and help optimize the use of building resources, beyond lighting.

For mounting heights from 8' to 16' (LWR-LW)



For mounting heights from 16' to 40' (LWR-LN)



WaveLinx Wireless Outdoor Lighting Control Module (WOLC-7P-10A)
The 7-pin wireless outdoor lighting control module enables WaveLinx to control outdoor area, site and flood lighting. WaveLinx controls outdoor lighting using schedules to provide ON, OFF and dimming controls based on astronomic or time schedules based on a 7 day week.

LumenSafe Integrated Network Security Camera (LD)
Cooper Lighting Solutions brings ease of camera deployment to a whole new level. No additional wiring is needed beyond providing line power to the luminaire. A variety of networking options allows security integrators to design the optimal solution for active surveillance. As the ideal solution to meet the needs for active surveillance, the LumenSafe integrated network camera is a streamlined, outdoor-ready fixed dome that provides HDTV 1080p video. This IP camera is optimally designed for deployment in the video management system or security software platform of choice.

Synapse (DIM10)
SimplySNAP integrated wireless controls system by Synapse. Includes factory installed DIM10 Synapse control module and MS/DC motion sensor; requires additional Synapse system components for operation. Contact Synapse at www.synapsewireless.com for product support, warranty and terms and conditions.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

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Specifications and dimensions
subject to change without notice.



Attachment: SP-2022-02 drawings 051922 (25499 : Sp-2022-02)

Legend

Abbreviations

Ex = Existing
E = East
N = North
W = West
S = South
R.O.W. = Right of Way
A.K.A. = also known as

EM Electric Meter
MW Monitoring Well
ELHH Electric Hand Hole
Deciduous Tree
Bush
Coniferous Tree
Electric Manhole
Signal Pole
Cable Manhole
Water Manhole
Traffic Manhole
Large Rock

Symbols

Sanitary Manhole
Cleanout
Catch Basin
Drain Inlet
Storm Manhole
Yard Drain
Cable TV
Electric Riser
Power Pole
Guy Wire Anchor
Telephone Riser
Fire Hydrant
Water Valve
Water Service Valve
Gas Line Marker
Gas Valve
Gas Service Valve
Sign
Mailbox
Metal Post
Concrete R.O.W. Monument
Light Standard
Telephone Manhole
Bollard
Irrigation Control Valve
Traffic Control Box

Line Styles

ST Sanitary Sewer
SA Storm Sewer
W Water Line
G Gas Line
T Telephone Wires or Cables
E Electric Wires or Cables
OH Overhead Wires
100 Contour Line
Centerline of Ditch
Crown of Pavement
Centerline of Road
Right of Way Line
Building Setback Line
Easement Line
Property Line
UE Underground Electric
Point Stripe
Former Boundary Parcel Line
UFC Underground Cable TV
UFO Underground Fiber Optic

NBMS 50349
Cap Detail

Notes:

1) North as Shown on this Map is True North at 78°35' Meridian of West Longitude, as based on the New York State Plane Coordinate System NAD 83/92 HARN, West Zone 3103, as established from Town of Amherst Monuments 11.
N.1077943.37
E.1098312.30

2) Elevations as shown on this Map are based on NAVD 88, as established from Town of Amherst Monuments 11. Elevation = 679.31'

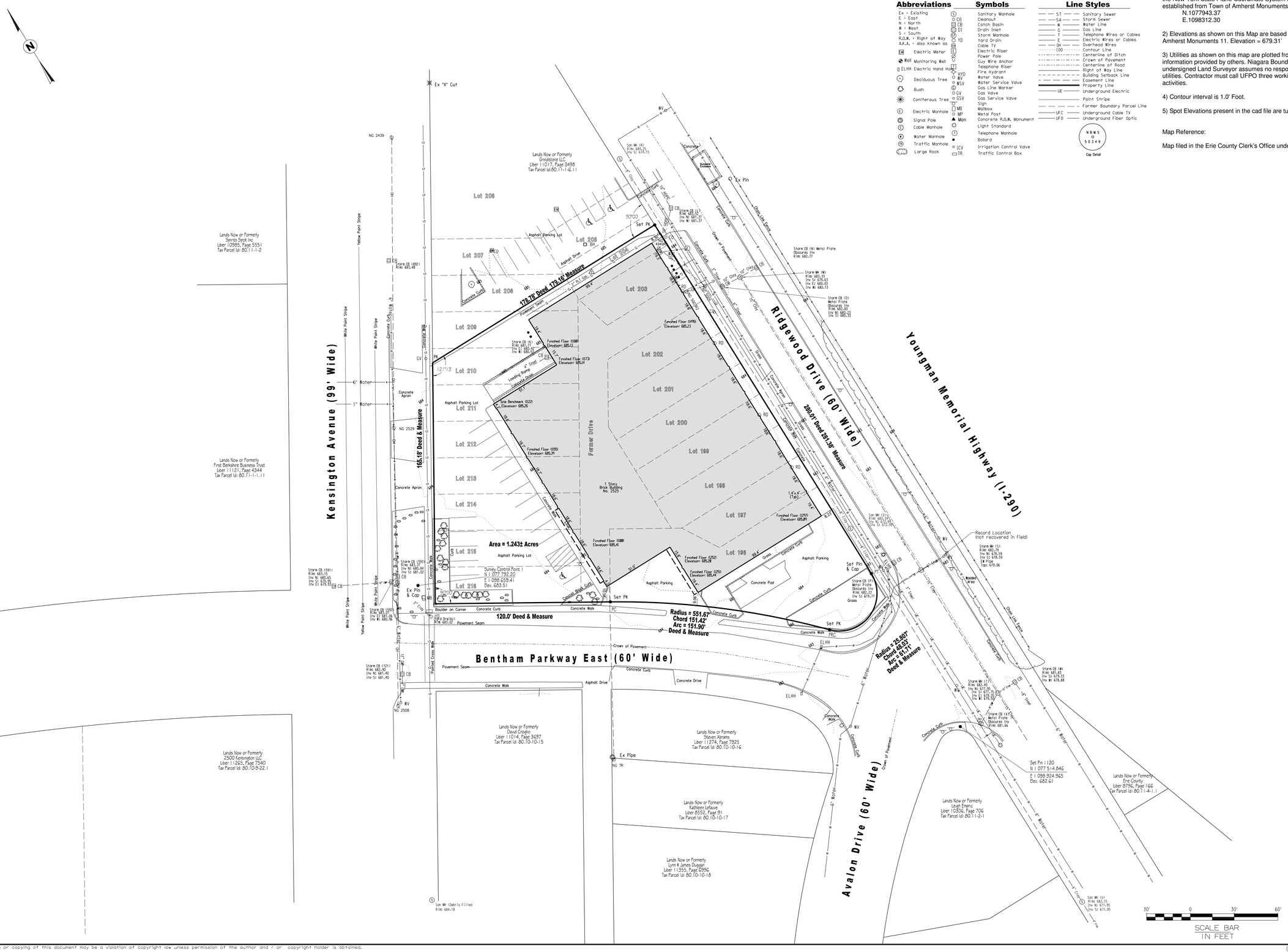
3) Utilities as shown on this map are plotted from field locations of visble structures and information provided by others. Niagara Boundary & Mapping Services, along with the undersigned Land Surveyor assumes no responsibility as to the accuracy of underground utilities. Contractor must call UFPO three working days prior to any excavation construction activities.

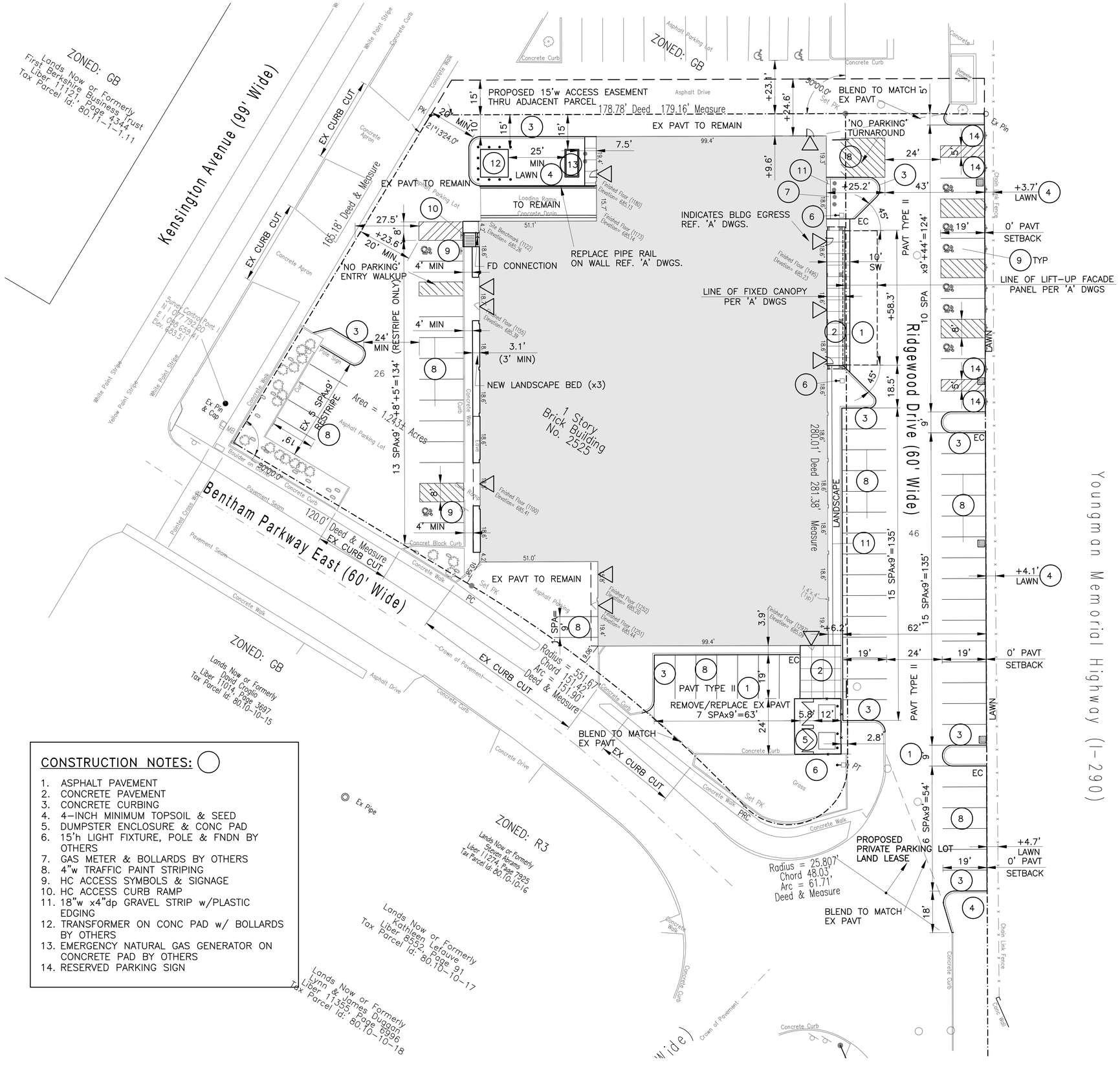
4) Contour interval is 1.0' Foot.

5) Spot Elevations present in the cad file are turned off for clarity.

Map Reference:

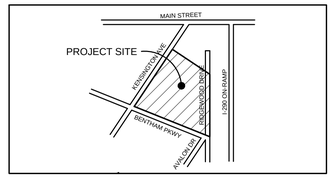
Map filed in the Erie County Clerk's Office under Cover 1374


Ex "X" Cut
NG 2439
Lands Now or Formerly Grindstone LLC Liber 11017, Page 3498 Tax Parcel Id: 80.17-1-6.11
Lands Now or Formerly Sparda Spot Inc Liber 12085, Page 5551 Tax Parcel Id: 80.11-1-2
Lands Now or Formerly First Berkshire Business Trust Liber 11121, Page 4344 Tax Parcel Id: 80.17-1-1.11
Lands Now or Formerly 2500 Kensington LLC Liber 11265, Page 7540 Tax Parcel Id: 80.10-9-22.1
Lands Now or Formerly David Crodio Liber 11014, Page 3697 Tax Parcel Id: 80.10-10-15
Lands Now or Formerly Steven Abrams Liber 11274, Page 7925 Tax Parcel Id: 80.10-10-16
Lands Now or Formerly Kathleen Lefauve Liber 8552, Page 91 Tax Parcel Id: 80.10-10-17
Lands Now or Formerly Lynn & James Duggan Liber 11355, Page 8986 Tax Parcel Id: 80.10-10-18
Lands Now or Formerly Legit Emporc Liber 10806, Page 706 Tax Parcel Id: 80.11-2-1
Lands Now or Formerly Erie County Liber 8796, Page 166 Tax Parcel Id: 80.11-4-1.1
Kensington Avenue (99' Wide)
Bentham Parkway East (60' Wide)
Ridgewood Drive (60' Wide)
Youngman Memorial Highway (I-290)
Avalon Drive (60' Wide)
Former Drive
Lot 206
Lot 207
Lot 208
Lot 209
Lot 210
Lot 211
Lot 212
Lot 213
Lot 214
Lot 215
Lot 216
Lot 203
Lot 202
Lot 201
Lot 200
Lot 199
Lot 198
Lot 197
Lot 196
Area = 1.243± Acres
178.78' Deed, 179.16' Measure
165.19' Deed & Measure
120.0' Deed & Measure
280.01' Deed, 281.39' Measure
Radius = 551.67'
Chord 151.42'
Arc = 151.90'
Deed & Measure
Radius = 25.807'
Chord = 48.06'
Arc = 61.71'
Deed & Measure
Survey Control Point 1
N 1,077,792.20
E 1,098,659.81
Elev. 683.51
Set Pin 1120
N 1,077,514.846
E 1,098,924.965
Elev. 682.61
Set PK
Set Pin & Cap
Ex Pin
Ex Pipe
Record Location (not recovered in Field)
Asphalt Parking Lot
Asphalt Drive
Concrete Walk
Concrete Curb
Concrete Pad
Concrete Apron
Concrete Ramp
Concrete Steps
Landing Ramp
Pavement Seam
Crown of Pavement
Edge of Pavement
Gravel
Grass
Woods
Wooded Area
Boulder on Corner
Rubble Stone Wall
Retaining Wall
Fence
Chain Link Fence
Overhead Wires
Yellow Point Stripe
White Point Stripe
Double Yellow Point Stripe
Storm CB (892) Rim: 683.48
Storm CB (891) Rim: 683.75 Inv N: 680.65 Inv E: 679.75 Inv S: 679.55
Storm CB (893) Rim: 683.37 Inv E: 681.64 Inv S: 681.32 CB
Storm CB (894) Rim: 683.37 Inv N: 681.37 Inv W: 681.37
Storm CB (895) Rim: 683.37 Inv E: 681.08 Inv W: 680.98
Storm CB (121) Rim: 682.90 Inv N: 681.40 Inv S: 681.40
Storm CB (1) Rim: 683.13 Inv N: 680.63 Inv E: 680.63 Inv W: 680.63
Storm CB (2) Rim: 683.13 Inv N: 680.63 Inv E: 680.63 Inv W: 680.63
Storm CB (3) Rim: 683.13 Inv N: 680.63 Inv E: 680.63 Inv W: 680.63
Storm CB



CONSTRUCTION NOTES:

1. ASPHALT PAVEMENT
2. CONCRETE PAVEMENT
3. CONCRETE CURBING
4. 4-INCH MINIMUM TOPSOIL & SEED
5. DUMPSTER ENCLOSURE & CONC PAD
6. 15'h LIGHT FIXTURE, POLE & FNDN BY OTHERS
7. GAS METER & BOLLARDS BY OTHERS
8. 4"w TRAFFIC PAINT STRIPING
9. HC ACCESS SYMBOLS & SIGNAGE
10. HC ACCESS CURB RAMP
11. 18"w x4"dp GRAVEL STRIP w/PLASTIC EDGING
12. TRANSFORMER ON CONC PAD w/ BOLLARDS BY OTHERS
13. EMERGENCY NATURAL GAS GENERATOR ON CONCRETE PAD BY OTHERS
14. RESERVED PARKING SIGN



SITE LOCATION MAP

SITE LAYOUT PLAN

1" = 20'

N

SITE DATA

CURRENT ZONING: GB

PARCEL AREA: +1.24 ACRES (AC)

TOTAL AREA OF DISTURBANCE (INCL R.O.W.): 22,000SF~0.51AC

NEW PARKING LOT LICENSED AREA: 19636SF ~0.45 AC

INTERIOR GREENSPACE: 984SF (5.5% OF NEW PARKING LOT)

ANTICIPATED AVERAGE DAILY SEWER LOADING: 1120 GPD
OFFICES/DAY SCHOOL: (30 EMPLx15 GPD)+(52 STUDENTSx10 GPD = 450+520 =970 GPD
RETAIL/WAREHOUSE PER EMPLOYEE: (10 EMPLx15 GPD)= 150 GPD

PARKING DATA

SPACES REQUIRED BY NET SF, 2-STY (MEZZ), MULT-TENANT (75% OF GROSS SF), GENERAL OFFICE, RETAIL/WAREHOUSE USES:

GENERAL OFFICE: 15995NSF (INCLUDES MEZZ) x1/200NSF=80;
RETAIL AT >2000SF<25000SF: 5763NSFx 5.5/1000NSF=32;
WAREHOUSE: 12019NSFx 1= 12

TOTAL CAR-PARKS REQUIRED = 80+32+12=124
ACCESSIBLE SPA REQUIRED = CAR-PARKS/25=124/25=5

SPACES PROVIDED: 72
REGULAR: 60
ACCESSIBLE: 8; RESERVED STALLS: 4

DEFICIENT 53 CAR-PARKS, ALTERNATE PARKING PLAN REQUIRED

NOTES:

1. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THIS DRAWING IS FOR INFORMATION ONLY. REFER TO SURVEY(S) PROVIDED BY NIAGARA BOUNDARY & MAPPING JOB No 11187-21, DATED 6/2021.
2. REFER TO ARCHITECTURAL DRAWINGS FOR ALL BUILDING DIMENSIONS, FEATURES, AND UTILITY CONNECTIONS.
3. SITE LIGHTING, POWER AND GAS LINES ARE SHOWN FOR INFORMATION ONLY, AND ARE NOT DESIGNED BY TREDO ENGINEERS.
4. A KNOX BOX KEY HOLDER SHALL BE LOCATED AT THE BUILDING MAIN ENTRANCE.
5. THE BUILDING SHALL CONTAIN A SPRINKLER FIRE-PROTECTION SYSTEM.

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REVISIONS	
1: REVISED	3/28/22

DRAWN BY	CHECKED BY
avm	AVM

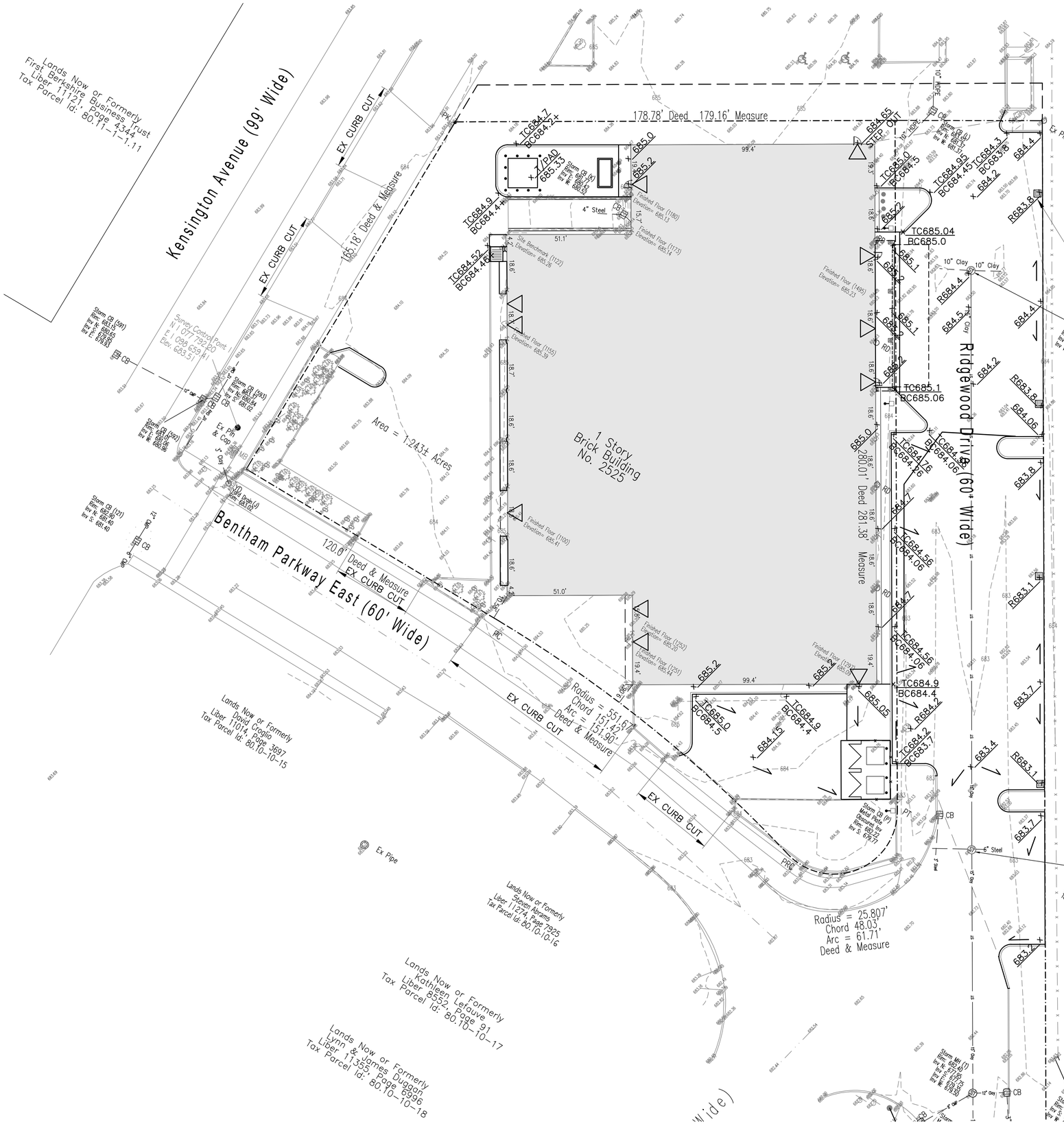
SCALE: AS NOTED

DATE: Feb 22, 2022

SITE LAYOUT PLAN

SP101

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)



LEGEND:

×	DENOTES PROPOSED SPOT ELEVATIONS	·	DENOTES EXISTING SPOT ELEVATIONS
■ ●	DENOTES PROPOSED CATCH BASIN/MANHOLE	DI	DENOTES EXISTING STORM SEWER DROP INLET
CO	DENOTES PROPOSED CLEANOUT	ST	DENOTES EXISTING STORM SEWER MANHOLE
C	DENOTES CONNECTION TO EXISTING UTILITY	SA	DENOTES EXISTING SANITARY SEWER MANHOLE
			DENOTES EXISTING HYDRANT
	DENOTES PROPOSED LIGHT POLE		DENOTES EXISTING LIGHT POLE
RD	DENOTES PROPOSED ROOF DRAIN		DENOTES EXISTING WATER VALVE
ELEV	DENOTES NEW CONTOURS	ELEV	DENOTES EXISTING CONTOURS
		X X X X	DENOTES EXISTING CHAIN LINK FENCE
		OHE	DENOTES EXISTING UTILITY POLE AND OVERHEAD UTILITIES
		ST	DENOTES EXISTING STORM SEWER LINE
		SAN	DENOTES EXISTING SANITARY SEWER LINE
		W W	DENOTES EXISTING WATER LINE
		E E	DENOTES EXISTING ELECTRIC LINE
		G G	DENOTES EXISTING GAS LINE
	ST		DENOTES PROPOSED STORM SEWER LINE
	SAN		DENOTES PROPOSED SANITARY SEWER LINE
	W		DENOTES PROPOSED WATER LINE

SITE GRADING PLAN

1" = 20'

N

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STATE OF NEW YORK
MATTHEW JOHN PETRILLI
102395
LICENSED PROFESSIONAL ENGINEER

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REVISIONS
1: REISSUED 3/28/22

DRAWN BY avm
CHECKED BY AVM

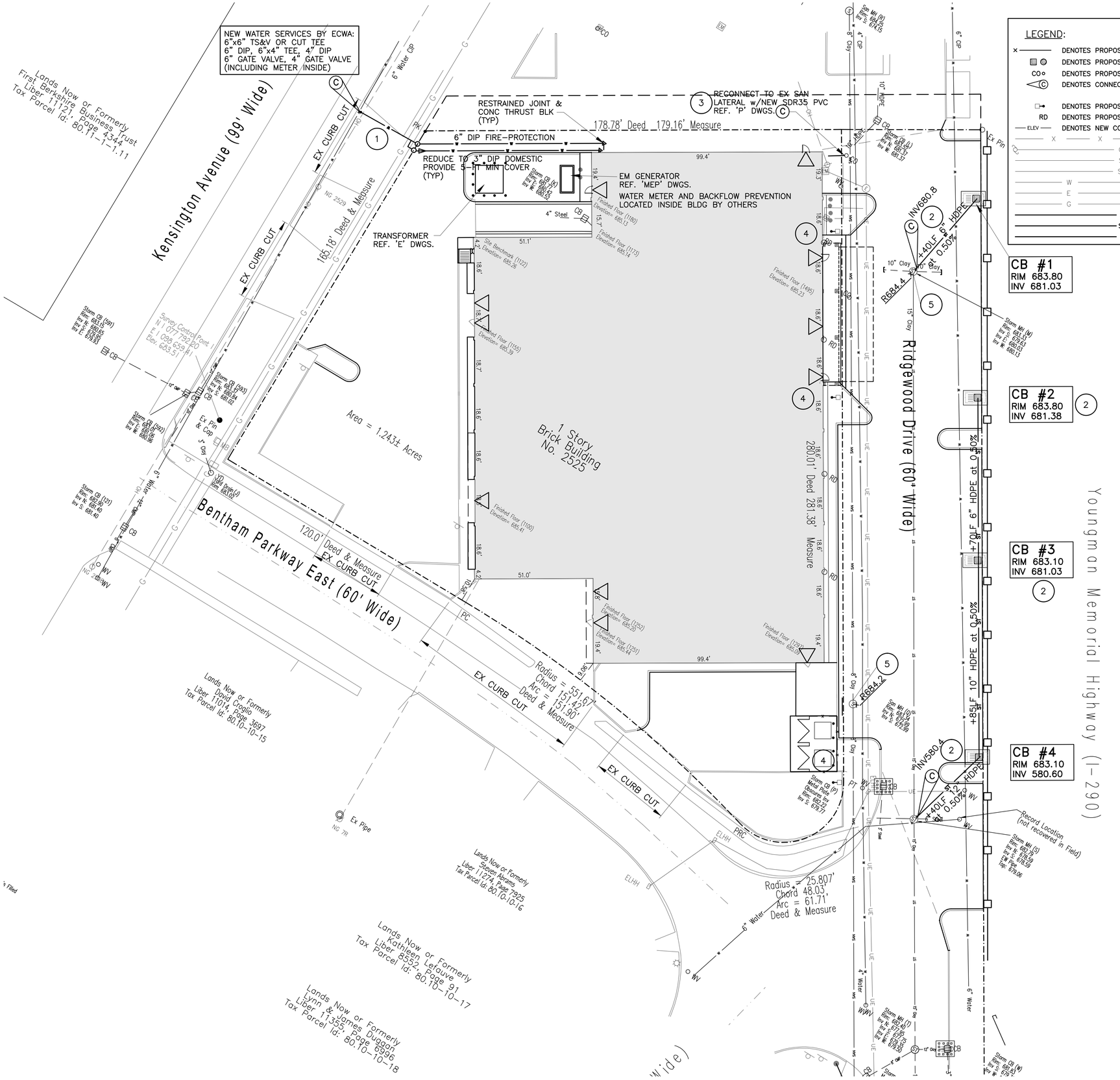
SCALE
AS NOTED

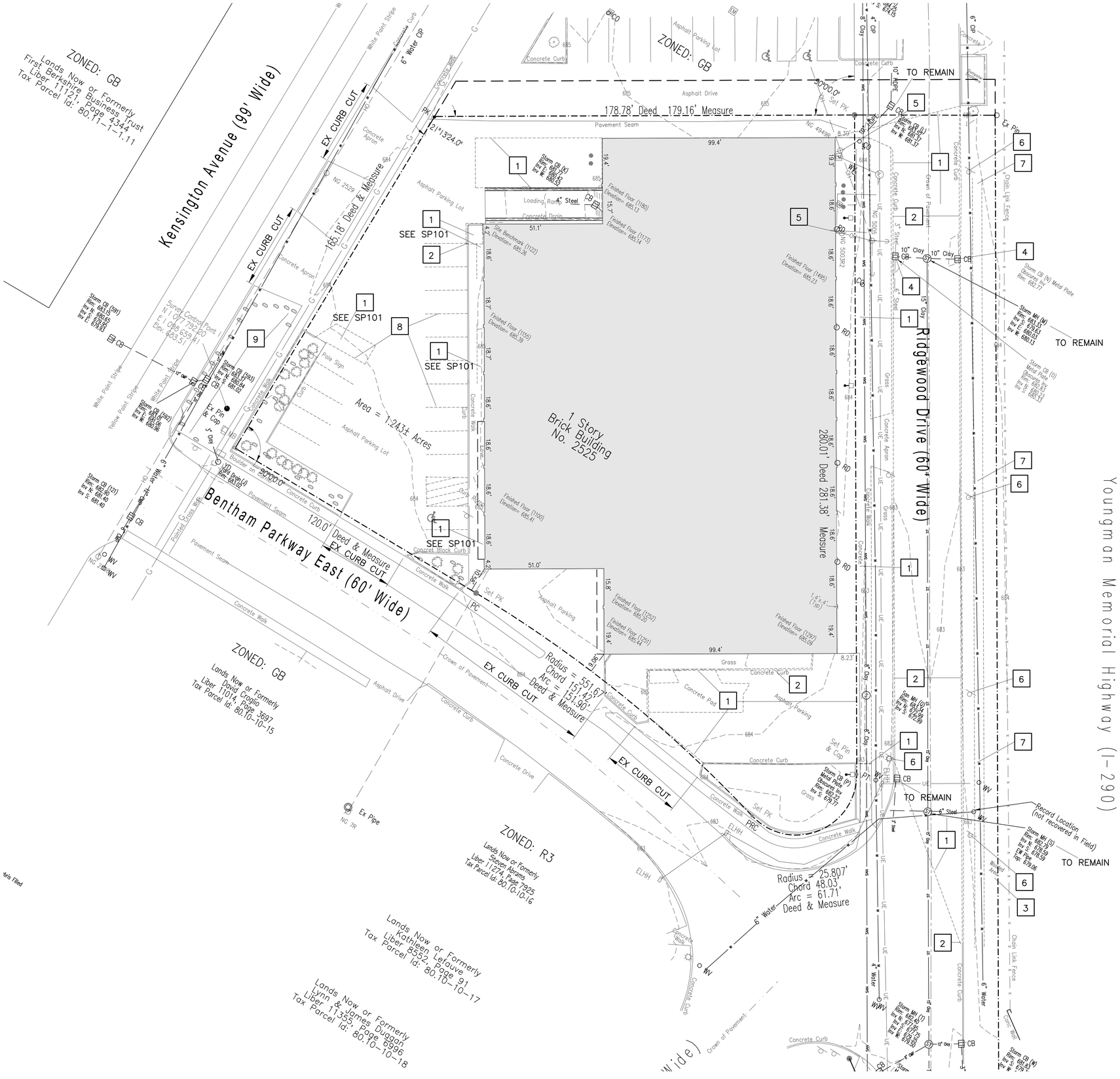
DATE
Feb 22, 2022

SITE GRADING PLAN

SP102

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)


NEW WATER SERVICES BY ECWA:
6"x6" TS&V OR CUT TEE
6" DIP, 6"x4" TEE, 4" DIP
6" GATE VALVE, 4" GATE VALVE
(INCLUDING METER INSIDE)
Kensington Avenue (99' Wide)
Lands Now or Formerly
First Berkshire Business Trust
Liber 11121, Page 4344
Tax Parcel Id: 80.11-1-1.11
EX CURB CUT
165.18' Deed & Measure
NO 2529
RESTRAINED JOINT & CONC THRUST BLK (TYP)
178.78' Deed 179.16' Measure
6" DIP FIRE-PROTECTION
REDUCE TO 3" DIP DOMESTIC
PROVIDE 5'-1" MIN COVER
(TYP)
TRANSFORMER
REF. 'E' DWGS.
EM GENERATOR
REF. 'MEP' DWGS.
WATER METER AND BACKFLOW PREVENTION
LOCATED INSIDE BLDG BY OTHERS
RECONNECT TO EX SAN
LATERAL w/NEW SDR35 PVC
REF. 'P' DWGS.
1 Story
Brick Building
No. 2525
Area = 1.243± Acres
Bentham Parkway East (60' Wide)
120.0' Deed & Measure
Ridgewood Drive (60' Wide)
Young Man Memorial Highway (I-290)
280.01' Deed 281.36' Measure
+40LF 6" HDPE at 0.50%
+70LF 6" HDPE at 0.50%
+85LF 10" HDPE at 0.50%
+40LF 8" HDPE at 0.50%
INV680.8
INV680.4
R684.4
R684.2
Radius = 551.67'
Chord 151.42'
Arc = 151.90'
Deed & Measure
Radius = 25.807'
Chord 48.03'
Arc = 61.71'
Deed & Measure
Record Location
(not recovered in Field)
CB #1
RIM 683.80
INV 681.03
CB #2
RIM 683.80
INV 681.38
CB #3
RIM 683.10
INV 681.03
CB #4
RIM 683.10
INV 580.60
Lands Now or Formerly
David Creglio
Liber 11014, Page 3697
Tax Parcel Id: 80.10-10-15
Lands Now or Formerly
Steven Abrams
Liber 11274, Page 7925
Tax Parcel Id: 80.10-10-16
Lands Now or Formerly
Kathleen Lefauve
Liber 8552, Page 91
Tax Parcel Id: 80.10-10-17
Lands Now or Formerly
Lynn & James Duggan
Liber 11353, Page 6996
Tax Parcel Id: 80.10-10-18
Survey Control Point
N 1 077792.20
E 1 098 539.41
Elev. 683.51
Ex Pipe
NG 7R
Ex Pin & Cap
S Cap
Ex Pin
Ex Pipe
NG 2.8 INV
Finished Floor (1190) Elevation= 685.13
Finished Floor (1173) Elevation= 685.14
Finished Floor (1156) Elevation= 685.19
Finished Floor (1100) Elevation= 685.41
Finished Floor (1292) Elevation= 685.20
Finished Floor (1251) Elevation= 685.44
Finished Floor (1293) Elevation= 685.65
Finished Floor (1495) Elevation= 685.23
Site Benchmark (1122) Elevation= 685.76
Storm CB (591) Rim= 682.15 Inv N: 680.65 Inv E: 678.95
Storm CB (593) Rim= 682.54 Inv N: 680.54 Inv E: 681.02
Storm CB (592) Rim= 682.40 Inv N: 680.86
Storm CB (121) Rim= 682.40 Inv N: 681.40
Storm CB (P) Metal Pipe Obstructed Rim= 685.72 Inv S: 679.77
Storm MH (S) Rim= 682.39 Inv N: 678.59 Inv S: 678.59 Dia= 48" Depth= 679.06
Storm MH (N) Rim= 682.35 Inv E: 678.53 Inv W: 681.03 Inv N: 681.13
Storm MH (S) Rim= 682.39 Inv N: 678.59 Inv S: 678.59 Dia= 48" Depth= 679.06
Storm MH (S) Rim= 682.50 Inv N: 678.75 Inv W: 678.75 Inv S: 678.50 Dia= 48" Depth= 679.50
Storm CB (W) Rim= 682.50 Inv S: 679.50
Storm MH (S) Rim= 682.50 Inv S: 679.50
CB (W)
Drop Inlet (4)
Inv= 681.37
CB (E)
Drop Inlet (4)
Inv= 681.37
Ex Pin
Ex Pipe
Ex Pipe
Ex Pipe



SITE DEMOLITION PLAN

1" = 20'

N

SITE DEMOLITION NOTES:

1. SAWCUT & REMOVE EXISTING ASPHALT/ CONC PAVT AND SUBBASE STONE EXCEPT WHERE NEW PAVT OVER TO BE INSTALLED, SUBBASE TO BE PROOFROLLED & REUSED
2. SAWCUT & REMOVE CONCRETE CURBING
3. REMOVE TREES & BRUSH TO FENCELINE
4. DRAIN BODY TO BE REMOVED, PLUG EX PIPE END w/CONC
5. UTILITY POLE & OHE POWER TO BE REMOVED –COORD. w/SUPPLIER & 'E' DWGS.
6. SIGN OR LIGHT POLE & FNDN TO BE REMOVED
7. REMOVE REMAINS OF CONC SIDEWALK
8. REMOVE PAINT STRIPING THIS ROW BY INSTALLING SEALER OVER ROUGHENED EX ASPHALT\
9. REMOVE ALL BOULDER STONES FROM RIGHT–OF–WAY

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REVISIONS
1: REVISED 3/28/22

DRAWN BY avm | CHECKED BY AVM

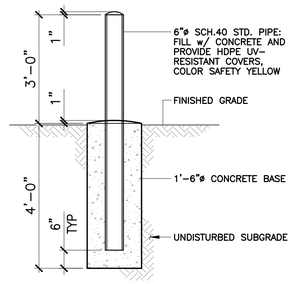
SCALE AS NOTED

DATE Feb 22, 2022

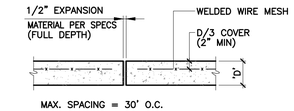
EXISTING CONDITIONS & SITE DEMOLITION PLAN

SP104

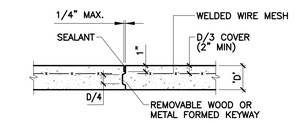
SP-2022-02 drawings 051922 (2549 : Sp-2022-02)
Attachment: SP-2022-02 drawings 051922 (2549 : Sp-2022-02)



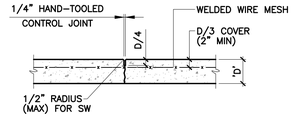
STEEL PIPE BOLLARD



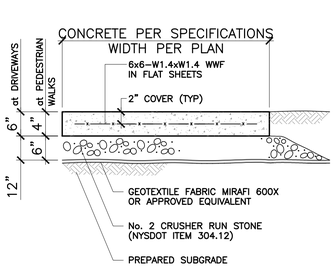
EXPANSION JOINT IN EXTERIOR CONC PAVEMENT



CONSTRUCTION JOINT IN EXTERIOR CONC PAVEMENT



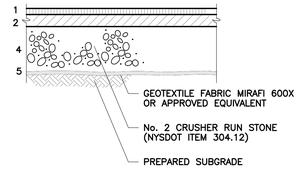
CONTROL JOINT IN EXTERIOR CONC PAVEMENT



NOTE: CONC. SHALL BE 4000 PSI at 28-DAYS, 6% AIR-ENTRAINED, 4" MAX. SLUMP-PROVIDE LT. BROOM FINISH PERPENDICULAR TO DIRECTION OF TRAFFIC

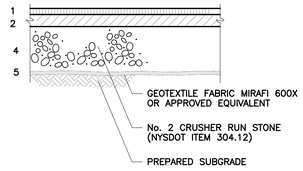
TYPICAL CONCRETE SIDEWALK

ITEM	DESCRIPTION	DEPTH
1	TOP COURSE 402.099803-9.5 F2-80	1-1/2"
2	BINDER 402.198203-19 F9-80	3"
3	NOT USED	
4	SUBBASE COURSE 304.12 (NYSDOT)	18"
5	GEOTEXTILE FABRIC (NONWOVEN/HEAT BONDED)	



TYPICAL TYPE II BITUMINOUS PAVEMENT SECTION DRIVEWAYS

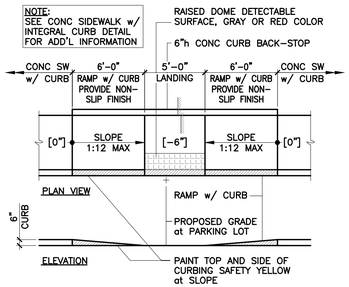
ITEM	DESCRIPTION	DEPTH
1	TOP COURSE 402.099803-9.5 F2-80	1-1/2"
2	BINDER 402.198203-19 F9-80	2"
3	NOT USED	
4	SUBBASE COURSE 304.12 (NYSDOT)	12"
5	GEOTEXTILE FABRIC (NONWOVEN/HEAT BONDED)	



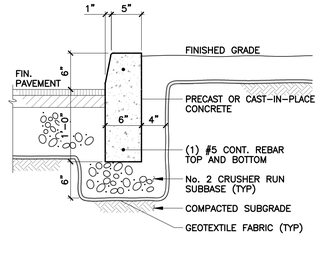
TYPICAL TYPE I BITUMINOUS PAVEMENT SECTION PARKING STALLS

GENERAL SITE NOTES

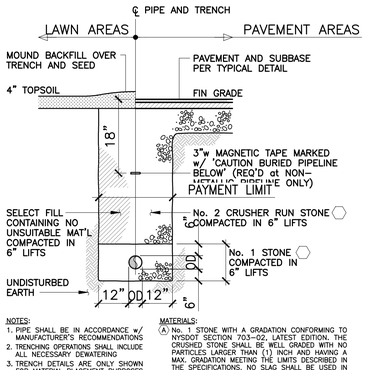
1. ALL WATERLINE, SANITARY SEWER AND OTHER WORK WITHIN THE R.O.W. SHALL BE IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE TOWN OF AMHERST, THE ERIE COUNTY WATER AUTHORITY AND NYSDOT SPECIFICATIONS.
2. INSTALL ALL MATERIALS TO THE MANUFACTURER'S RECOMMENDATIONS AND BEST STANDARDS OF THE TRADE INVOLVED.
3. SUBSTITUTIONS SHALL BE MADE ONLY WITH OWNER APPROVAL AND SHALL BE EQUIVALENT QUALITY TO WHAT IS SPECIFIED.
4. WORK SHALL BE COMPLETED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND OSHA SAFETY RULES AND REGULATIONS.
5. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE SITE. NOTIFY OWNER OF ANY DISCREPANCIES IN CONDITIONS SHOWN ON THE DRAWINGS PRIOR TO PROCEEDING WITH THE WORK.
6. CONTRACTORS SHALL BE RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING STRUCTURES TO REMAIN AND ANY FINISH MATERIAL INSTALLED WHILE WORKING ON OTHER COMPONENTS.
7. CONTRACTOR SHALL KEEP THE JOB SITE FREE OF DEBRIS AND MAKE FINAL CLEANUP TO THE SATISFACTION OF THE OWNER.
8. CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION SO THAT THIS WORK DOES NOT DISTURB EXISTING LINES AND/OR INSTALLATIONS. COORDINATE ALL WORK WITH THE APPLICABLE UTILITY COMPANIES.
9. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS NECESSARY TO PERFORM THE WORK.
10. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN CONTROL OF EROSION FROM THE SITE. SEE PROJECT EROSION CONTROL PLAN AND SWPPP MANUAL.
11. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS, FEATURES AND UTILITY CONNECTIONS.
12. ALL UTILITY TRENCHES UNDER PAVEMENT, CURBS, SIDEWALKS, AND DRIVEWAYS SHALL BE FULLY BACKFILLED WITH No 2 CRUSHER RUN STONE AND PROPERLY COMPACTED TO AVOID SETTLEMENT.
13. CONTRACTOR SHALL REPLACE IN KIND ANY EXISTING IMPROVEMENTS TO REMAIN THAT ARE DAMAGED DURING CONSTRUCTION. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, CURBS, ROAD PAVEMENTS, SIDEWALKS, AND EXISTING UTILITIES.



HANDICAP ACCESS RAMP



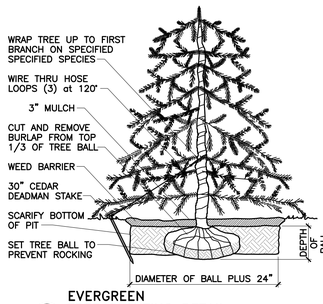
TYPICAL CONCRETE CURB



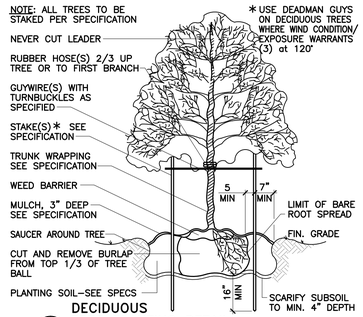
NOTES:
1. PIPE SHALL BE IN ACCORDANCE w/ MANUFACTURER'S RECOMMENDATIONS
2. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.
3. TRENCH DETAILS ARE ONLY SHOWN FOR MATERIAL PLACEMENT PURPOSES
4. AN OSHA APPROVED MOVEABLE PROTECTIVE TRENCH SHIELD MAY BE USED.

MATERIALS:
(A) No. 1 STONE WITH A GRADATION CONFORMING TO NYSDOT SECTION 703-02, LATEST EDITION. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN (1) INCH AND HAVING A MAX. GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. NO SLAG SHALL BE USED IN PLACE OF MATERIAL 'A'.
(B) No. 2 CRUSHER RUN STONE OR No. 2 RUN OF CRUSHED GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02 (COMPACTED IN 6" LIFTS TO 90% DENSITY). NO SLAG SHALL BE USED IN PLACE OF MATERIAL 'B'.

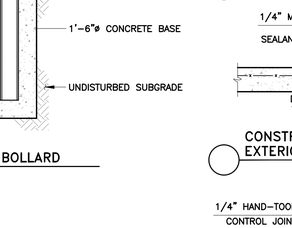
TYPICAL UTILITY TRENCH SECTION



EVERGREEN TREE PLANTING DETAIL

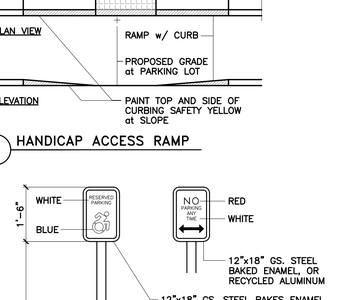


DECIDUOUS TREE PLANTING DETAIL



SHRUB PLANTING DETAIL

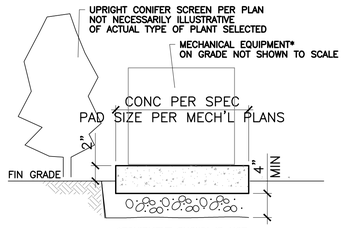
DUMPSTER ENCLOSURE WITH CONCRETE PAD



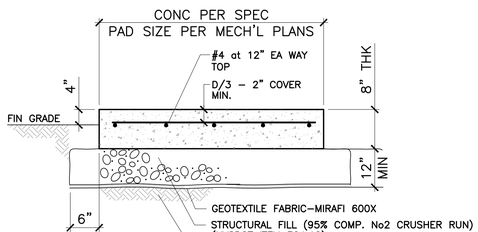
NOTES:
1. HANDICAPPED PARKING SIGNAGE SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS
2. A 'NO PARKING' SIGN SHALL BE PROVIDED at DISCHARGE AISLE BETWEEN HANDICAP PARKING STALLS

HANDICAPPED PARKING SIGNAGE
LOCATED IN LAWN AREAS

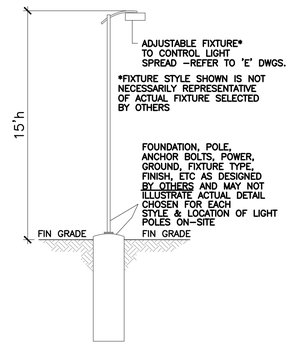
HANDICAP SYMBOL DETAIL



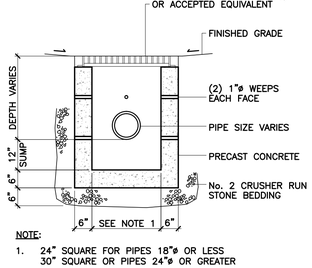
MECHANICAL EQUIP. SCREEN



GENERATOR PAD SECTION



LIGHT POLE HEIGHT DETAIL



NOTE:
1. 24" SQUARE FOR PIPES 18"ø OR LESS
30" SQUARE OR PIPES 24"ø OR GREATER

TYPICAL CATCH BASIN

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STATE OF NEW YORK
MATTHEW JOHN PETRILLI
082985
LICENSED PROFESSIONAL ENGINEER

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REVISIONS
1: REISSUED 3/28/22

DRAWN BY avm
CHECKED BY AVM

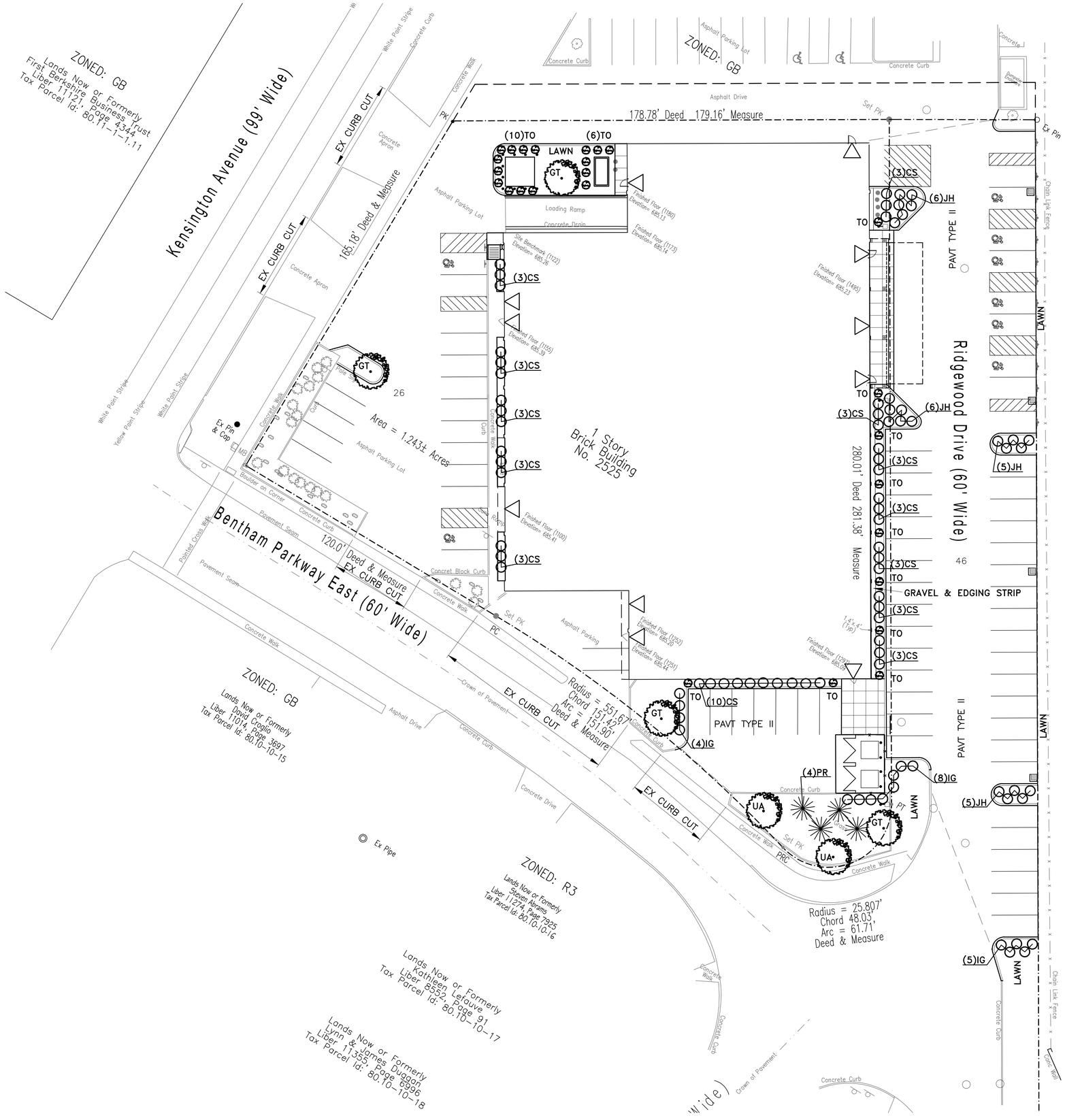
SCALE
AS NOTED

DATE
Feb 22, 2022

SITE DETAILS

SP201

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)



PLANTING SCHEDULE

MARK	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
SHRUBS/GRASSES					
TO	26	THUJA OCCIDENTALIS	EMERALD ARBORVITE	4'h MIN.	B&B
CS	46	CORNUS STOLONIFERA	ARCTIC FIRE DOGWOOD	24"h	CONT.
JH	22	JUNIPERUS HORIZONTALIS	BAR HARBOR JUNIPER	24"sp	CONT.
IG	17	ILEX GLABRA COMPACTA	SHAMROCK INKBERRY	24"h 5'OC	B&B
TREES					
GT	3	GLEDITSIA TRIACANTHOS INERMIS SUNBURST	SUNBURST LOCUST	2 1/2" CAL	B&B
UA	2	ULMUS AMERICANA 'PRINCETON'	AMERICAN ELM	2–1/2"CAL	B&B
PR	4	PINUS RESINOSA	RED PINE	6'h MIN.	

LANDSCAPE PLAN

1" = 20'

N

NOTES:

1. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING TREES AND PLANTINGS INDICATED TO REMAIN FROM ALL TYPES OF ROOT, TRUNK AND LIMB DAMAGE DURING DEMOLITION AND CONSTRUCTION.
2. EXISTING PLANTED AREAS SHALL REMAIN UNLESS OTHERWISE NOTED.
3. ALL DISTURBED AREAS SHALL RECEIVE 4" MIN. TOPSOIL AND GRASS SEED UNLESS OTHERWISE NOTED.
4. TREE AND SHRUB BEDS SHALL BE COVERED WITH 3" OF HARDWOOD MULCH. ALL ROOTS AND STONES OVER 1 1/2" SHALL BE REMOVED PRIOR TO SEEDING/ PLANTING.
5. ALL STREET AND ISLAND TREES SHALL HAVE FIRST BRANCHING at 6–FOOT MIN.
6. IF A CONFLICT EXISTS BETWEEN THE PLAN AND PLANTING SCHEDULE, THE PLAN SHALL GOVERN.
7. REFER TO ARCHITECTURAL DRAWINGS FOR ALL BUILDING DIMENSIONS, FEATURES & UTILITY CONNECTIONS
8. REFER TO GRADING AND UTILITY PLAN(S) FOR ADDITIONAL INFORMATION NOT SHOWN HEREIN.

LEGEND:

INDICATES NEW TREE PLANTING PER SCHEDULE

INDICATES NEW SHRUB PLANTING PER SCHEDULE

EXISTING TREE/SHRUB TO REMAIN & BE PROTECTED THRU–OUT CONSTRUCTION

EXISTING TREE/SHRUB TO BE REMOVED

LAWN SEED SCHEDULE

Mixtures		Rate per Acre (lbs)	Rate per 1,000 sq. ft. (lbs)
A.	Birdsfoot trefoil or ladino clover	8	0.20
	Tall fescue or mooth bromegrass	20	0.45
	Redtop	2	0.05
		30	0.70
OR			
B.	Kentucky bluegrass	25	0.60
	Creeping red fescue	20	0.50
	Perennial ryegrass	10	0.20
		55	1.30

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REVISIONS
1: REVISED 3/28/22

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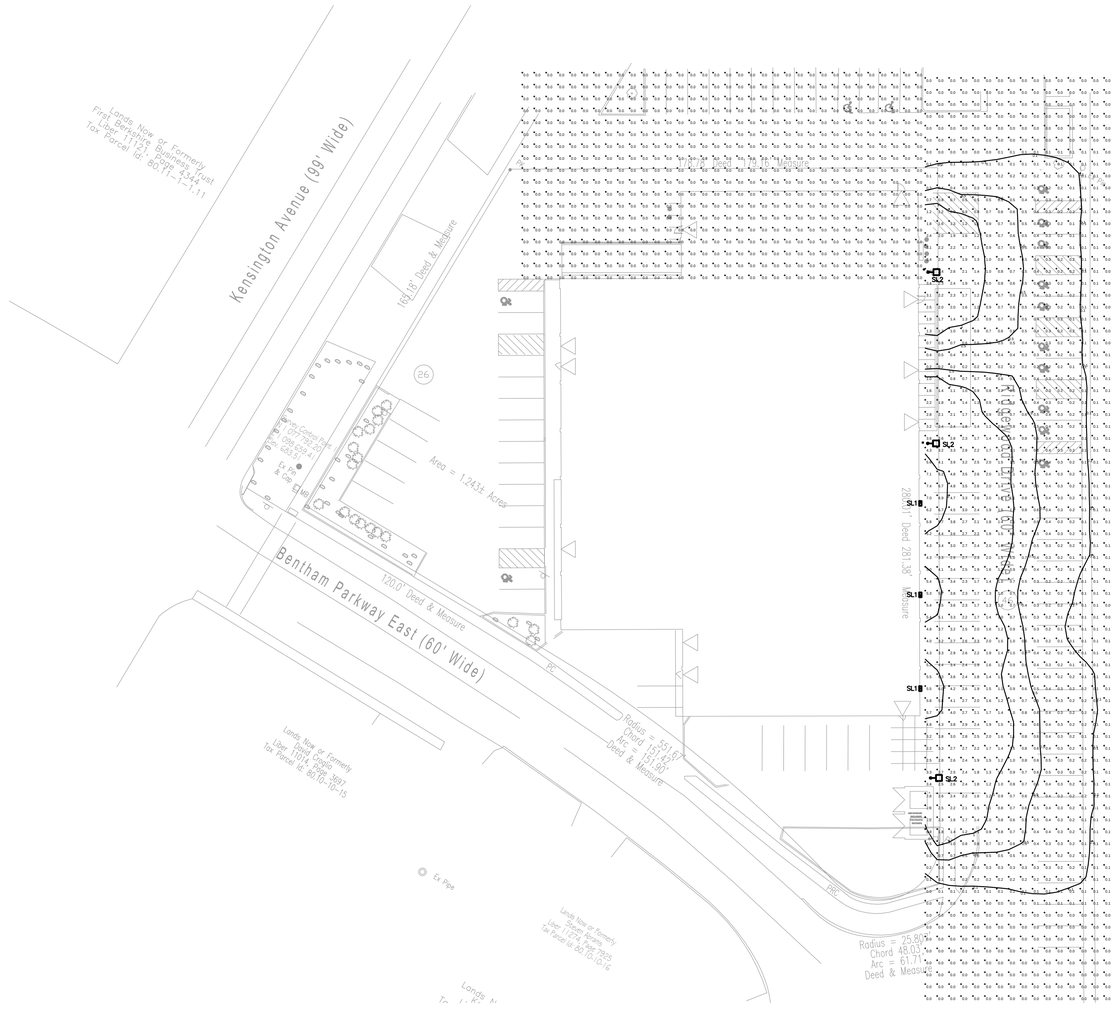
SCALE AS NOTED

DATE Feb 22, 2022

LANDSCAPE PLAN

L101

SP-2022-02 drawings 051922 (2549) : Sp-2022-02)
Attachment: SP-2022-02 (2549 : Sp-2022-02)



1 EL-100 ELECTRICAL SITE LIGHTING PLAN
SCALE: 1" = 20'-0"

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MOUNTING	LENS/DIFFUSER	VOLTAGE/ BALLAST	LAMPS/LUMEN PACKAGE	MANUFACTURER & CATALOG NO.
SL1	WALL MOUNTED LED SITE LUMINAIRE	WALL MOUNTED 10'-0" A.F.G.	LED OPTICS, TYPE 4 FORWARD THROW	UNV 120-277V	44W, 6019 LUMENS, 4000°K LED SYSTEM	MCGRAW EDISON 'GALLEON LED' #GLEON-SA1B-740-U-T4FT
SL2	POLE MOUNTED LED SITE LUMINAIRE	POLE MOUNTED 15'-0" A.F.G.	LED OPTICS, TYPE 4 FORWARD THROW	UNV 120-277V	44W, 6019 LUMENS, 4000°K LED SYSTEM	MCGRAW EDISON 'GALLEON LED' #GLEON-SA1B-740-U-T4FT

2.e

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Buffalo Engineering
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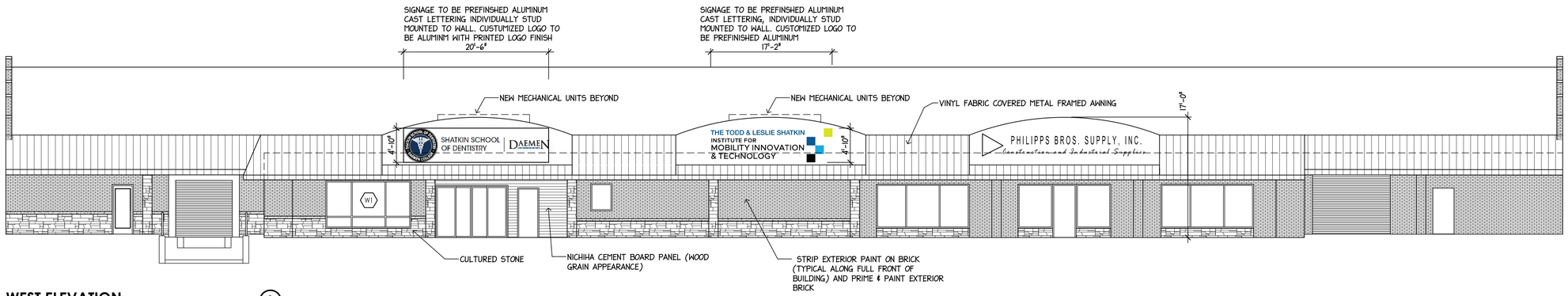
REVISIONS

DRAWN BY: DTB
CHECKED BY:
SCALE: AS NOTED
DATE: 03/24/22

ELECTRICAL SITE LIGHTING PLAN

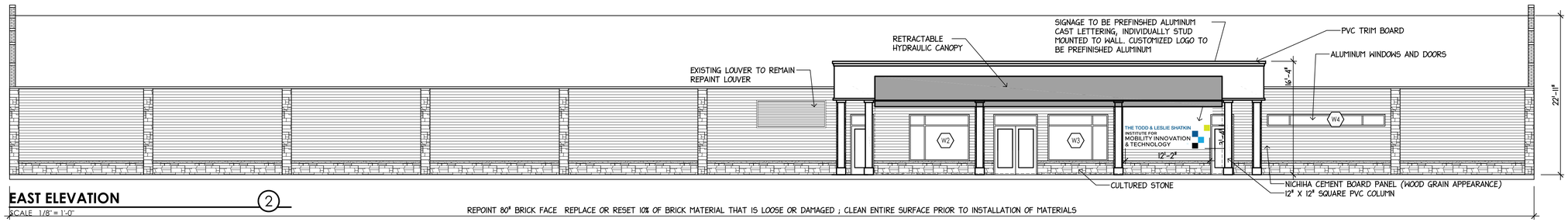
EL-100

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)



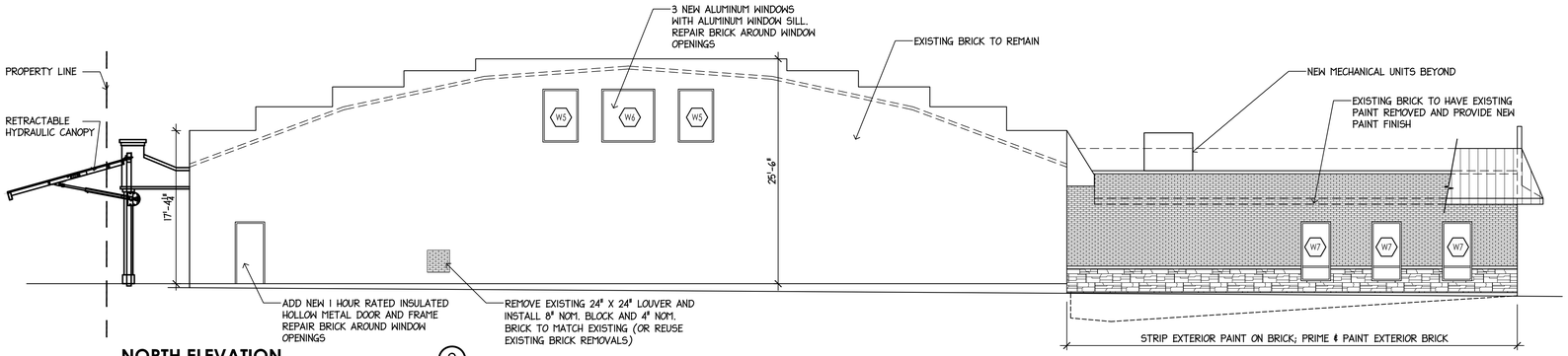
WEST ELEVATION ①

SCALE 1/8" = 1'-0"



EAST ELEVATION ②

SCALE 1/8" = 1'-0"



NORTH ELEVATION ③

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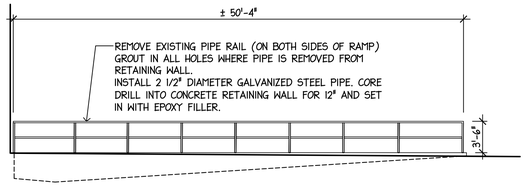

RAMP RAILING ELEVATION ⑤

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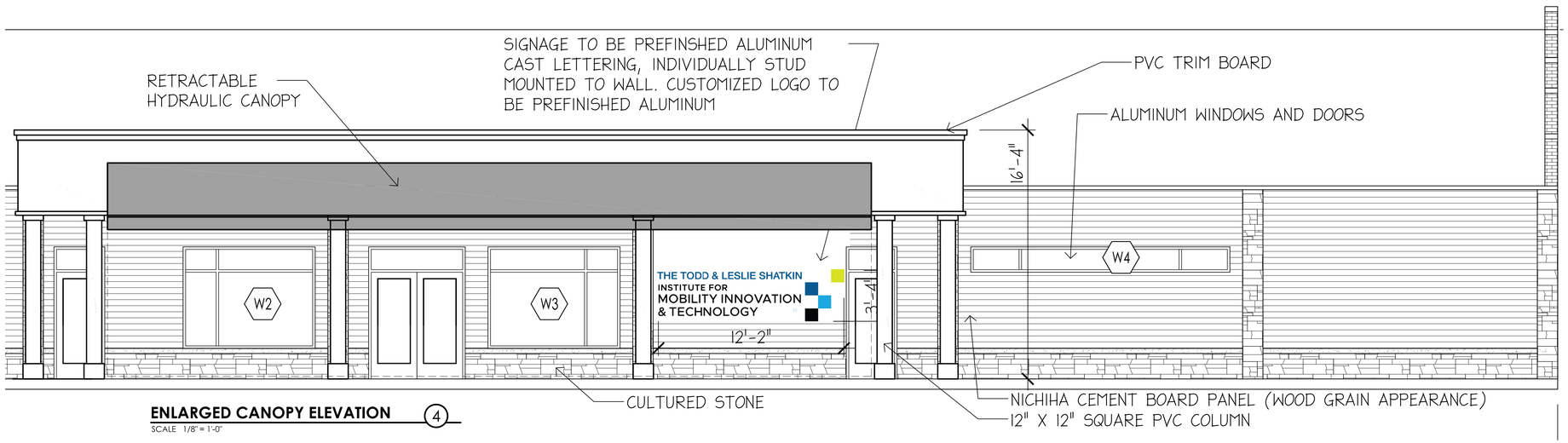

ENLARGED CANOPY ELEVATION ④

SCALE 1/8" = 1'-0"

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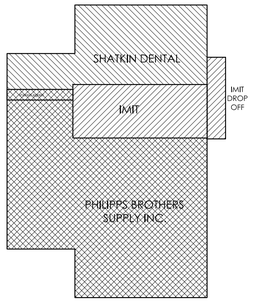
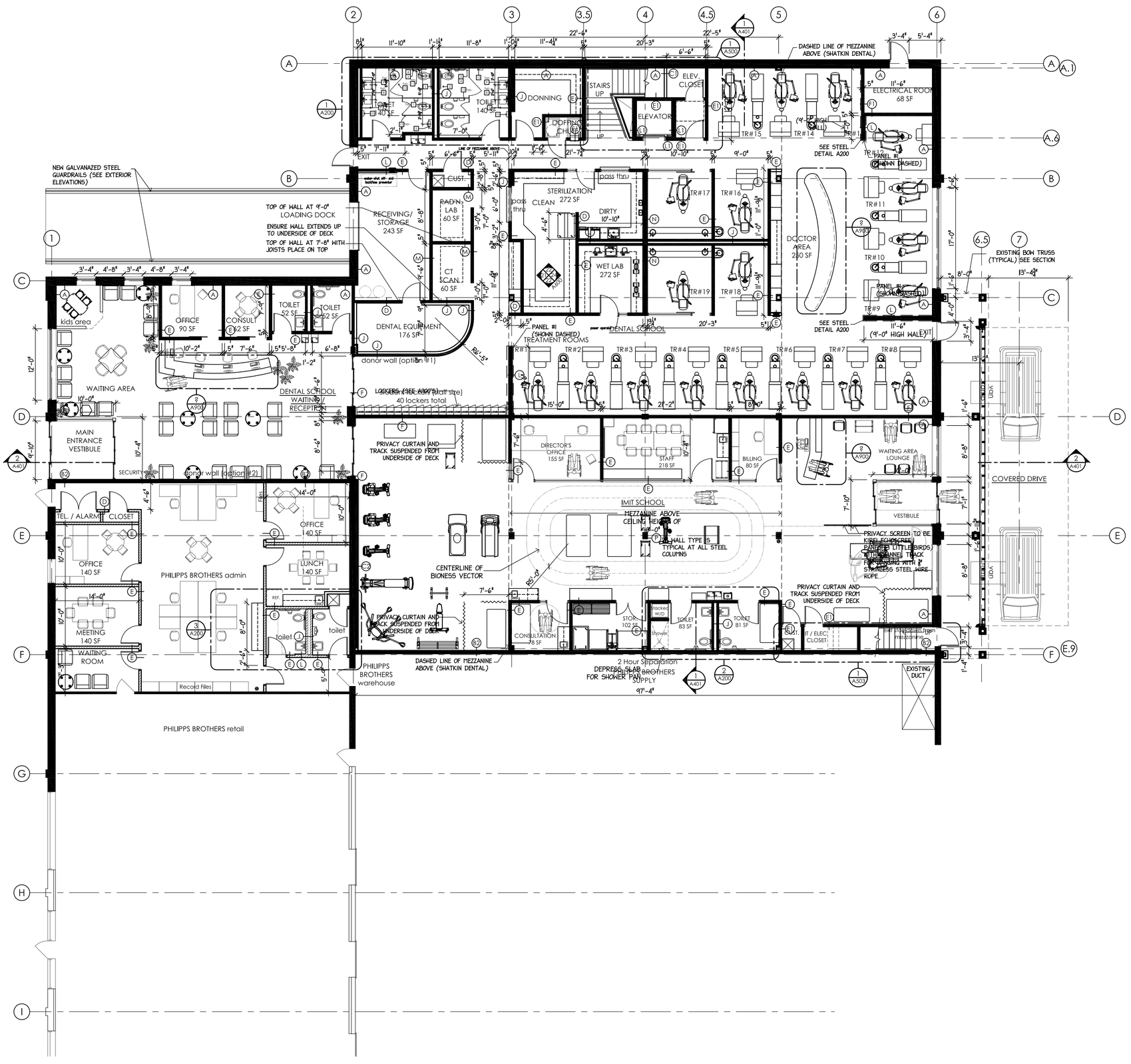
DATE
March 29 2022

EXTERIOR ELEVATIONS

A300



KEY PLAN
SCALE NTS



SHATKIN DENTAL
12,253 SF
W/ 2ND FL

PHILIPPS ADMIN
1,907 SF

IMIT
4000 SF

philipps MEP rooms 300 sf.

PHILIPPS BROTHERS RETAIL
3,748 SF

PHILIPPS BROTHERS WAREHOUSE
11,621 SF

GROUND FLOOR PLAN
SCALE 1/8" = 1'-0"

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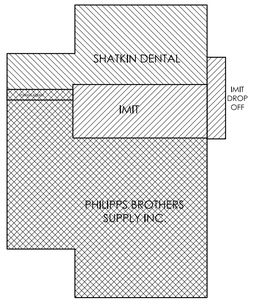
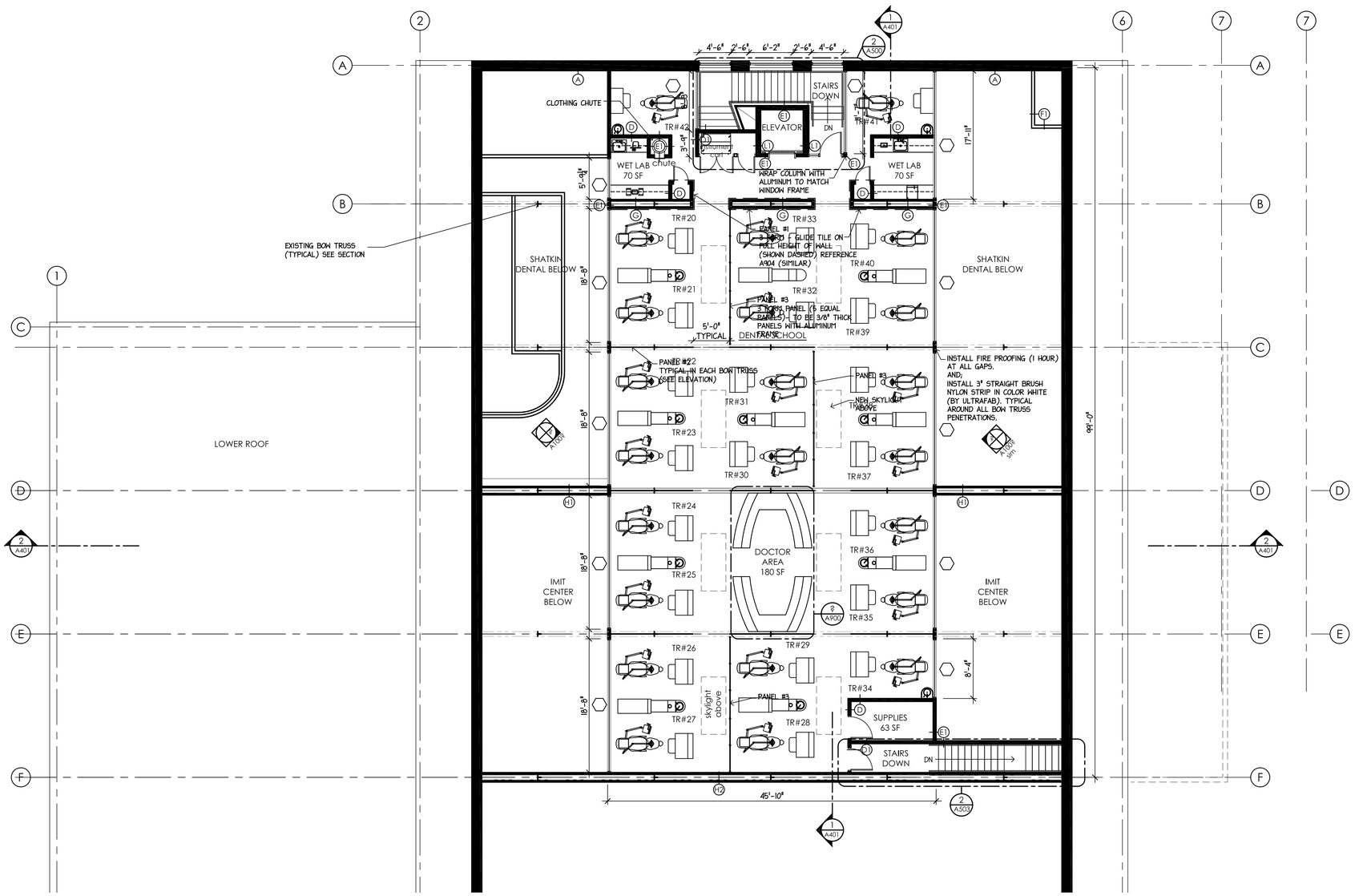
DATE
March 29 2022

GROUND FLOOR PLAN

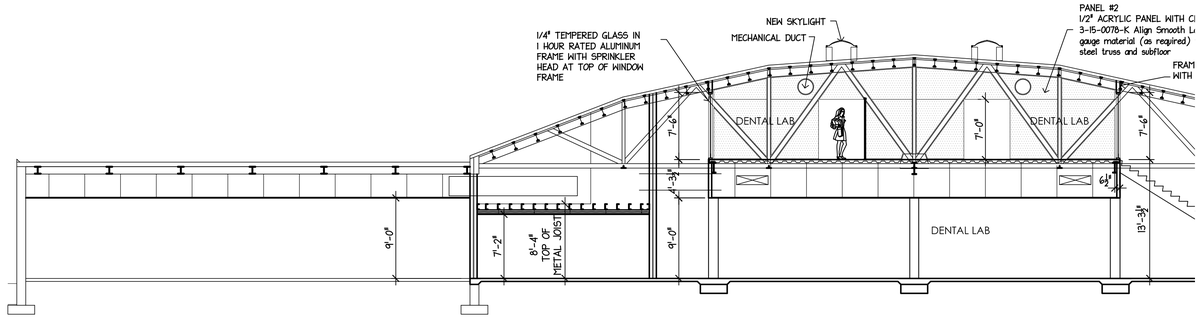
A101



KEY PLAN (1)
SCALE NTS



UPPER FLOOR PLAN (1)
SCALE 1/8" = 1'-0"



TYPICAL CROSS SECTION (2)
SCALE 1/8" = 1'-0"

2.e

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REVISIONS
SITE PLAN APPLICATION

DRAWN BY: JRM
CHECKED BY:

SCALE: AS NOTED

DATE: March 29 2022

SECOND FLOOR PLAN

A102

KOHLER

Model: 200REOZJF

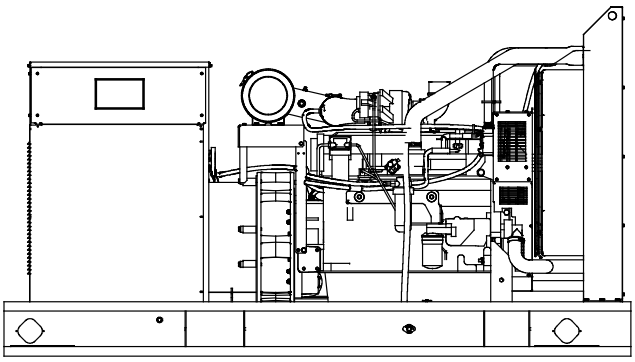
208- 600 V **Diesel**

ISO 9001 KOHLER NATIONALLY REGISTERED

Tier 3 EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz
Standby:	**kW**	168- 200
	kVA	195- 250
Prime:	**kW**	158- 180
	kVA	175- 225



Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating kW/kVA	130°C Rise Standby Rating Amps	105°C Rise Prime Rating kW/kVA	105°C Rise Prime Rating Amps
4S13X	120/208	3	60	184/230	638	173/216	600
	127/220	3	60	194/243	636	180/225	590
	120/240	3	60	184/230	553	173/216	520
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	168/210	319	158/198	300
	277/480	3	60	200/250	301	180/225	271
4UA9	120/208	3	60	200/250	694	180/225	625
	127/220	3	60	200/250	656	180/225	590
	120/240	3	60	200/250	601	180/225	541
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	200/250	380	180/225	342
	277/480	3	60	200/250	301	180/225	271
	347/600	3	60	200/250	241	180/225	217
4UA13	120/208	3	60	200/250	694	180/225	625
	127/220	3	60	200/250	656	180/225	590
	120/240	3	60	200/250	601	180/225	541
	120/240	1	60	195/195	813	175/175	729
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	200/250	380	180/225	342
	277/480	3	60	200/250	301	180/225	271
	347/600	3	60	200/250	241	180/225	217

Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
  - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
    (4S13X alternator)
  - The unique Fast-Response® II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator.
    (4UA9 and 4UA13 alternators)
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
- Multiple circuit breaker configurations.
- Mount up to three circuit breakers to allow circuit protection of selected priority loads.

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. *Standby Ratings:* The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. *Prime Power Ratings:* At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	
4SX, 4UA	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Specifications		Alternator
Peak motor starting kVA:		(35% dip for voltages below)
480 V	4S13X (12 lead)	570
480 V	4UA9 (12 lead)	700
480 V	4UA13 (12 lead)	960

Application Data

Engine

Engine Specifications	
Manufacturer	John Deere
Engine model	6068HFG85A
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	6 Inline
Displacement, L (cu. in.)	6.8 (415)
Bore and stroke, mm (in.)	106 x 127 (4.19 x 5.00)
Compression ratio	17.0:1
Piston speed, m/min. (ft./min.)	457 (1500)
Main bearings: quantity, type	7, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	235 (315)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve material:	
Intake	Chromium-Silicon Steel
Exhaust	Stainless Steel
Governor: type, make/model	JDEC Electronic L14 Denso HP3
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m^3/min. (cfm)	42.8 (1510)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	527 (980)
Maximum allowable back pressure, kPa (in. Hg)	Min. 4 (1.2) Max. 10 (3.0)
Exhaust outlet size at engine hookup, mm (in.)	98 (3.86)

Engine Electrical

Engine Electrical System	
Battery charging alternator:	24 Volt
Ground (negative/positive)	Negative
Volts (DC)	24
Ampere rating	45
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each	Two, 925
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, fuel pump: type, m (ft.)	Mechanical, 1.8 (6.0)
Max. fuel flow, Lph (gph)	92.7 (24.5)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel prime pump	Manual
Fuel filter	
Primary	30 Microns
Secondary	2 Microns @ 98% Efficiency
Water Separator	Yes
Recommended fuel	#2 Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.) §	32.5 (34.4)
Oil pan capacity with filter, L (qt.) §	33.4 (35.3)
Oil filter: quantity, type §	1, Cartridge
Oil cooler	Water-Cooled

§ Kohler recommends the use of Kohler Genuine oil and filters.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Application Data

Cooling

Radiator System	
Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	11.3 (3.0)
Radiator system capacity, including engine, L (gal.)	27.6 (7.3)
Engine jacket water flow, Lpm (gpm)	230.9 (61)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	94.2 (5360)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	56.1 (3190)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	787 (31)
Fan, kWm (HP)	8.6 (11.5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)

* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

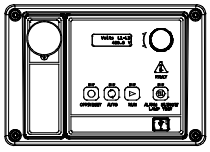
Air Requirements	
Radiator-cooled cooling air, m^3/min. (scfm)‡	368.1 (13000)
Combustion air, m^3/min. (cfm)	17.6 (620)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	46.9 (2670)
Alternator, kW (Btu/min.)	18.5 (1050)

‡ Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

Fuel Consumption

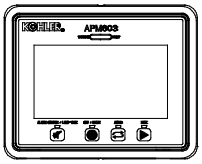
Diesel, Lph (gph) at % load	Standby Rating	
100%	58.0	(15.3)
75%	43.3	(11.4)
50%	31.4	(8.3)
25%	19.7	(5.2)
Diesel, Lph (gph) at % load	**Prime Rating**	
100%	50.1	(13.2)
75%	36.1	(9.5)
50%	25.7	(6.8)
25%	16.6	(4.4)

Controllers



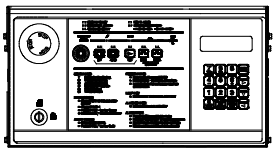
APM402 Controller
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.
- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.



APM603 Controller
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.
- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.



Decision-Maker® 6000 Paralleling Controller
Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other Decision-Maker® 6000 controllers only
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-107 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

BACnet® is a registered trademark of ASHRAE.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

KOHLER

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

Standard Features

- Alternator Protection
- Battery Rack and Cables
- Customer Connection (standard with Decision-Maker® 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Circuit Breakers

Type

- ❑ Magnetic Trip
- ❑ Thermal Magnetic Trip
- ❑ Electronic Trip (LI)
- ❑ Electronic Trip with Short Time (LSI)
- ❑ Electronic Trip with Ground Fault (LSIG)

Rating

- ❑ 80%
- ❑ 100%

Operation

- ❑ Manual
- ❑ Electrically Operated (for paralleling)

Circuit Breaker Mounting

- ❑ Generator Mounted
- ❑ Remote Mounted
- ❑ Bus Bar (for remote mounted breakers)

Enclosures for Remote Mounted Circuit Breakers

- ❑ NEMA 1
- ❑ NEMA 3R

Approvals and Listings

- ❑ California OSHPD Pre- Approval
- ❑ CSA Certified
- ❑ IBC Seismic Certification
- ❑ UL 2200 Listing
- ❑ Hurricane Rated Enclosure

Enclosed Unit

- ❑ Sound Enclosure (with enclosed critical silencer)
- ❑ Weather Enclosure (with enclosed critical silencer)

Open Unit

- ❑ Exhaust Silencer, Critical (kit: PA-354809)
- ❑ Flexible Exhaust Connector, Stainless Steel

Fuel System

- ❑ Flexible Fuel Lines
- ❑ Fuel Pressure Gauge
- ❑ Subbase Fuel Tanks

Controller

- ❑ Common Failure Relay (Decision-Maker® 6000 and APM603 controllers only)
- ❑ Decision-Maker® Paralleling System (DPS) (Decision-Maker® 6000 controller only)
- ❑ Dry Contact (isolated alarm) (Decision-Maker® 6000 controller only)
- ❑ Two Input/Five Output Module (APM402 controller only)
- ❑ Four Input/Fifteen Output Module (APM603 controller only)
- ❑ Lockable Emergency Stop Switch
- ❑ Remote Emergency Stop Switch
- ❑ Remote Serial Annunciator Panel
- ❑ Run Relay (standard with APM603, optional with others)
- ❑ Manual Key Switch (APM603 controller only)
- ❑ Manual Speed Adjust (APM402 controller only)

Cooling System

- ❑ Block Heater, 1800 W, 90- 120 V, 1 Ph
- ❑ Block Heater, 2000 W, 190- 240 V, 1 Ph Required for ambient temperature below 0°C (32°F)
- ❑ Radiator Duct Flange

Electrical System

- ❑ Generator Heater
- ❑ Battery
- ❑ Battery Charger, Equalize/Float Type
- ❑ Battery Heater

Miscellaneous

- ❑ Air Cleaner, Heavy Duty
- ❑ Air Cleaner Restriction Indicator
- ❑ Certified Test Report
- ❑ Crankcase Emissions Canister
- ❑ Engine Fluids Added
- ❑ Rated Power Factor Testing
- ❑ Rodent Guards

Literature

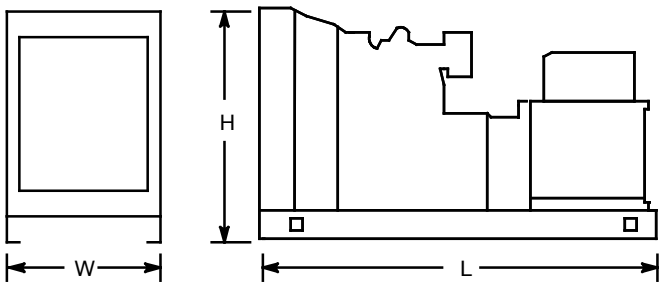
- ❑ General Maintenance
- ❑ NFPA 110
- ❑ Overhaul
- ❑ Production

Warranty

- ❑ 2-Year Basic Limited Warranty
- ❑ 5-Year Basic Limited Warranty
- ❑ 5-Year Comprehensive Limited Warranty

Dimensions and Weights

Overall Size, L x W x H, mm (in.):	3000 x 1300 x 1672 (118.1 x 51.2 x 65.8)
Weight (radiator model), wet, kg (lb.):	1923 (4240)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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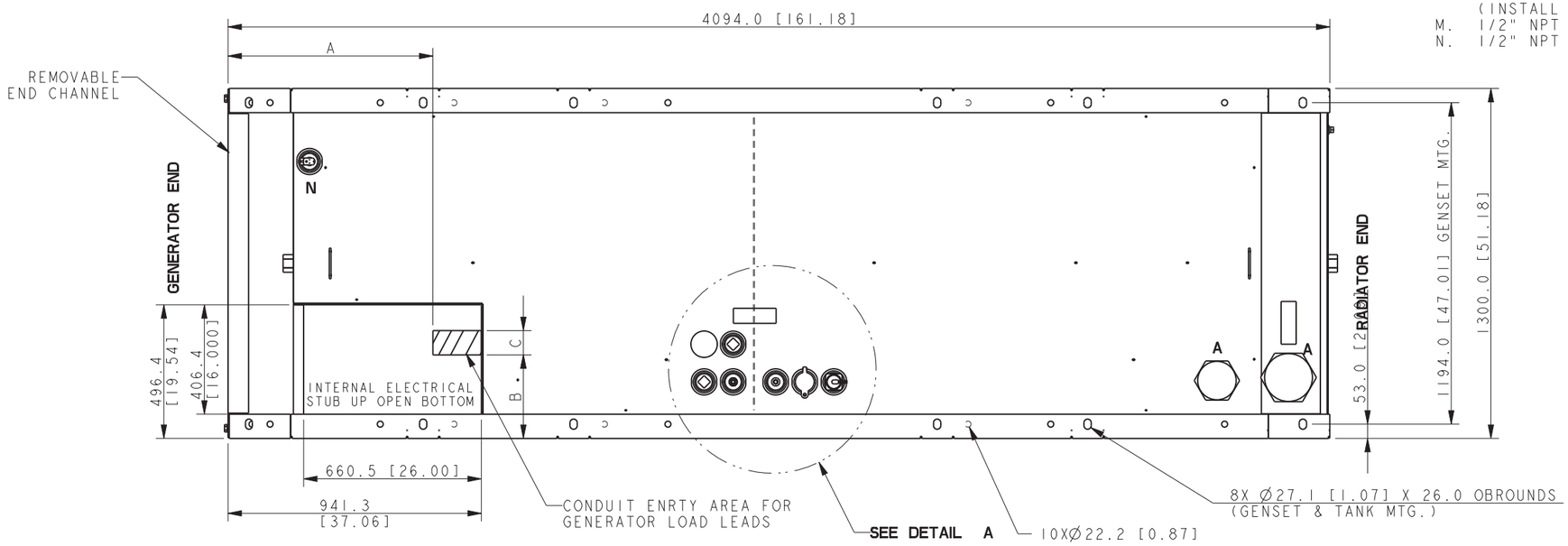
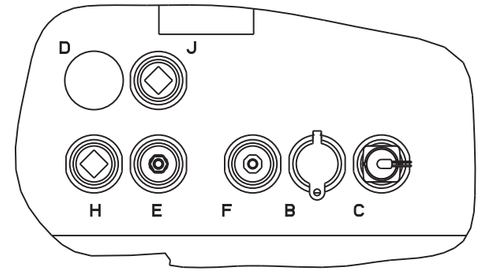
Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

MODEL	CAPACITY		WEIGHT		HEIGHT		E-Vent	
	LITERS	GAL	KG	LBS	MM	IN	SIZE (IN)	QTY
180/200kW	1514	400	933	2057	482.6	19.0	4.0	2.0
180/200kW	2871	758	1327	2926	889.0	35.0	5.0	2.0

TANK FITTINGS:

A. 'A' NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS
B. 2" NPT FUEL FILL FITTING WITH LOCKABLE CAP
C. 2" NPT FUEL LEVEL GAUGE FITTING
D. 2" NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE)
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE)
H. 2" NPT FOR LOW LEVEL SWITCH (SET AT 50% FULL, SILICONE PACKED)
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY (INSTALL STEEL 2" NPT PIPE PLUG)
M. 1/2" NPT BASIN DRAIN (INSTALL STEEL 1/2" NPT PIPE PLUG)
N. 1/2" NPT FOR FUEL IN BASIN SWITCH (INSTALL STEEL 1/2" NPT PIPE PLUG)





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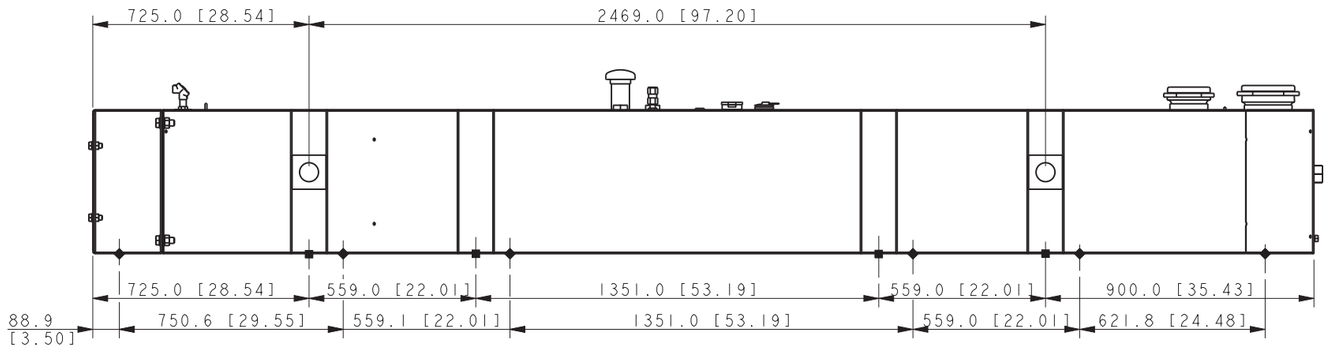

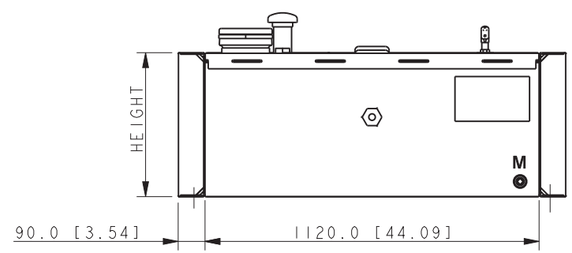

■ 8XØ25.4 [1.0] STANDARD MOUNTING

◆ 12XØ22.2 [0.88] IBC/WINDLOAD MOUNTING

GENSET	A	B	C
180KW	761 [30.0]	310 [12.2]	90 [3.5]
200KW	561 [22.1]	303 [11.9]	100 [3.9]

STANDARD TANK

180 MODEL 60HZ 4S15, 4S12X & 4S13X
200 MODEL 4UA9, 4UA13 & 4S13X
RECONNECTABLE
IMPROVED MOTOR STARTING (IMS) &
600V ALTERNATOR
JOHN DEERE 6068HF485, TIER III

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
F	08-11-14	(A-4) STANDARD TANK NOTE ADDED & SEE SHEET 2 [CT89102]	PAS
G	2-28-17	(A-8, A-7) 761 WAS 571, 303 WAS 195, (8-D, C-7) DELETE 50.0 UPDATE CONDUIT AREA, SEE SHEET 2, [CT170607]	RMJ
H	2-19-18	SEE SHEET 3 [CT184671]	PAS
J	2-26-19	(A-5) IBC/WINDLOAD MOUNTING WAS IBC MOUNTING; SEE SHEET 2 & 3 [CT193852]	TKK
K	7-2-19	SEE SHEET 2 [CT196925]	JB2

UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

APPROVALS	DATE
DRAWN PKD	1-20-10
CHECKED AJD	1-20-10
APPROVED AJD	1-20-10

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POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
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TITLE
DIMENSION PRINT

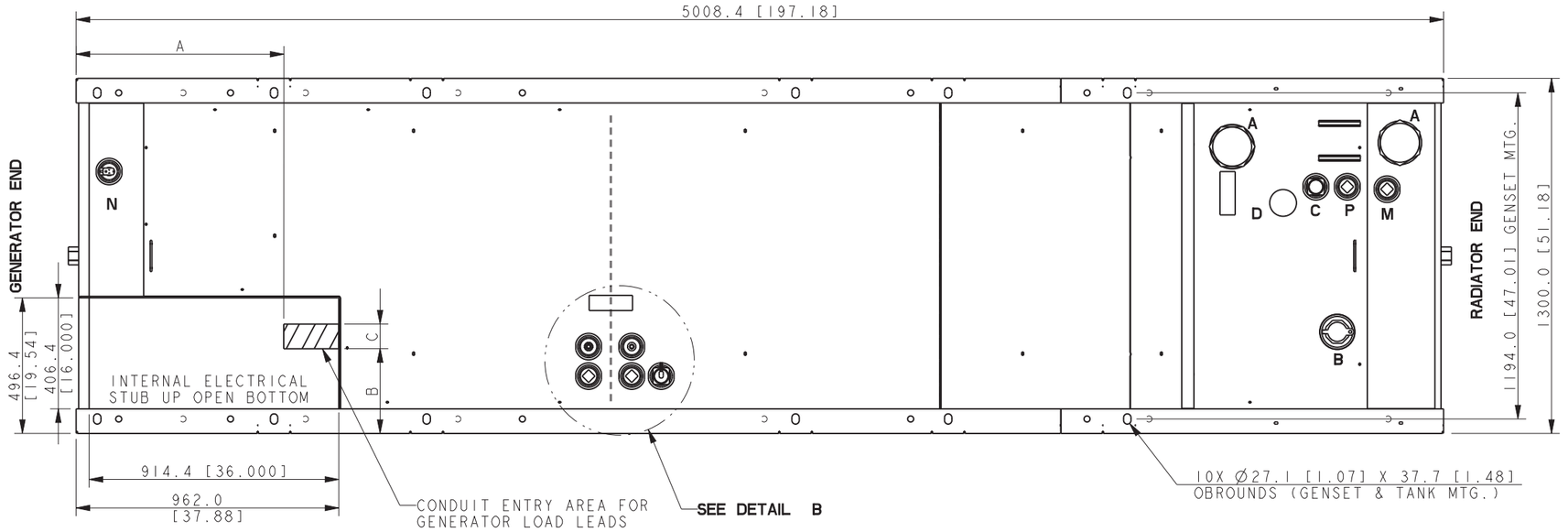
SCALE 0.10 | CAD NO. | SHEET 1 of 3
DWG NO. ADV-

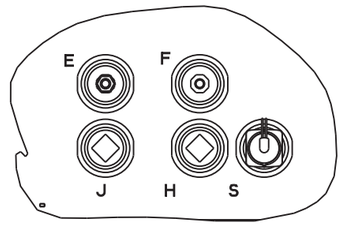
Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

MODEL	CAPACITY		WEIGHT		HEIGHT		E-Vent	
	LITERS	GAL	KG	LBS	MM	IN	SIZE (IN)	QTY
180/200kW	1576	416	1234	2721	457.2	18.0	5.0	2.0
180/200kW	2896	765	1560	3440	762.0	30.0	5.0	2.0

TANK FITTINGS:

A. 'A' NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS
B. 4" NPT FUEL FILL FITTING WITH LOCKABLE CAP AND RISER. PLUG & SHIP WITH TANK IN BOX ATTACHED TO TANK
C. 2" NPT FUEL LEVEL GAUGE FITTING
D. 2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER.
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE)
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE)
H. 2" NPT FOR LOW LEVEL SWITCH (SET AT 50% FULL, SILICONE PACKED)
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY (INSTALL 2" NPT PIPE PLUG)
M. 2" NPT BASIN DRAIN (PLUGGED
N. 2" NPT FOR FUEL IN BASIN SWITCH
P. 2" NPT ADDITIONAL FITTING FOR OTPIONAL ACCESORY (INSTALL 2" NPT PIPE PLUG)
S. 2" NPT FUEL LEVEL GAUGE FITTING WITH SENDER





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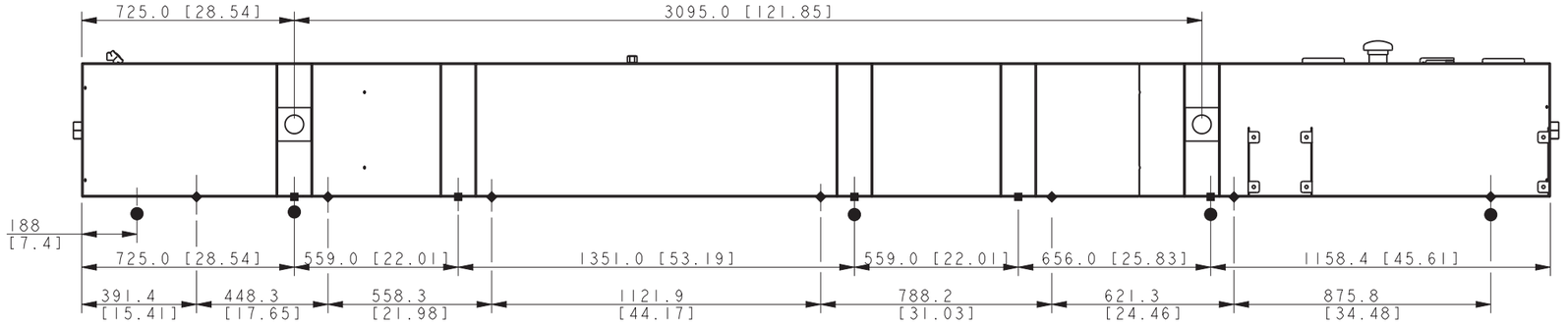

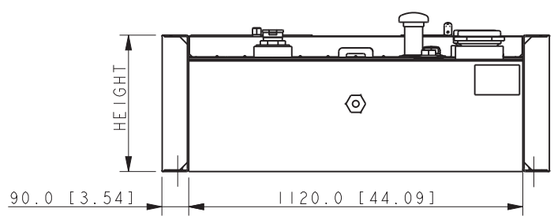

■ 10XØ25.4 [1.0] STANDARD MOUNTING
◆ 14XØ22.2 [0.88] IBC/WINDLOAD MOUNTING
● 10XØ25.4 [1.0] BOTTOM BEAM MOUNTING

GENSET	A	B	C
180KW	761 [30.0]	310 [12.2]	90 [3.5]
200KW	561 [22.1]	303 [11.9]	100 [3.9]

STATE TANK
180 MODEL 60HZ 4S15, 4S12X & 4S13X
200 MODEL 4UA9, 4UA13 & 4S13X
RECONNECTABLE
IMPROVED MOTOR STARTING (IMS) &
600V ALTERNATOR
JOHN DEERE 6068HF485, TIER III

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
G	2-28-17	(A-8, A-7) 761 WAS 571, 303 WAS 195,	
		(8-D, C-7) DELETE 50.0 UPDATE CONDUIT AREA,	
		SEE SHEET 1, [CT170607]	RMJ
H	2-19-18	SEE SHEET 3 [CT184671]	PAS
J	2-26-19	(A-5,6) IBC/WINDLOAD MOUNTING WAS IBC	
		MOUNTING; SEE SHEET 1 & 3 [CT193852]	TKK
K	7-2-19	(D-6)5.0 WAS 4.0, (B-4) CORRECTED ACCURACY	
		TO GENSET / TANK MOUNTING [CT196925]	JB2

UNLESS OTHERWISE SPECIFIED: - 1) DIMENSIONS ARE IN MILLIMETERS 2) TOLERANCES ARE: X.XX ± 0.25, X.X ± 1.0, X ± 1.5, ANGLES ± 0° 30' — SURFACE FINISH MAX. — THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	PKD	1-20-10
CHECKED	AJD	1-20-10
APPROVED	AJD	1-20-10

KOHLER CO. METRIC PRO
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
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TITLE: **DIMENSION PRINT**

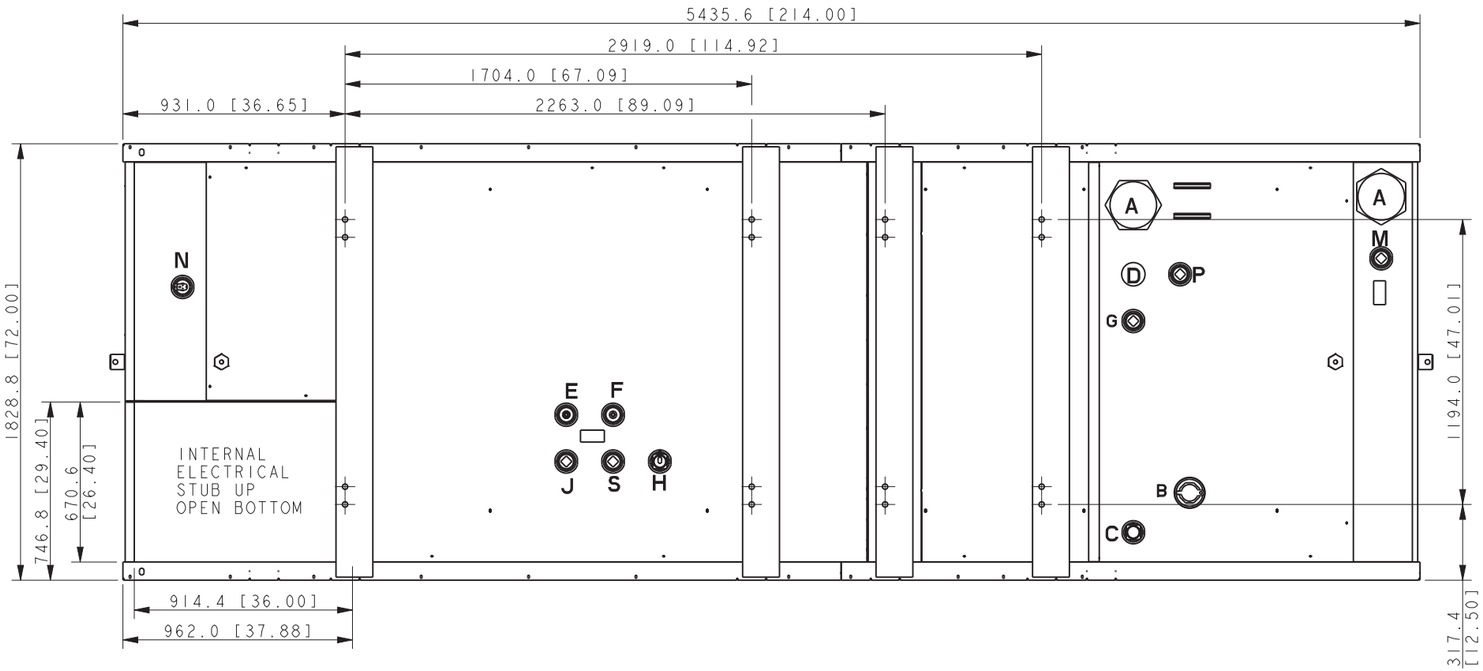
SCALE 0.10 | CAD NO. | SHEET 2 of 3
DWG NO. ADV-

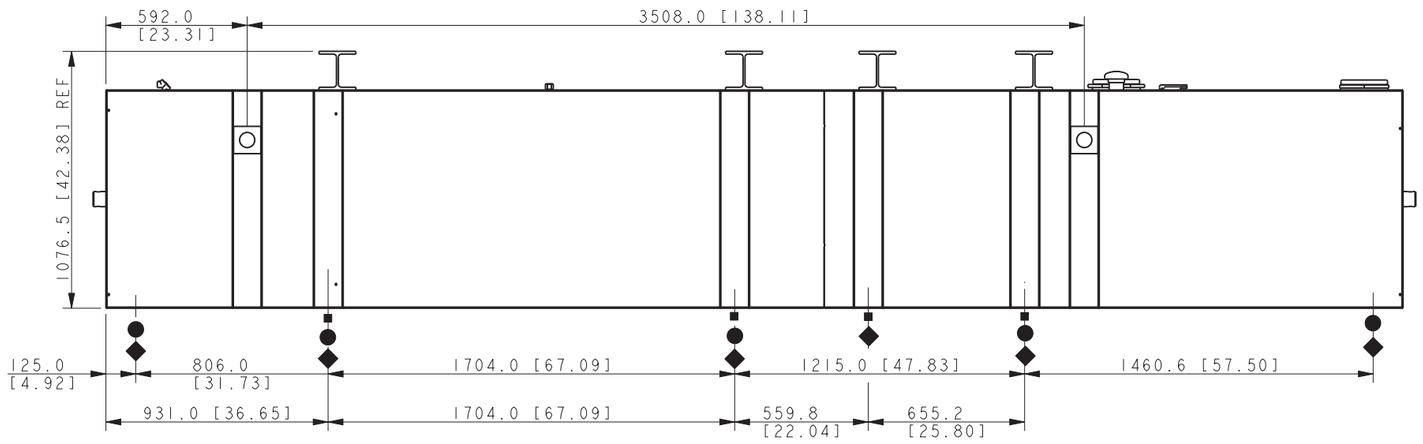
Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

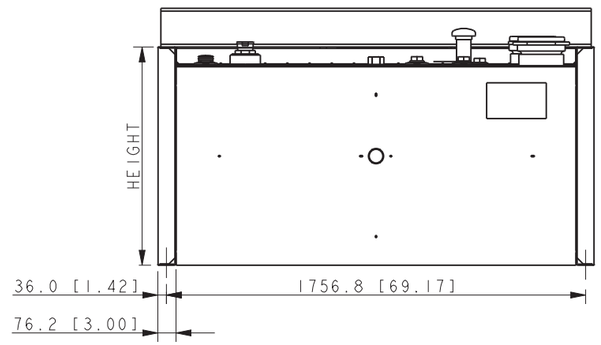
MODEL	CAPACITY		WEIGHT		HEIGHT		E-Vent	
	LITERS	GAL	KG	LBS	MM	IN	SIZE (IN)	QTY
180/200kW	5742	1517	1727	3809	914.4	36.0	6.0	2.0

TANK FITTINGS:

A. 'A' NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS
B. 4" NPT FUEL FILL FITTING WITH LOCKABLE CAP AND RISER.
C. 2" NPT FUEL LEVEL GAUGE FITING WITH DIRECT READING MECHANICAL GAUGE.
D. 2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER.
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE).
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE).
G. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY. (INSTALL STEEL 2" NPT PIPE PLUG).
H. 2" NPT FOR FUEL LEVEL SENDING UNIT.
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY. (INSTALL STEEL 2" NPT PIPE PLUG).
M. 2" NPT BASIN DRAIN (INSTALL STEEL 2" NPT PIPE PLUG).
N. 2" NPT FOR FUEL IN BASIN SWITCH.
P. 2" NPT ADDITIONAL FITTING FOR OTPIONAL ACCESORY (INSTALL STEEL 2" NPT PIPE PLUG).
S. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY. (INSTALL STEEL 2" NPT PIPE PLUG).







NOTE:
FOR FURTHER TANK DETAIL
SEE INDIVIDUAL DRAWINGS

■ 8X Ø25.40 [1.0] STANDARD MOUNTING
● 10X Ø25.40 [1.0] BOTTOM BEAM MOUNTING
◆ 12X Ø25.40 [1.0] WINDLOAD MOUNTING

96 HOUR STATE TANK

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
H	2-19-18	SHEET 3 ADDED [CTI84671]	PAS
J	2-26-19	(A-4,5) 12X Ø25.40 [1.0] WINDLOAD MOUNTING	
		NOTE ADDED; SEE SHEET 1 & 2 [CTI93852]	TKK
K	7-2-19	SEE SHEET 2 [CTI96925]	JB2

UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	PAS	2-19-18
CHECKED	JB2	2-19-18
APPROVED	KJB	2-19-18

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TITLE
DIMENSION PRINT

SCALE 0.08 | CAD NO. | SHEET 3 of 3
DWG NO. ADV-

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GLEON Galleon

Area / Site Luminaire

Product Features

LumenSafe Technology

Light ARchitect™

Product Certifications

Interactive Menu

- Ordering Information page 2
- Mounting Details page 3
- Optical Distributions page 4
- Product Specifications page 4
- Energy and Performance Data page 4
- Control Options page 9

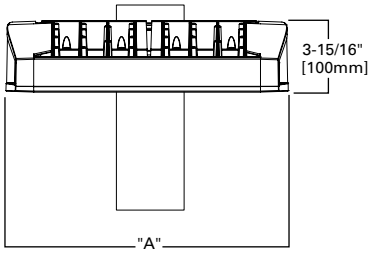
Quick Facts

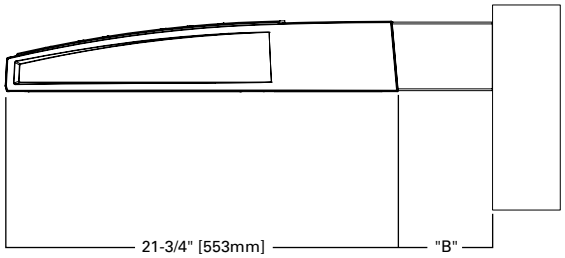
- Lumen packages range from 4,200 - 80,800 (34W - 640W)
- Efficacy up to 156 lumens per watt
- Options to meet Buy American and other domestic preference requirements

Connected Systems

- WaveLinx
- Enlighted

Dimensional Details





Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Extended Arm Length [1]	"B" Quick Mount Arm Length	"B" Quick Mount Extended Arm Length
1-4	15-1/2"	7"	10"	10-5/8"	16-9/16"
5-6	21-5/8"	7"	10"	10-5/8"	16-9/16"
7-8	27-5/8"	7"	13"	10-5/8"	--
9-10	33-3/4"	7"	16"	--	--

NOTES:
For arm selection requirements and additional line art, see Mounting Details section.

NOTES:
1. Visit https://www.designlights.org/search/ to confirm qualification. Not all product variations are DLC qualified.
2. IDA Certified for 3000K CCT and warmer only.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Ordering Information

SAMPLE NUMBER: **GLEON-SA4C-740-U-T4FT-GM**

Product Family [1, 2]	Light Engine		Color Temperature	Voltage	Distribution	Mounting	Finish
	Configuration	Drive Current					
GLEON=Galleon **BAA-GLEON**=Galleon, Buy American Act Compliant [35] **TAA-GLEON**=Galleon, Trade Agreements Act Compliant [35]	**SA1**=1 Square **SA2**=2 Squares **SA3**=3 Squares **SA4**=4 Squares **SA5**=5 Squares [4] **SA6**=6 Squares **SA7**=7 Squares [5] **SA8**=8 Squares [5] **SA9**=9 Squares [6] **SA0**=10 Squares [6]	**A**=600mA **B**=800mA **C**=1000mA **D**=1200mA [16]	**722**=70CRI, 2200K **727**=70CRI, 2700K **730**=70CRI, 3000K **735**=70CRI, 3500K **740**=70CRI, 4000K **750**=70CRI, 5000K **760**=70CRI, 6000K **827**=80CRI, 2700K **830**=80CRI, 3000K **AMB**=Amber, 590nm [14, 16]	**U**=120-277V **1**=120V **2**=208V **3**=240V **4**=277V **8**=480V [7, 8] **9**=347V [7]	**T2**=Type II **T2R**=Type II Roadway **T3**=Type III **T3R**=Type III Roadway **T4FT**=Type IV Forward Throw **T4W**=Type IV Wide **5NQ**=Type V Narrow **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right **RW**=Rectangular Wide Type I **AFL**=Automotive Frontline	**[Blank]**=Arm for Round or Square Pole **EA**=Extended Arm [9] **MA**=Mast Arm Adapter [10] **WM**=Wall Mount **QM**=Quick Mount Arm (Standard Length) [11] **QML**=Quick Mount Arm (Standard Length, Large) [37] **QMEA**=Quick Mount Arm (Extended Length) [12]	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White **RALXX**=Custom Color

Options (Add as Suffix)	Controls and Systems Options (Add as Suffix)	Accessories (Order Separately)[35]
DIM=External 0-10V Dimming Leads [19, 20] **F**=Single Fuse (120, 277 or 347V Specify Voltage) **FF**=Double Fuse (208, 240 or 480V Specify Voltage) **20K**=Series 20kV UL 1449 Surge Protective Device **2L**=Two Circuits [17, 18] **HA**=50°C High Ambient **HSS**=Installed House Side Shield [28] **GRSBK**=Glare Reducing Shield, Black [23] **GRSWH**=Glare Reducing Shield, White [23] **LCF**=Light Square Trim Painted to Match Housing [27] **MT**=Installed Mesh Top **TH**=Tool-less Door Hardware **CC**=Coastal Construction finish [3] **L90**=Optics Rotated 90° Left **R90**=Optics Rotated 90° Right **CE**=CE Marking [29] **AHD145**=After Hours Dim, 5 Hours [22] **AHD245**=After Hours Dim, 6 Hours [22] **AHD255**=After Hours Dim, 7 Hours [22] **AHD355**=After Hours Dim, 8 Hours [22] **DALI**=DALI Drivers	**BPC**=Button Type Photocontrol **PR**=NEMA 3-PIN Photocontrol Receptacle **PR7**=NEMA 7-PIN Photocontrol Receptacle [21] **SPB2**=Dimming Occupancy Sensor with Bluetooth Interface, 8' - 20' Mounting [34] **SPB4**=Dimming Occupancy Sensor with Bluetooth Interface, 21' - 40' Mounting [34] **MS-L20**=Motion Sensor for ON/OFF Operation, 9' - 20' Mounting Height [24] **MS-L40W**=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height [24] **MS/X-L20**=Bi-Level Motion Sensor, 9' - 20' Mounting Height [24, 25] **MS/X-L40W**=Bi-Level Motion Sensor, 21' - 40' Mounting Height [24, 25] **MS/DIM-L20**=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height [24] **MS/DIM-L40W**=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height [24] **ZW**=WaveLinx Module and 4-PIN Receptacle **ZD**=WaveLinx Module with DALI driver and 4-PIN Receptacle **SWPD4XX**=WaveLinx Sensor Only, 7'-15' [13, 32, 33] **SWPD5XX**=WaveLinx Sensor Only, 15'-40' [13, 32, 33] **WOBXX**=WaveLinx Sensor with Bluetooth, 7'-15' [13, 32] **WOFXX**=WaveLinx Sensor with Bluetooth, 15'-40' [13, 32] **LWR-LW**=Enlighted Sensor, 8'–16' Mounting Height [26] **LWR-LN**=Enlighted Sensor, 16'–40' Mounting Height [26] **DIM10-MS/DIM-L08**=Synapse Occupancy Sensor (<8' Mounting) [19] **DIM10-MS/DIM-L20**=Synapse Occupancy Sensor (9'-20' Mounting) [19] **DIM10-MS/DIM-L40**=Synapse Occupancy Sensor (21'-40' Mounting) [19]	**OA/RA1016**=NEMA Photocontrol Multi-Tap - 105-285V **OA/RA1027**=NEMA Photocontrol - 480V **OA/RA1201**=NEMA Photocontrol - 347V **OA/RA1013**=Photocontrol Shorting Cap **OA/RA1014**=120V Photocontrol **MA1252**=10kV Surge Module Replacement **MA1036-XX**=Single Tenon Adapter for 2-3/8" O.D. Tenon **MA1037-XX**=2@180° Tenon Adapter for 2-3/8" O.D. Tenon **MA1197-XX**=3@120° Tenon Adapter for 2-3/8" O.D. Tenon **MA1188-XX**=4@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1189-XX**=2@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1190-XX**=3@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1191-XX**=2@120° Tenon Adapter for 2-3/8" O.D. Tenon **MA1038-XX**=Single Tenon Adapter for 3-1/2" O.D. Tenon **MA1039-XX**=2@180° Tenon Adapter for 3-1/2" O.D. Tenon **MA1192-XX**=3@120° Tenon Adapter for 3-1/2" O.D. Tenon **MA1193-XX**=4@90° Tenon Adapter for 3-1/2" O.D. Tenon **MA1194-XX**=2@90° Tenon Adapter for 3-1/2" O.D. Tenon **MA1195-XX**=3@90° Tenon Adapter for 3-1/2" O.D. Tenon **FSIR-100**=Wireless Configuration Tool for Occupancy Sensor [24] **GLEON-MT1**=Field Installed Mesh Top for 1-4 Light Squares **GLEON-MT2**=Field Installed Mesh Top for 5-6 Light Squares **GLEON-MT3**=Field Installed Mesh Top for 7-8 Light Squares **GLEON-MT4**=Field Installed Mesh Top for 9-10 Light Squares **GLEON-QM**=Quick Mount Arm Kit [11] **GLEON-QMEA**=Quick Mount Extended Arm Kit [12] **LS/HSS**=Field Installed House Side Shield [28, 30] **LS/GRSBK**=Glare Reducing Shield, Black [23, 30] **LS/GRSWH**=Glare Reducing Shield, White [23, 30] **LS/PFS**=Perimeter Shield, Black [15] **WOLC-7P-10A**=WaveLinx Outdoor Control Module [19, 31] **SWPD4-XX**=Wavelinx Wireless Sensor, 7'–15' Mounting Height [13, 19, 32, 33] **SWPD5-XX**=Wavelinx Wireless Sensor, 15'–40' Mounting Height [13, 19, 32, 33]

NOTES:

1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
2. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
3. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654. Not available with TH option.
4. Not compatible with MS/4-LXX or MS/1-LXX sensors.
5. Not compatible with extended quick mount arm (QMEA).
6. Not compatible with standard quick mount arm (QM) or extended quick mount arm (QMEA).
7. Requires the use of an internal step down transformer when combined with sensor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A.
8. 480V must utilize Wye system only. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems.)
9. May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
10. Factory installed.
11. Maximum 8 light squares.
12. Maximum 6 light squares.
13. Requires ZW or ZD receptacle.
14. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose drive current A; supplied at 500mA drive current only. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option.
15. Set of 4 pcs. One set required per Light Square.
16. Not available with HA option.
17. 2L is not available with MS, MS/X or MS/DIM at 347V or 480V. 2L in SA2 through SA4 requires a larger housing, normally used for SA5 or SA6. Extended arm option may be required when mounting two or more fixtures per pole at 90° or 120°. Refer to arm mounting requirement table.
18. Not available with Enlighted wireless sensors.
19. Cannot be used with other control options.
20. Low voltage control lead brought out 18" outside fixture.
21. Not available if any "MS" sensor is selected. Motion sensor has an integral photocell.
22. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
23. Not for use with T4FT, T4W or SL4 optics. See IES files for details.
24. The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Cooper Lighting Solutions for more information.
25. Replace X with number of Light Squares operating in low output mode.
26. Enlighted wireless sensors are factory installed only requiring network components LWP-EM-1, LWP-GW-1 and LWP-PoE8 in appropriate quantities.
27. Not available with house side shield (HSS).
28. Not for use with 5NQ, 5MQ, 5WQ or RW optics. A black trim plate is used when HSS is selected.
29. CE is not available with the LWR, MS, MS/X, MS/DIM, BPC, PR or PR7 options. Available in 120-277V only.
30. One required for each Light Square.
31. Requires PR7.
32. Replace XX with sensor color (WH, BZ or BK.)
33. WAC Gateway required to enable field-configurability: Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed.
34. Smart device with mobile application required to change system defaults. See controls section for details.
35. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.
36. For BAA or TAA requirements, Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information.
37. Available for 7-10 squares.

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

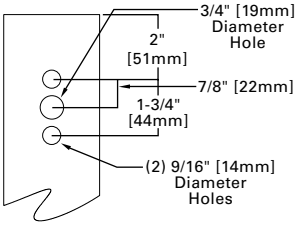
Product Family	Camera Type	Data Backhaul	
L=LumenSafe Technology LumenSafe Technology	**D**=Standard Dome Camera **H**=Hi-Res Dome Camera **Z**=Remote PTZ Camera	**C**=Cellular, No SIM **A**=Cellular, AT&T **V**=Cellular, Verizon **S**=Cellular, Sprint	**R**=Cellular, Rogers **W**=Wi-Fi Networking w/ Omni-Directional Antenna **E**=Ethernet Networking

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

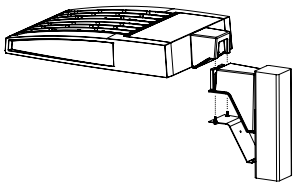
Mounting Details

Standard Arm (Drilling Pattern)

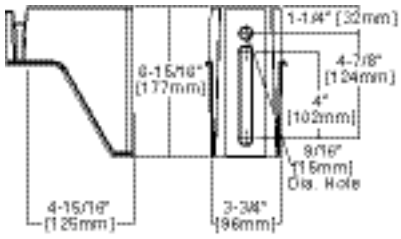
TYPE "N"



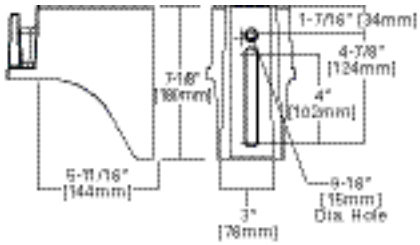
Quick Mount Arm (Includes fixture adapter)



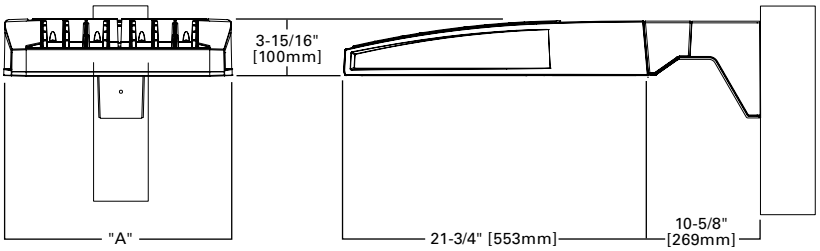
QM and QMEA Pole Mount



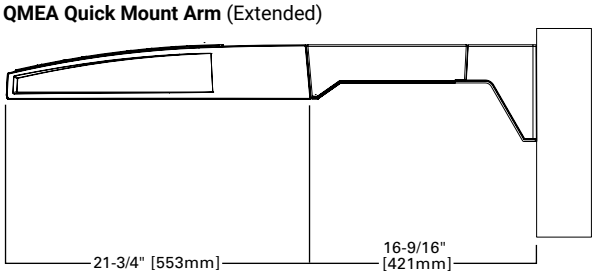
QML Pole Mount



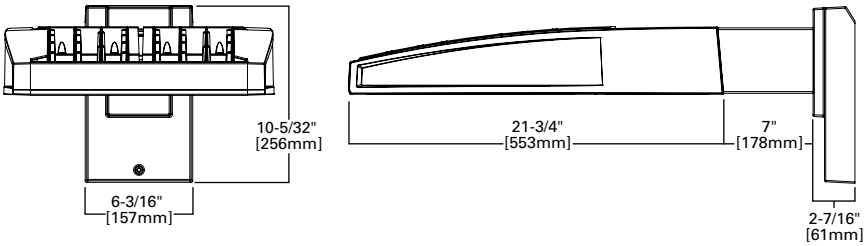
QM Quick Mount Arm (Standard)



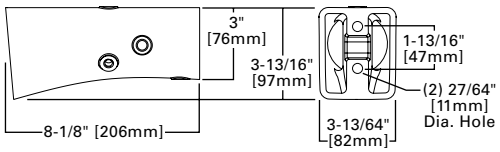
QMEA Quick Mount Arm (Extended)



Standard Wall Mount

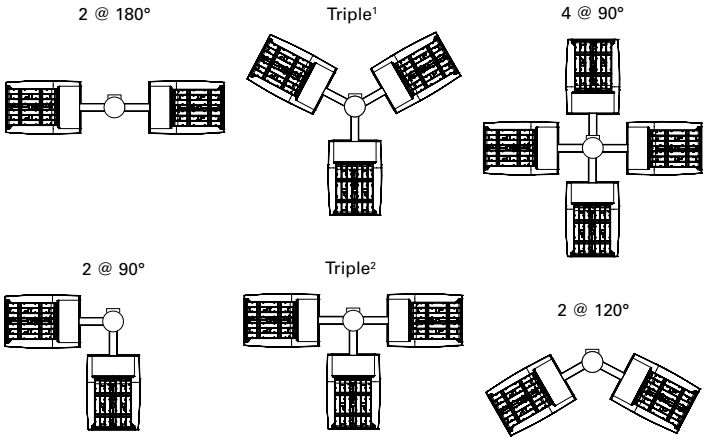


Mast Arm Mount



Arm Mounting Requirements

Number of Light Squares	Standard Arm @ 90° Apart	Standard Arm @ 120° Apart	Quick Mount Arm @ 90° Apart	Quick Mount Arm @ 120° Apart
1	Standard	Standard	QM Extended	Quick Mount
2	Standard	Standard	QM Extended	Quick Mount
3	Standard	Standard	QM Extended	Quick Mount
4	Standard	Standard	QM Extended	Quick Mount
5	Extended	Standard	QM Extended	Quick Mount
6	Extended	Standard	QM Extended	Quick Mount
7	Extended	Extended	--	Quick Mount
8	Extended	Extended	--	Quick Mount
9	Extended	Extended	--	--
10	Extended	Extended	--	--



NOTES: 1 Round poles are 3 @ 120°. Square poles are 3 @ 90°. **2** Round poles are 3 @ 90°. **3** Shown with 4 square configurations.

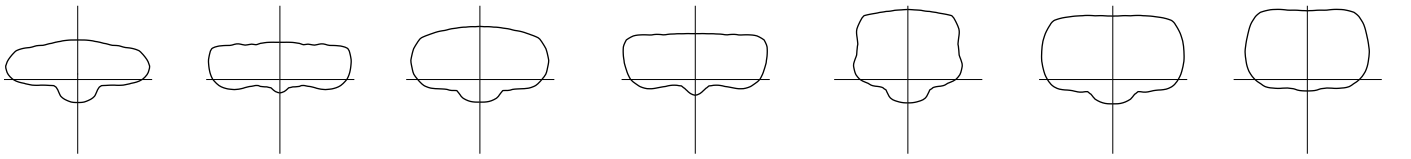
Fixture Weights and EPAs

Number of Light Squares	Weight with Standard and Extended Arm (lbs.)	EPA with Standard and Extended Arm (Sq. Ft.)	Weight with QM Arm (lbs.)	EPA with QM Arm (Sq. Ft.)	Weight with QML (lbs.)	EPA with QML (Sq. Ft.)	Weight with QMEA (lbs.)	EPA with QMEA (Sq. Ft.)
1-4	33	0.96	35	1.11	--	--	38	1.11
5-6	44	1.00	46	1.11	--	--	49	1.11
7-8	54	1.07	56	1.11	58	1.11	--	--
9-10	63	1.12	--	--	67	1.11	--	--

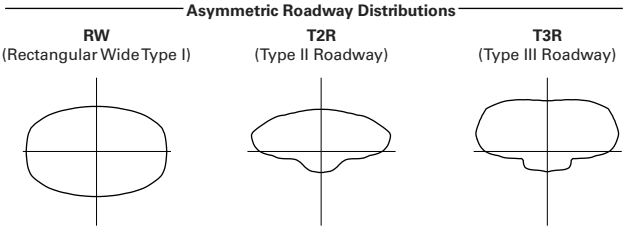
Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Optical Distributions

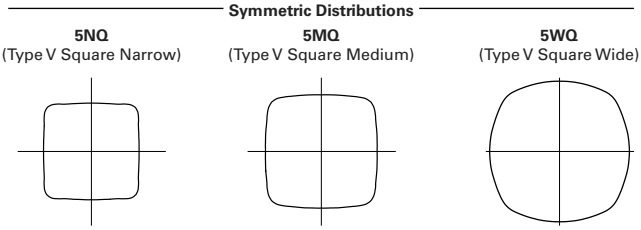
Asymmetric Area Distributions



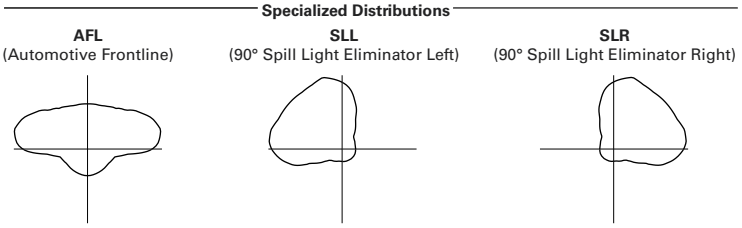
Asymmetric Roadway Distributions



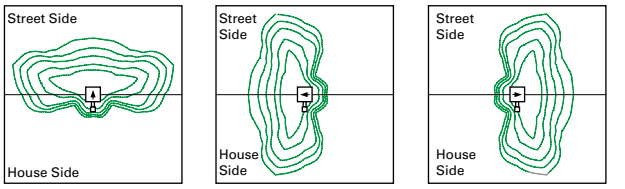
Symmetric Distributions



Specialized Distributions



Rotated Optics



Product Specifications

Construction

- Extruded aluminum driver enclosure
- Heavy-wall, die-cast aluminum end caps
- Die-cast aluminum heat sinks
- Patent pending interlocking housing and heat sink

Optics

- Patented, high-efficiency injection-molded AccuLED Optics technology
- 16 optical distributions
- 3 shielding options including HSS, GRS and PFS
- IDA Certified (3000K CCT and warmer only)

Electrical

- LED drivers are mounted to removable tray assembly for ease of maintenance
- Standard with 0-10V dimming
- Standard with Cooper Lighting Solutions proprietary circuit module designed to withstand 10kV of transient line surge
- Suitable for operation in -40°C to 40°C ambient environments. Optional 50°C high ambient (HA) configuration.

Mounting

- Standard extruded arm includes internal bolt guides and round pole adapter
- Extended arms (EA and QMEA) may be required in 90° or 120° pole mount configurations, see arm mounting requirements table
- Mast arm (MA) factory installed
- Wall mount (WM) option available
- Quick mount arm (QM and QMEA) includes pole adapter and factory installed fixture mount for fast installation to square or round poles

Finish

- Super housing durable TGIC polyester powder coat paint, 2.5 mil nominal thickness
- Heat sink is powder coated black
- RAL and custom color matches available
- Coastal Construction (CC) option available

Warranty

- Five year warranty

Energy and Performance Data

Lumen Maintenance (TM-21)

Drive Current	Ambient Temperature	25,000 hours*	50,000 hours*	60,000 hours*	100,000 hours**	Theoretical L70 hours**
Up to 1A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.7%	98.3%	98.1%	97.4%	> 1.9M
	50°C	98.2%	97.2%	96.8%	95.2%	> 851,000
1.2A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.5%	97.9%	97.7%	96.7%	> 1.3M

* Supported by IES TM-21 standards
** Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, explaining proper use of IES TM-21 and LM-80.

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

View GLEON IES files

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (1.2A)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		67	129	191	258	320	382	448	511	575	640
Input Current @ 120V (A)		0.58	1.16	1.78	2.31	2.94	3.56	4.09	4.71	5.34	5.87
Input Current @ 208V (A)		0.33	0.63	0.93	1.27	1.57	1.87	2.22	2.52	2.8	3.14
Input Current @ 240V (A)		0.29	0.55	0.80	1.10	1.35	1.61	1.93	2.18	2.41	2.71
Input Current @ 277V (A)		0.25	0.48	0.70	0.96	1.18	1.39	1.69	1.90	2.09	2.36
Input Current @ 347V (A)		0.20	0.39	0.57	0.78	0.96	1.15	1.36	1.54	1.72	1.92
Input Current @ 480V (A)		0.15	0.30	0.43	0.60	0.73	0.85	1.03	1.16	1.28	1.45
Optics											
T2	4000K Lumens	7,972	15,580	23,245	30,714	38,056	45,541	53,857	61,024	68,072	75,366
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	121	122	119	119	119	120	119	118	118
T2R	4000K Lumens	8,462	16,539	24,680	32,609	40,401	48,348	57,176	64,783	72,266	80,010
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	129	126	126	127	128	127	126	125
T3	4000K Lumens	8,125	15,879	23,693	31,307	38,787	46,417	54,893	62,197	69,381	76,818
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	123	124	121	121	122	123	122	121	120
T3R	4000K Lumens	8,306	16,232	24,220	32,001	39,651	47,447	56,114	63,580	70,924	78,523
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	124	126	127	124	124	124	125	124	123	123
T4FT	4000K Lumens	8,173	15,970	23,831	31,488	39,014	46,686	55,212	62,558	69,783	77,261
	BUG Rating	B1-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	122	124	125	122	122	122	123	122	121	121
T4W	4000K Lumens	8,067	15,764	23,522	31,080	38,510	46,082	54,499	61,751	68,881	76,263
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	120	122	123	120	120	121	122	121	120	119
SL2	4000K Lumens	7,958	15,552	23,206	30,662	37,989	45,462	53,763	60,920	67,952	75,235
	BUG Rating	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	121	121	119	119	119	120	119	118	118
SL3	4000K Lumens	8,124	15,877	23,690	31,302	38,784	46,410	54,885	62,189	69,372	76,805
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	123	124	121	121	121	123	122	121	120
SL4	4000K Lumens	7,719	15,085	22,510	29,741	36,850	44,097	52,148	59,089	65,913	72,977
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	115	117	118	115	115	115	116	116	115	114
5NQ	4000K Lumens	8,380	16,375	24,436	32,287	40,003	47,870	56,610	64,144	71,552	79,221
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	125	127	128	125	125	125	126	126	124	124
5MQ	4000K Lumens	8,534	16,676	24,885	32,881	40,739	48,752	57,653	65,326	72,868	80,679
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	127	129	130	127	127	128	129	128	127	126
5WQ	4000K Lumens	8,556	16,723	24,951	32,968	40,847	48,881	57,808	65,499	73,063	80,894
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	128	130	131	128	128	128	129	128	127	126
SLL/ SLR	4000K Lumens	7,140	13,951	20,817	27,506	34,081	40,783	48,231	54,649	60,959	67,492
	BUG Rating	B1-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	107	108	109	107	107	107	108	107	106	105
RW	4000K Lumens	8,304	16,228	24,215	31,994	39,641	47,437	56,100	63,566	70,907	78,504
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	124	126	127	124	124	124	125	124	123	123
AFL	4000K Lumens	8,335	16,287	24,302	32,110	39,784	47,610	56,303	63,796	71,163	78,790
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5
	Lumens per Watt	124	126	127	124	124	125	126	125	124	123

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (1A)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		59	113	166	225	279	333	391	445	501	558
Input Current @ 120V (A)		0.51	1.02	1.53	2.03	2.55	3.06	3.56	4.08	4.60	5.07
Input Current @ 208V (A)		0.29	0.56	0.82	1.11	1.37	1.64	1.93	2.19	2.46	2.75
Input Current @ 240V (A)		0.26	0.48	0.71	0.96	1.19	0.41	1.67	1.89	2.12	2.39
Input Current @ 277V (A)		0.23	0.42	0.61	0.83	1.03	1.23	1.45	1.65	1.84	2.09
Input Current @ 347V (A)		0.17	0.32	0.50	0.64	0.82	1.00	1.14	1.32	1.50	1.68
Input Current @ 480V (A)		0.14	0.24	0.37	0.48	0.61	0.75	0.91	0.99	1.12	1.28
Optics											
T2	4000K Lumens	7,267	14,201	21,190	28,000	34,692	41,515	49,096	55,627	62,053	68,703
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	126	128	124	124	125	126	125	124	123
T2R	4000K Lumens	7,715	15,077	22,497	29,725	36,829	44,073	52,122	59,056	65,876	72,937
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	133	136	132	132	132	133	133	131	131
T3	4000K Lumens	7,408	14,475	21,598	28,539	35,358	42,313	50,039	56,698	63,246	70,024
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	130	127	127	127	128	127	126	125
T3R	4000K Lumens	7,571	14,798	22,078	29,172	36,145	43,253	51,153	57,959	64,653	71,581
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	128	131	133	130	130	130	131	130	129	128
T4FT	4000K Lumens	7,451	14,559	21,725	28,703	35,564	42,558	50,330	57,027	63,613	70,430
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	129	131	128	127	128	129	128	127	126
T4W	4000K Lumens	7,354	14,371	21,442	28,333	35,105	42,007	49,681	56,291	62,792	69,521
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	127	129	126	126	126	127	126	125	125
SL2	4000K Lumens	7,254	14,178	21,155	27,951	34,631	41,443	49,011	55,533	61,944	68,584
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	125	127	124	124	124	125	125	124	123
SL3	4000K Lumens	7,406	14,474	21,596	28,534	35,355	42,307	50,033	56,690	63,237	70,014
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	130	127	127	127	128	127	126	125
SL4	4000K Lumens	7,037	13,751	20,519	27,112	33,592	40,198	47,538	53,864	60,087	66,524
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	119	122	124	120	120	121	122	121	120	119
5NQ	4000K Lumens	7,640	14,928	22,275	29,431	36,465	43,637	51,606	58,472	65,226	72,218
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	129	132	134	131	131	131	132	131	130	129
5MQ	4000K Lumens	7,779	15,203	22,684	29,973	37,137	44,441	52,555	59,549	66,427	73,545
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	132	135	137	133	133	133	134	134	133	132
5WQ	4000K Lumens	7,800	15,243	22,744	30,052	37,236	44,560	52,697	59,708	66,603	73,742
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	132	135	137	134	133	134	135	134	133	132
SLL/ SLR	4000K Lumens	6,510	12,719	18,977	25,075	31,067	37,176	43,967	49,817	55,569	61,525
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	110	113	114	111	111	112	112	112	111	110
RW	4000K Lumens	7,570	14,793	22,073	29,165	36,137	43,243	51,140	57,945	64,637	71,564
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	128	131	133	130	130	130	131	130	129	128
AFL	4000K Lumens	7,598	14,847	22,154	29,272	36,267	43,400	51,326	58,156	64,872	71,824
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G4
	Lumens per Watt	129	131	133	130	130	130	131	131	129	129

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (800mA)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		44	85	124	171	210	249	295	334	374	419
Input Current @ 120V (A)		0.39	0.77	1.13	1.54	1.90	2.26	2.67	3.03	3.39	3.80
Input Current @ 208V (A)		0.22	0.44	0.62	0.88	1.06	1.24	1.50	1.68	1.87	2.12
Input Current @ 240V (A)		0.19	0.38	0.54	0.76	0.92	1.08	1.30	1.46	1.62	1.84
Input Current @ 277V (A)		0.17	0.36	0.47	0.72	0.83	0.95	1.19	1.31	1.42	1.67
Input Current @ 347V (A)		0.15	0.24	0.38	0.49	0.63	0.77	0.87	1.01	1.15	1.52
Input Current @ 480V (A)		0.11	0.18	0.29	0.37	0.48	0.59	0.66	0.77	0.88	0.96
Optics											
T2	4000K Lumens	5,871	11,474	17,121	22,622	28,029	33,542	39,667	44,944	50,134	55,508
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	133	135	138	132	133	135	134	135	134	132
T2R	4000K Lumens	6,233	12,181	18,176	24,016	29,756	35,608	42,111	47,714	53,224	58,929
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5
	Lumens per Watt	142	143	147	140	142	143	143	143	142	141
T3	4000K Lumens	5,986	11,695	17,450	23,057	28,568	34,186	40,430	45,809	51,099	56,576
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	136	138	141	135	136	137	137	137	137	135
T3R	4000K Lumens	6,117	11,955	17,838	23,569	29,203	34,946	41,328	46,827	52,235	57,832
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	139	141	144	138	139	140	140	140	140	138
T4FT	4000K Lumens	6,019	11,763	17,551	23,190	28,734	34,384	40,663	46,074	51,396	56,904
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	137	138	142	136	137	138	138	138	137	136
T4W	4000K Lumens	5,942	11,610	17,324	22,891	28,363	33,940	40,138	45,480	50,732	56,169
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	135	137	140	134	135	136	136	136	136	134
SL2	4000K Lumens	5,862	11,454	17,091	22,583	27,980	33,484	39,598	44,867	50,048	55,411
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	133	135	138	132	133	134	134	134	134	132
SL3	4000K Lumens	5,985	11,694	17,447	23,053	28,565	34,182	40,424	45,804	51,092	56,568
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	136	138	141	135	136	137	137	137	137	135
SL4	4000K Lumens	5,685	11,111	16,577	21,905	27,140	32,478	38,409	43,520	48,546	53,748
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	129	131	134	128	129	130	130	130	130	128
5NQ	4000K Lumens	6,172	12,061	17,997	23,778	29,462	35,256	41,694	47,242	52,699	58,347
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	140	142	145	139	140	142	141	141	141	139
5MQ	4000K Lumens	6,285	12,283	18,328	24,217	30,004	35,907	42,462	48,112	53,669	59,421
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	143	145	148	142	143	144	144	144	144	142
5WQ	4000K Lumens	6,303	12,317	18,377	24,281	30,085	36,001	42,575	48,241	53,812	59,579
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	143	145	148	142	143	145	144	144	144	142
SLL/ SLR	4000K Lumens	5,260	10,276	15,332	20,259	25,101	30,037	35,522	40,249	44,898	49,708
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	120	121	124	118	120	121	120	121	120	119
RW	4000K Lumens	6,116	11,952	17,834	23,563	29,196	34,938	41,317	46,817	52,224	57,819
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	139	141	144	138	139	140	140	140	140	138
AFL	4000K Lumens	6,139	11,996	17,899	23,650	29,302	35,064	41,468	46,987	52,412	58,030
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4
	Lumens per Watt	140	141	144	138	140	141	141	141	140	138

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

McGraw-Edison GLEON Galleon

Nominal Power Lumens (600mA)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		34	66	96	129	162	193	226	257	290	323
Input Current @ 120V (A)		0.30	0.58	0.86	1.16	1.44	1.73	2.03	2.33	2.59	2.89
Input Current @ 208V (A)		0.17	0.34	0.49	0.65	0.84	0.99	1.14	1.30	1.48	1.63
Input Current @ 240V (A)		0.15	0.30	0.43	0.56	0.74	0.87	1.00	1.13	1.30	1.43
Input Current @ 277V (A)		0.14	0.28	0.41	0.52	0.69	0.81	0.93	1.04	1.22	1.33
Input Current @ 347V (A)		0.11	0.19	0.30	0.39	0.49	0.60	0.69	0.77	0.90	0.99
Input Current @ 480V (A)		0.08	0.15	0.24	0.30	0.38	0.48	0.53	0.59	0.71	0.77
Optics											
T2	4000K Lumens	4,787	9,357	13,961	18,448	22,856	27,353	32,347	36,651	40,884	45,265
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	141	142	145	143	141	142	143	143	141	140
T2R	4000K Lumens	5,083	9,934	14,822	19,585	24,266	29,038	34,341	38,911	43,404	48,055
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
	Lumens per Watt	150	151	154	152	150	150	152	151	150	149
T3	4000K Lumens	4,880	9,537	14,231	18,803	23,296	27,878	32,970	37,358	41,671	46,137
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	144	145	148	146	144	144	146	145	144	143
T3R	4000K Lumens	4,988	9,749	14,547	19,220	23,814	28,497	33,703	38,188	42,598	47,162
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	147	148	152	149	147	148	149	149	147	146
T4FT	4000K Lumens	4,909	9,591	14,312	18,911	23,432	28,040	33,161	37,574	41,913	46,404
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	144	145	149	147	145	145	147	146	145	144
T4W	4000K Lumens	4,845	9,468	14,128	18,668	23,130	27,678	32,732	37,088	41,371	45,805
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	143	143	147	145	143	143	145	144	143	142
SL2	4000K Lumens	4,779	9,341	13,937	18,416	22,818	27,305	32,292	36,589	40,813	45,188
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	141	142	145	143	141	141	143	142	141	140
SL3	4000K Lumens	4,879	9,536	14,229	18,800	23,294	27,874	32,965	37,351	41,666	46,130
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	144	144	148	146	144	144	146	145	144	143
SL4	4000K Lumens	4,637	9,059	13,519	17,863	22,132	26,486	31,322	35,490	39,589	43,831
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	136	137	141	138	137	137	139	138	137	136
5NQ	4000K Lumens	5,033	9,835	14,676	19,392	24,026	28,751	34,002	38,526	42,975	47,581
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	148	149	153	150	148	149	150	150	148	147
5MQ	4000K Lumens	5,126	10,015	14,946	19,747	24,468	29,281	34,628	39,236	43,766	48,457
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	151	152	156	153	151	152	153	153	151	150
5WQ	4000K Lumens	5,139	10,043	14,985	19,801	24,533	29,359	34,721	39,339	43,883	48,586
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	151	152	156	153	151	152	154	153	151	150
SLL/ SLR	4000K Lumens	4,289	8,380	12,502	16,520	20,469	24,494	28,967	32,823	36,613	40,537
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	126	127	130	128	126	127	128	128	126	126
RW	4000K Lumens	4,987	9,746	14,543	19,215	23,808	28,491	33,695	38,178	42,587	47,151
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	147	148	151	149	147	148	149	149	147	146
AFL	4000K Lumens	5,007	9,782	14,597	19,285	23,896	28,594	33,817	38,317	42,742	47,322
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
	Lumens per Watt	147	148	152	149	148	148	150	149	147	147

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

Control Options

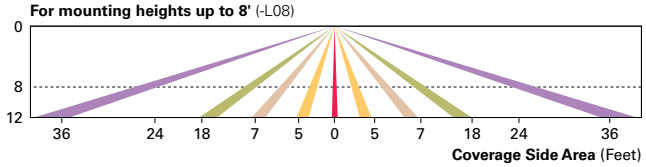
0-10V (DIM)
This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (BPC, PR and PR7)
Optional button-type photocontrol (BPC) and photocontrol receptacles (PR and PR7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PR7 receptacle.

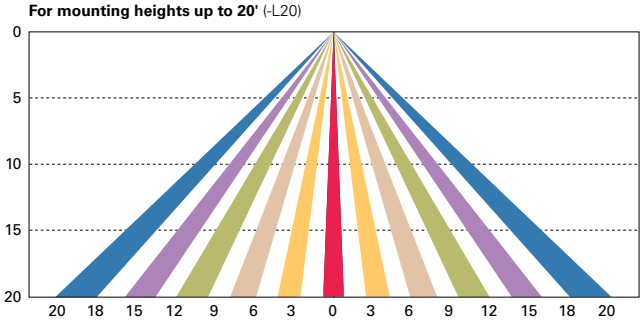
After Hours Dim (AHD)
This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a "dusk-to-dawn" period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

Dimming Occupancy Sensor (SPB, MS/DIM-LXX, MS/X-LXX and MS-LXX)
These sensors are factory installed in the luminaire housing. When the SPB or MS/DIM sensor options are selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines. SPB motion sensors require the Sensor Configuration mobile application by Wattstopper to change factory default dimming level, time delay, sensitivity and other parameters. Available for iOS and Android devices. The SPB sensor is factory preset to dim down to approximately 10% power with a time delay of five minutes. The MS/DIM occupancy sensors require the FSIR-100 programming tool to adjust factory defaults.

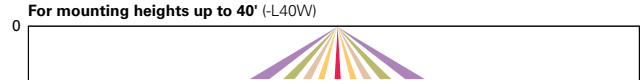
For mounting heights up to 8' (-L08)



For mounting heights up to 20' (-L20)

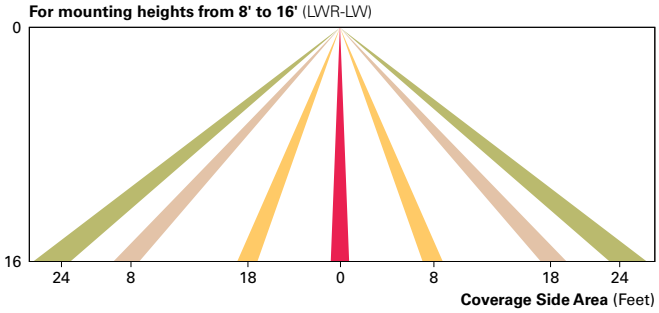


For mounting heights up to 40' (-L40W)

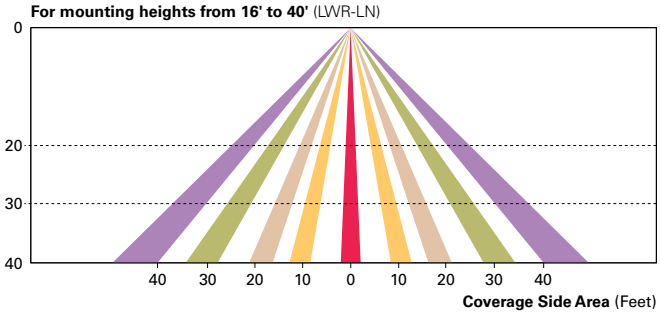


Enlighted Wireless Control and Monitoring System (LWR-LW and LWR-LN)
Enlighted is a connected lighting solution that combines a broad selection of energy-efficient LED luminaires with a powerful integrated wireless sensor system. The sensor controls the lighting system in compliance with the latest energy codes and collects valuable data about building performance and use. Software applications turn the granular data into information through energy dashboards and specialized apps that make it simple and help optimize the use of building resources, beyond lighting.

For mounting heights from 8' to 16' (LWR-LW)



For mounting heights from 16' to 40' (LWR-LN)



WaveLinx Wireless Outdoor Lighting Control Module (WOLC-7P-10A)
The 7-pin wireless outdoor lighting control module enables WaveLinx to control outdoor area, site and flood lighting. WaveLinx controls outdoor lighting using schedules to provide ON, OFF and dimming controls based on astronomic or time schedules based on a 7 day week.

LumenSafe Integrated Network Security Camera (LD)
Cooper Lighting Solutions brings ease of camera deployment to a whole new level. No additional wiring is needed beyond providing line power to the luminaire. A variety of networking options allows security integrators to design the optimal solution for active surveillance. As the ideal solution to meet the needs for active surveillance, the LumenSafe integrated network camera is a streamlined, outdoor-ready fixed dome that provides HDTV 1080p video. This IP camera is optimally designed for deployment in the video management system or security software platform of choice.

Synapse (DIM10)
SimplySNAP integrated wireless controls system by Synapse. Includes factory installed DIM10 Synapse control module and MS/DC motion sensor; requires additional Synapse system components for operation. Contact Synapse at www.synapsewireless.com for product support, warranty and terms and conditions.

Attachment: SP-2022-02 drawings 051922 (25490 : Sp-2022-02)

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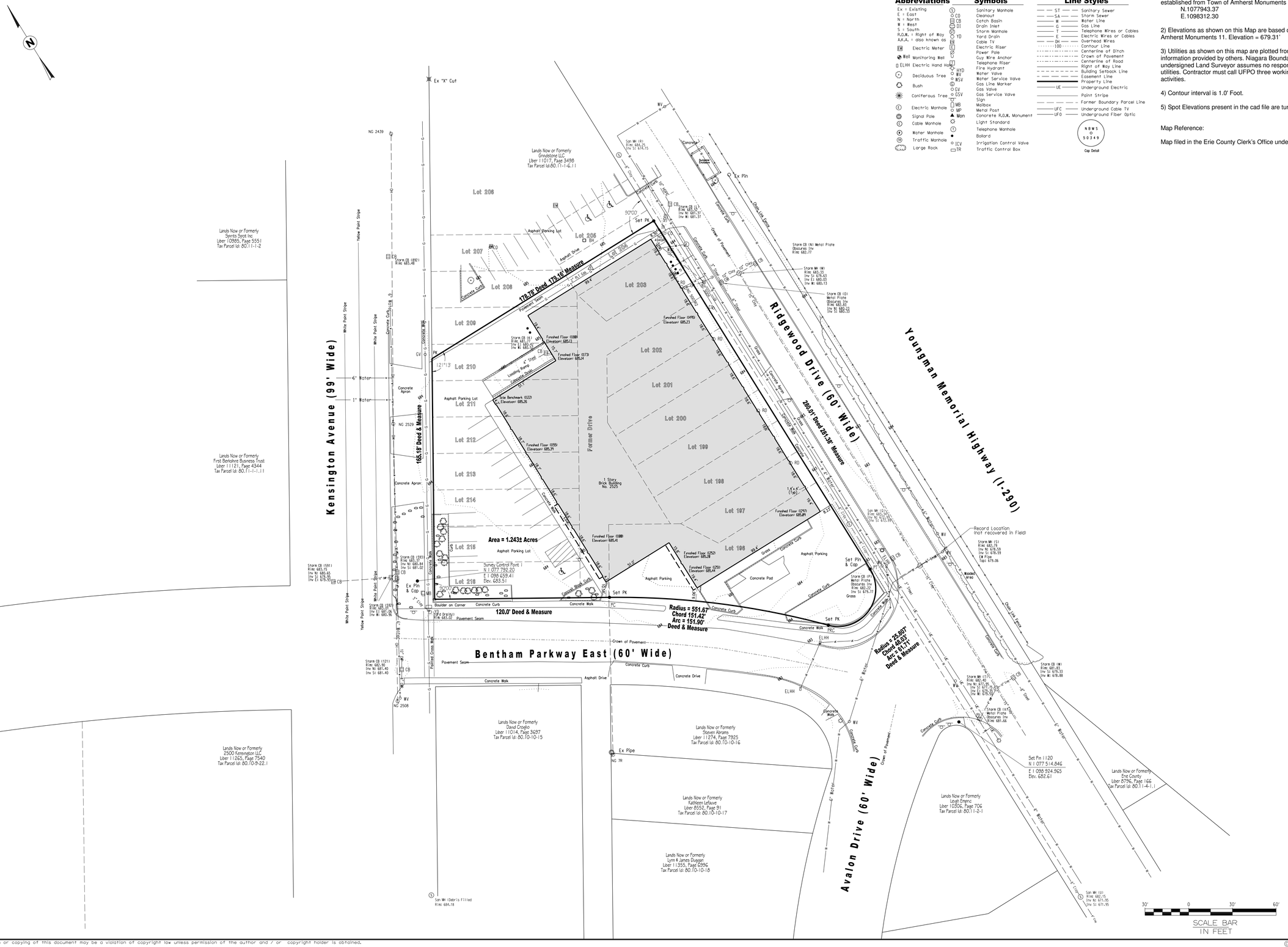
Specifications and dimensions
subject to change without notice.


Ex "X" Cut
NG 2439
Lands Now or Formerly
Grindstone LLC
Liber 11017, Page 3498
Tax Parcel Id: 80.17-1-6.11
Lands Now or Formerly
Sparda Spot Inc
Liber 12085, Page 5551
Tax Parcel Id: 80.11-1-2
Lands Now or Formerly
First Berkshire Business Trust
Liber 11121, Page 4344
Tax Parcel Id: 80.17-1-1.11
Lands Now or Formerly
2500 Kensington LLC
Liber 11265, Page 7540
Tax Parcel Id: 80.10-9-22.1
Lands Now or Formerly
David Crogho
Liber 11014, Page 3697
Tax Parcel Id: 80.10-10-15
Lands Now or Formerly
Steven Abrams
Liber 11274, Page 7925
Tax Parcel Id: 80.10-10-16
Lands Now or Formerly
Kathleen Lefauve
Liber 8552, Page 91
Tax Parcel Id: 80.10-10-17
Lands Now or Formerly
Lynn & James Duggan
Liber 11355, Page 6986
Tax Parcel Id: 80.10-10-18
Lands Now or Formerly
Legit Empire
Liber 10506, Page 706
Tax Parcel Id: 80.11-2-1
Lands Now or Formerly
Erie County
Liber 8796, Page 166
Tax Parcel Id: 80.11-4-1.1
Kensington Avenue (99' Wide)
Ridgewood Drive (60' Wide)
Youngman Memorial Highway (I-290)
Bentham Parkway East (60' Wide)
Avalon Drive (60' Wide)
Former Drive
Lot 206
Lot 207
Lot 208
Lot 209
Lot 210
Lot 211
Lot 212
Lot 213
Lot 214
Lot 215
Lot 216
Lot 203
Lot 202
Lot 201
Lot 200
Lot 199
Lot 198
Lot 197
Lot 196
Area = 1.243± Acres
178.78' Deed, 179.16' Measure
165.19' Deed & Measure
280.01' Deed, 281.39' Measure
120.0' Deed & Measure
Radius = 551.67'
Chord 151.42'
Arc = 151.90'
Deed & Measure
Radius = 25.807'
Chord = 48.06'
Arc = 61.71'
Deed & Measure
Survey Control Point 1
N 1 077 792.20
E 1 096 659.81
Elev. 683.51
Set Pin 1120
N 1 077 514.846
E 1 096 924.965
Elev. 682.61
Set PK
Set Pin & Cap
Ex Pin
Ex Pipe
Asphalt Parking Lot
Asphalt Drive
Concrete Walk
Concrete Curb
Concrete Pad
Concrete Apron
Concrete Ramp
Concrete Steps
Concrete Gate
Concrete Cross Walk
Crown of Pavement
Pavement Seam
Edge of Pavement
Yellow Paint Stripe
White Paint Stripe
Double Yellow
Double White
Centerline
Chain Link Fence
Wooden Fence
Wooden Deck
Wooden Shed
Wooden Gate
Wooden Post
Wooden Retaining Wall
Wooden Stairs
Wooden Ramp
Wooden Bridge
Wooden Bench
Wooden Picnic Table
Wooden Trash Can
Wooden Flower Box
Wooden Flower Pot
Wooden Flower Bed
Wooden Flower Stand
Wooden Flower Vase

DRAFT
(05/19/2022)

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst Planning Board

Project: SP-2022-02

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review – SP-2022-02

SEQR Status: Unlisted

Description of Action: Proposed conversion of a portion of the existing 29,350 s.f. Philips Bros. retail/warehouse building for the Shatkin School of Dentistry at Daemen University (16,253 s.f..). Project includes an approximately 4,000 s.f. second floor addition, as well as redevelopment of Ridgewood Drive for private parking under a license agreement with the Town. Work will include the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 2525 Kensington Avenue, Amherst, Erie County

Petitioner: Philipps Brothers Supply Inc.

Attachment: SP-2022-02_draft neg dec_051922 (25490 : Sp-2022-02)

Reasons Supporting This Determination

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on April 6, 2022 & April 28, 2022 reviewed the: Grading, Drainage and Utility Plans submitted on March 30, 2022 & April 25, 2022; Engineer's Report submitted on February 22, 2022; Erosion Control Plan submitted on March 30, 2022 and Geotechnical Report prepared by Barron & Associates, P.C. submitted on February 22, 2022.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on March 30, 2022 & April 25, 2022 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of March 22, 2022 and the Planning Department in their review of April 1, 2022 has reviewed the application documents, along with the Geotechnical Report submitted on February 22, 2022 and determined in their review of March 22, 2022 that the subject project has or will have met all International Building Code - 2018 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. However, the site has been previously disturbed, therefore, the project will not impair the character or quality of important historical resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the General Business (GB) zoning district; neighboring uses are commercial, office and residential and zoned for commercial and residential use; therefore, the project is consistent with surrounding land use.

6. The proposed subject development will include a second floor addition for the continuation of the retail/warehouse use and dental school which will not cause a major change in the use of either the quantity or type of energy.

Attachment: SP-2022-02_draft neg dec_051922 (25490 : Sp-2022-02)

7. The project will not create any hazard to human health. The Fire Chief's Association on March 16, 2022 & May 3, 2022 has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency has or will have been met.

8. The project will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses as the approximate 4,400 s.f. (15%) increase in floor area will be consistent with the scale of surrounding land uses.

9. The proposed dental school may increase the number of people using the site over its previous level of use, this increase is not anticipated to result in a significant impact.

10. Review by the Town Traffic/Safety Board dated April 6, 2022 indicate/indicates that significant negative traffic impacts are not expected to result from the proposed project. The Erie County Division of Highways is requesting that the applicant prepare a signal warrant analysis to determine if a traffic signal may be necessary at Bentham Parkway East.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on April 7, 2022 & May 4, 2022, Assessor on March 23, 2022, Plumbing Division on March 9, 2022, and Right-of-Way Agent on March 31, 2022. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Seconded by: Ayes; Noes Absent

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

Attachment: SP-2022-02_draft neg dec_051922 (25490 : Sp-2022-02)

GP/bf
X:\Current_Planning\Files\Site Plans\2022\SP-2022-02_(2525_Kensington_Ave)_2022\SP-2022-02_draft neg dec_051922.doc
cc: Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDEC (type 1's)
NYSDOT (if on state hwy.)
Joseph Molek, Stieglitz Snyder, 425 Franklin St., Buffalo, NY 14202
Philipps Bros. Supply Inc., 2525 Kensington Ave., Amherst, NY 14226
Andrew V. Marino, Tredo Engineers, 755 Seneca Street, Ste. 202, Buffalo, NY 14210

Attachment: SP-2022-02_draft neg dec_051922 (25490 : Sp-2022-02)

DRAFT (5/19/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-02

PETITIONER

Philipps Bros. Supply Inc.
2525 Kensington Avenue
Amherst, NY 14226

PROPERTY LOCATION

2525 Kensington Avenue

WHEREAS, the Town of Amherst Planning Board on Thursday, May 19, 2022 held a public hearing on a Site Plan for a building addition and parking expansion (Philipps Bros./Shatkin School of Dentistry, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

BE IT FURTHER RESOLOVED that the Planning Board, in accordance with Part II, Chapter 83, Part IX, Section 1-2 of Town Law waives sidewalks required along Ridgewood Drive until required at some future time by the Town Board, and

Attachment: SP-2022-02_draft resolution_051922 (25490 : Sp-2022-02)

DRAFT (5/19/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-02

PETITIONER	PROPERTY LOCATION
Philipps Bros. Supply Inc.	2525 Kensington Avenue

BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance approves said Site Plan subject to the following conditions:

1. That the comments of the Zoning Enforcement Officer (ZEO) in the letter dated April 1, 2022 be addressed to the ZEO's satisfaction.

2. The requirements of §203-4-4-2 B of the Town Code are met for the proposed canopy or otherwise varied by the Town Zoning Board of Appeals as permitted by §203-9-3-2 of Town Code a minimum of 8.23 feet.

3. That the comments of the Planning Department in their letter dated April 1, 2022 be addressed to the Department's satisfaction.

4. That the comments of the Fire Chiefs' Association in their letter dated May 3, 2022 be addressed to their satisfaction.

5. That the comments of the Traffic Safety Board in their letter of May 5, 2022 be addressed to their satisfaction.

6. That a License Agreement/Land Lease regarding the use and improvement of Ridgewood Drive for private parking be approved by the Town Attorney and Highway superintendent.

7. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

8. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

9. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

Attachment: SP-2022-02_draft resolution_051922 (25490 : Sp-2022-02)

DRAFT (5/19/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2022-02

PETITIONER	PROPERTY LOCATION
Philipps Bros. Supply Inc.	2525 Kensington Avenue

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

SM/GP/bf
X:\Current_Planning\Files\Site Plans\2022\SP-2022-02_(2525_Kensington_Ave)_2022\SP-2022-02_draft resolution_051922.doc

cc: Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
Joseph Molek, Stieglitz Snyder, 425 Franklin St., Buffalo, NY 14202
Philipps Bros. Supply Inc., 2525 Kensington Ave., Amherst, NY 14226
Andrew V. Marino, Tredo Engineers, 755 Seneca Street, Ste. 202, Buffalo, NY 14210

Approved Plan: _____
Received: _____

Attachment: SP-2022-02_draft resolution_051922 (25490 : Sp-2022-02)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

May 26, 2022

Philipps Bros. Supply Inc.
2525 Kensington Ave.
Amherst, NY 14226

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-2022-02**; PROPOSED PHILIPPS BROS./SHATKIN SCHOOL OF DENTISTRY AND PARKING EXPANSION; PROPERTY LOCATED AT **2525 KENSINGTON AVENUE**.

Dear Sir/Madam:

At its meeting of May 19, 2022 the Planning Board voted to **adjourn** the subject site plan at your request until additional materials addressing parking, signal warrant analysis and receipt of revised plans.

This request will be placed on the next available Planning Board agenda once these materials are received by this Department.

Please submit revised plans or required materials at your convenience so they may be reviewed prior to being placed on a Planning Board agenda.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\2022\SP-2022-02_(2525_Kensington_Ave)_2022\SP-2022-02_Adjournment Letter_051922.doc
cc: Joseph Molek, Stieglitz Snyder, 425 Franklin St., Buffalo, NY 14202
Andrew V. Marino, Tredo Engineers, 755 Seneca Street, Ste. 202, Buffalo, NY 14210

Attachment: SP-2022-02_adjourned_051922 (25490 : Sp-2022-02)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

Meeting: 04/21/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Bryan Fadel
Initiator: Dan Howard
Sponsors:
DOC ID: 25491

ADOPTED

PLANNING BOARD ITEM (ID # 25491)

Proposed Site Plan Amendment, Automobile Dealership - Building Additions, SP-2000-14_C

Property located at 6868, 6886, 6888 and 6900 Transit Road
Basil Family Dealerships, Petitioner

This project is a conversion of a used car dealership to a new car dealership and repair facility with two building additions totaling 2,570 square feet of new floor area. The new building additions provide an expansion for a showroom and an enlarged service area. Site improvements include the addition of a landscape buffer at the south property line, a new parking area arrangement for better circulation, and the addition of landscape islands and a dumpster enclosure. Three curb cuts will be closed as part of this project as required by the New York State Department of Transportation.

Sean Hopkins, Esq. represented the petitioner, explained the proposal and was available to answer questions from the Board. Emily Scaia, Bliss Construction, and Joe Basil III, Basil Family Dealerships, were also present.

No comments were heard on this proposal. The hearing was closed.

Following discussion, Mr. Chmiel moved to approve the Negative Declaration. The motion was seconded by Mr. Raffaele and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

Following the approval of the Negative Declaration, Mr. Chmiel moved to approve the request based on the resolution. The motion was seconded by Ms. Kahn and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

ATTACHMENTS:

- SP-2000-14C application 042122 (PDF)
- SP-2000-14C drawings 042122(PDF)
- SP-2000-14C revised drawings recd 041322_042122 (PDF)
- SP-2000-14_C_draft neg dec_042122 (PDF)
- SP-2000-14_C_draft resolution_042122(PDF)
- SP-2000-14_C_signed_neg_dec_042122 (PDF)
- SP-2000-14_C_signed_resolution_042122 (PDF)

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Michael Chmiel, Board Member
SECONDER:	Carrie H. Kahn, Board Member
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn
ABSENT:	Robert J. Gilmour

Site P[illegible] Amendment [SP-2000-14C] Basil Mitsubishi Project - 6868, 6886, 6888 & 6900 Transit Road - Applicant: Basil Family Dealerships - c/o Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC
Tel: 716.510-4338
E-mail: shopkins@hsmlegal.com

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: SP-2000-14C Acreage 1.2± Fee $ 1215.00

Address Verified by Assessor's Office

_____ VERIFIED BY _____ DATE

Site Plan Review

		Fill In Applicable Fees
1 acre or less	$1,250.00	
Each Additional acre or fraction thereof	$ 650.00/acre	
Amendments to Site Plans	$1,200.00	X
Request for Relief of / or Change to Conditions of Site Plan Approval	$1,200.00	$1,200.00
Request for Extension of Site Plan Approval	$ 450.00	
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	
5-10 Acres	$ 750.00	
>10 Acres	$1,000.00	
Affidavit Fee for Public Hearing	$ 15.00	$15.00
	TOTAL FEE:	$1,215.00

Materials Received by Planning Department

TJV RECEIVED BY 2/22/22 DATE

Materials Accepted by Town Clerk & Fee Paid

_____ ACCEPTED BY _____ DATE

To Be Completed By Applicant

Petitioner: Name: Basil Family Dealerships c/o Sean W. Hopkins, Esq.

Address: 5500 Main Street, Suite 343

Williamsville, New York 14221

RECEIVED FEB 22 2022 TOWN OF AMHERST PLANNING DEPT.

city state zip code

Phone: 510-4338 Fax: _____ E Mail: shopkins@hsmlegal.com

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

MAJOR SITE PLAN APPLICATION ***con't.*** ***PAGE 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Name: Christopher Wood, P.E.

Address: Carmina Wood Morris DPC

487 Main Street, Suite 500

Buffalo (city) New York (state) 14203 (zip code)

Phone: 842-3165 Fax: 842-0263

E Mail: cwood@cwm-ae.com

Project Location (must be verified by Town Assessor's Office):

Address: 6868, 6886, 6888 & 6900 Transit Road

SBL No(s): SBL Numbers 82.09-5-25, 82.09-5-5.122, 82.09-5-4 and 82.09-5-3

Project Name: Proposed Mitsubishi Project

Project Description:

See attached Exhibit "2" for Project Description. A reduced size copy of the Site Plan [Drawing C-100] prepared by Carmina Wood Morris is attached as Exhibit "3".

[A completed Short Environmental Assessment Form with Page 5[a] is provided at Exhibit "1" of this Site Plan Application].

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

See attached Exhibit "2".

	existing	proposed	total
Gross Floor Area (non-residential):	5,409 sq. ft.	2,570 sq. ft.	7,979 sq. ft.
Number of Residential Units:	0	0	0
Number of Parking Spaces:	81	1	82

Acreage of Parcel: 1.2 acres [Proposed 0.13 acre site disturbance]

Frontage on Public Roads: 500 ft. of frontage on Transit Road

Existing Zoning District(s) Motor Services District ("MS") and General Business District ("GB")

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Exhibit 1 – Short Environmental Assessment Form Prepared Pursuant to the State Environmental Quality Review Act ("SEQRA")

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:

Mitsubishi Dealership Project

Project Location (describe, and attach a location map):

6868, 6886, 6888 and 6900 Transit Road - Town of Amherst - Erie County

Brief Description of Proposed Action:

The proposed redevelopment project consists of the converting the existing used automotive sales facility into a Mitsubishi automotive dealership and includes the improvements depicted on the Site Plan and fully engineered plans prepared by Carmina Wood Morris including two small single-story additions on the northern and southern sides of the existing building. The Project Site is properly zoned Motor Services District ("MS") and General Business District ("GB") pursuant to the Town of Amherst Zoning Map [The parcel at 6900 Transit Road is the only parcel zoned GB]. The proposed project requires the approval of a Site Plan Amendment by the Town of Amherst Planning Board.

Name of Applicant or Sponsor:	Telephone: 716.510-4338
Basil Family Dealerships	E-Mail: shopkins@hsmlegal.com

Address:

5500 Main Street, Suite 343

City/PO:	State:	Zip Code:
Williamsville	NY	14221

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: Town of Amherst Planning Board - Site Plan Amendment	☐	☑

3. a. Total acreage of the site of the proposed action? 1.2 acres
   b. Total acreage to be physically disturbed? 0.13 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 1.2 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☑ Commercial ☑ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify: _____	☑	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☐	☑
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☐	☑

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies: _____	☐	☑

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water: _____	☐	☑

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment: _____	☐	☑

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☐	☑

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☑	☐
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____		

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional
☐ Wetland ☑ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☐	☑
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☑
If Yes, briefly describe:		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☑	☐
If Yes, explain the purpose and size of the impoundment:		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe:		
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☑	☐
If Yes, describe:		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: Basil Family Dealerships Date: February 21, 2022

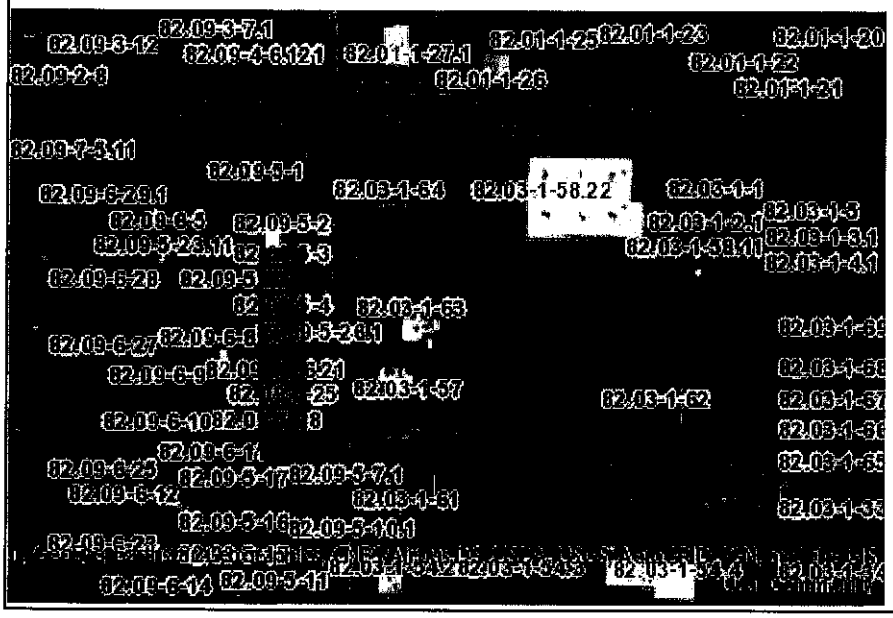
Signature: Sean Hopkins Title: Attorney for Applicant

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

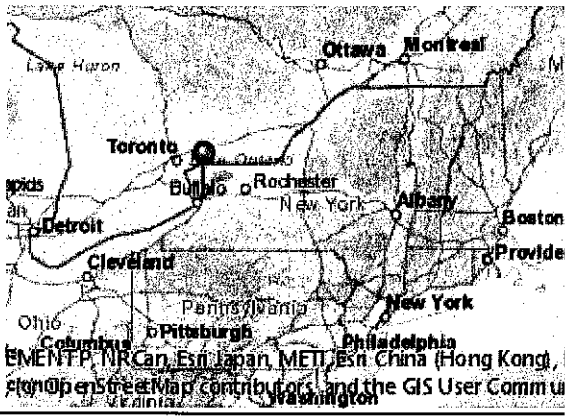
PRINT FORM

EAF Mapper Summary Report

Sunday, February 20, 2022 2:44 PM



Disclaimer: The EAF Mapper is a screening tool intended to ass project sponsors and reviewing agencies in preparing an environmer assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Althou the EAF Mapper provides the most up-to-date digital data available t DEC, you may also need to contact local or other data sources in or to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	No
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	No

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

Exhibit 2 – Description of Proposed Mitsubishi Dealership Redevelopment Project at 6868, 6886, 6888 and 6900 Transit Road

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

EXHIBIT 2

PROJECT DESCRIPTION – PROPOSED MITSUBISHI DEALRESHIP PROJECT 6868, 6886, 6888 AND 6900 TRANSIT ROAD

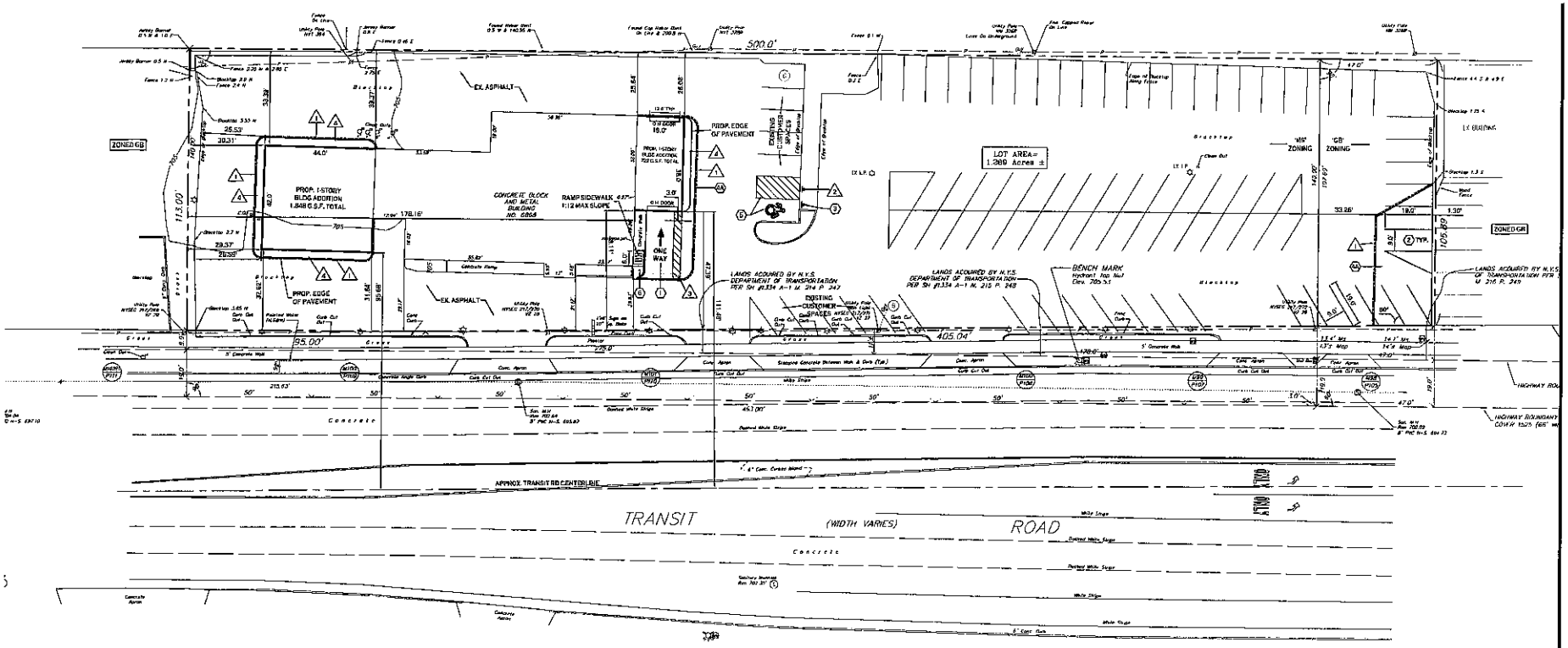
The Applicant is seeking Site Plan Amendment Approval for a proposed redevelopment of 6868, 6886, 6888 and 6900 Transit Road ("Project Site") as a Mitsubishi dealership and repair facility. The proposed redevelopment project consists of the converting the existing used automotive sales facility into a Mitsubishi automotive dealership and includes the improvements depicted on the Site Plan and fully engineered plans prepared by Carmina Wood Morris including two small single-story additions on the northern and southern sides of the existing building. The Project Site is properly zoned Motor Services District ("MS") and General Business District ("GB") pursuant to the Town of Amherst Zoning Map [The parcel at 6900 Transit Road is the only parcel zoned GB]. The proposed project requires the approval of a Site Plan Amendment by the Town of Amherst Planning Board.

The project layout is depicted on the full-size Site Plan [Drawing C-100] included with the engineered plans prepared by Carmina Wood Morris DPC and a reduced-size copy of the Site Plan is also attached as Exhibit "3".

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

Exhibit 3 – Reduced Size Copy of Site Plan [Drawing C–100] for Redevelopment Project as Prepared Carmina Wood Morris DPC

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)



NOTES:

1. ALL RADII SHALL BE 3'-0" UNLESS OTHERWISE NOTED.
2. ALL DISTURBED AREAS SHALL HAVE 4" MIN. OF TOPSOIL AND SEED.
3. ALL DIMENSIONS FROM PROPERTY LINES SHALL BE MEASURED PERPENDICULAR TO THE PROPERTY LINE.
4. CENTER ENTRANCE SIDEWALKS ON DOOR OPENINGS.
5. BUILDING DIMENSIONS ARE APPROXIMATE, REFER TO ARCHITECTURAL DRAWINGS FOR LAYOUT DIMENSIONS.
6. CURB SETBACK DIMENSIONS ARE TO THE BACKSIDE OF THE CURB

DETAIL LEGEND (SEE SHEET NO. C-501)

1. PAINTED TRAFFIC ARROWS
2. 90° PARKING STALL
3. HANDICAPPED PARKING SIGN
4. 25mm RECOATED ASPHALT
5. HANDICAPPED PAINTED PAVEMENT MARKINGS
6. CONCRETE SIDEWALK

NOTE LEGEND

1. APPROX. LOCATION OF SAWCUT LINE. PROVIDE UNIFORM TRANSITION MATCHING INTO EX. PAVEMENT
2. INSTALL "NO PARKING" SIGN, AS PER D. H. W.M. NO. 82-1C
3. 4" WIDE YELLOW PAVEMENT STRIPES 0.3 O.C. AT 45°
4. LANDSCAPED AREA - SEE LANDSCAPE PLAN IF NO PLANTINGS, INSTALL TOPSOIL & SEED

GENERAL NOTES:

1. INSTALL ALL MATERIALS TO MANUFACTURER'S RECOMMENDATIONS AND BEST STANDARDS OF TRADE INVOLVED.
2. ALL SUBSTITUTIONS SHALL BE MADE ONLY WITH OWNER'S APPROVAL AND BE OF EQUIVALENT QUALITY TO WHAT IS SPECIFIED.
3. WORK SHALL BE COMPLETED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND OSHA SAFETY RULES AND REGULATIONS.
4. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE SITE. NOTIFY OWNER & ENGINEER OF DISCREPANCIES IN CONDITIONS SHOWN ON DRAWINGS PRIOR TO PROCEEDING WITH THE WORK.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ANY EXISTING STRUCTURES TO REMAIN AND ANY FINISH MATERIAL INSTALLED WHILE WORKING ON OTHER COMPONENTS.
6. CONTRACTOR SHALL KEEP JOB FREE OF DEBRIS AND MAKE FINAL CLEANUP TO SATISFACTION OF OWNER.
7. CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION SO THAT THIS WORK WILL NOT DISTURB EXISTING LINES AND/OR INSTALLATIONS. COORDINATE ALL WORK WITH THE APPLICABLE UTILITY COMPANIES.
8. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS NECESSARY TO PERFORM THE WORK.

N

SITE PLAN

SCALE: 1"=20'

SITE DATA

SITE AREA = 1.2± AC (0.13 ACRES TO BE DISTURBED)
ZONED: MS (MOTOR SERVICE)
722 G.S.F. AND 1,848 G.S.F. 1-STORY BUILDING ADDITIONS

	REQUIRED	PROVIDED
SETBACKS - BUILDING		
FRONT (BLDG. HEIGHT OVER 30')	30 FT	31.64 FT MIN., 47.39 FT MIN.
FRONT FROM C.L. OF TRANSIT RD	125 FT	95.69 FT MIN., 111.47 FT MIN.
SIDE (ABUTTING NON-RESIDENTIAL)	10 FT	29.37 FT MIN., 179.16 FT MIN.
REAR (ABUTTING RESIDENTIAL)	30 FT **	38.30 FT MIN., 25.64 FT MIN.
SETBACKS - PARKING		
FRONT	10 FT	0.0 FT MIN. (EX.)
SIDE (ABUTTING NON-RESIDENTIAL)	10 FT	1.39 FT MIN. (EX.)
REAR (ABUTTING RESIDENTIAL)	15 FT	N/A (EX.)
PARKING		
# OF SPACES - SEE CALCULATION BELOW	11	82
90° PARKING SPACE SIZE	9'x 18'	9' x 18'
MAX. BUILDING HEIGHT	65 FT	34.92 FT MAX.
LANDSCAPING		
5% OF INTERIOR PARKING AREA	275 SF	826 SF

PARKING CALCULATION:

VEHICLE SALES -
REQ'D = 2 SPACES PER 300 G.S.F. + 1 PER 2 EMPLOYEES ON MAX. SHIFT
REQ'D PARKING = (1,848 G.S.F. BUILDING ADDITION) / 300 + 5 EMPLOYEES / 2 = 9 SPACES

VEHICLE SERVICE -
REQ'D = 2 SPACES PER BAY
REQ'D PARKING = 1 BAY X 2 = 2 SPACES

TOTAL = 9 + 2 = 11 SPACES

SITE LEGEND
PROPERTY LINE
PROPOSED CURB
PROPOSED SIDEWALK / CONCRETE PAD
NUMBERED PARKING SPACES
HANDICAP SIGN

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

20' 0 20 40FT

Carmina Wood Morris

REVISIONS:
No. Description Date

PROJECT NAME:
New Construction for:
Basil Mitsubishi
6868, 6886, 6888, & 69(Transit Road
Town of Amherst, New Y

Issued for Construction:
Municipality Submission: 09/1
Drawn by: C. W
Scale: As No

DRAWING NAME:
Site Plan

DRAWING NO.
C-1(
Project no.: 21.3

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Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

BARRON & ASSOCIATES, P.C.
10440 Main Street
Clarence, New York 14031

Tel: (716) 759-7821 www.barronandassociatespc.com Fax: (716) 759-7823

October 19, 2015 Job No: 15-591

Basil Resale Center - Transit
6868 Transit Road
Williamsville, New York 14221

ATTN.: Mr. John Basil

RE: Summary Geotechnical Engineering Report
Proposed Building Addition to
Basil Resale Center - Transit
6868 Transit Road (NYS Route 78)
Town of Amherst, Erie Co., New York 14221

Gentlemen:

This Barron & Associates, P.C. - Buffalo Drilling Company, Inc. (B&A-BDC) report presents the findings of the subsurface investigation program and the geotechnical engineering recommendations for the above referenced project. The geographic orientation of the site is illustrated on the U.S. Geologic Survey (USGS) site location map in Figure No. 1. The project site is illustrated in Figure No. 2 and entitled "Test Boring Location Plan". The test borings and are shown in Appendix A. Refer to Appendix B entitled, "Geotechnical Reference Standards", for an explanation of the terminology that is used for soil and rock descriptions.

SITE AND SUBSURFACE CONDITIONS

SITE CONDITIONS: The proposed project site is addressed as 6868 Transit Road in the Town of Amherst, New York. Development is to include a large addition to the north and east side of the existing building. The site topography is generally level across the proposed addition footprint.

PREDOMINATE SUBSURFACE CONDITIONS: A synopsis of the subsurface fill, soil, bedrock and groundwater conditions is as follows:

- Asphalt Pavement and Base Layer: A two to four inch thick layer of asphalt pavement with approximately 18 inches of gravel base encountered at both locations.
- Random Fill Materials: Beneath the asphalt pavement and base layer approximately two feet of cohesive fill material was encountered. Fill materials are unacceptable for foundation bearing purposes.
- Organic Materials: No buried topsoil or peat layers were encountered within the natural soil layers. Organic materials are unacceptable for foundation and load bearing purposes.
- Naturally Deposited Soils: Beneath the fill material, natural moderately plastic silty clay exists and extends to auger refusal. Consistency of this soil is upper level stiff to hard with moisture contents of retrieved samples noted to be in a moist state. The soil generally consists of silty clay with lesser amounts of gravel and fine to coarse grained sand.
- Bedrock: Auger refusal, which may generally infer top of competent bedrock, was encountered at approximately seven feet below ground surface at both boring locations. Based upon the regional geology, the bedrock type is expected to be the Onondaga Limestone.

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OCT 21 2015
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- Groundwater Measurements: No appreciable amount of groundwater was encountered during the subsurface exploration.

SEISMIC/EARTHQUAKE CONSIDERATIONS: For the given site conditions, the most applicable site definition is Site Class D, as listed in Table 1615.1.1 and Table 1615.1.5 of the Building Code of New York State, © 2010. The design spectral response acceleration parameters S_{DS}, at 0.2 seconds, and S_{D1}, at one second, are 0.24g and 0.08g (g = 32.2 feet/sec^2), respectively.

FOUNDATION AND CONSTRUCTION RECOMMENDATIONS

BUILDING(S): The proposed site development is to include a large addition to the existing building which will attached along the north and east walls. Actual finish floor elevation was not provided for the purpose of this report but is assumed to match that of the existing building at relative elevation 100.0 feet. The maximum design bearing wall and column loads are not expected to exceed ten kips per lineal foot and 200 kips, respectively. The maximum live floor load is taken as 100 pounds per square foot.

FOOTINGS: Exterior and interior footings are to be placed approximately four feet below final grade for adequate protection from frost as per local or New York State code. Wall footings should have a minimum two foot width and column footings should have a minimum three-foot width. All footings for the proposed addition are recommended to be designed at/near the same contact pressure.

The footings should bear directly on the approved upper level stiff or better natural inorganic silty clay or on a thoroughly compacted (i.e., 95 percent minimum of ASTM D1557 maximum dry density) select/approved granular fill or other approved fill (i.e., fill used for a raised subgrade) section that extends to the approved very stiff or better natural inorganic silty clay. Refer to Appendix D entitled "General Earthwork Specification", for definition of fill types and gradations, recommended minimum compaction requirements for various site developments, and placement and compaction methods.

The maximum net allowable bearing capacity for continuous strip and spread footings is recommended not to exceed 3,000 pound per square foot (psf) of footing area on approved natural soils, compacted select granular fill. Total and differential settlements of less than one inch and three-fourths of an inch, respectively, may be expected.

FLOOR SLABS: Prior to fill placement, the exposed subgrade surface would be thoroughly compacted and proofrolled. Typically, any encountered soft/medium stiff soils/fills would be removed for subsequent replacement with a select or approved compacted (i.e., minimum 92 percent of the maximum dry density from ASTM D1557) granular fill. If suitable for reuse on-site, the in-place or excavated existing fills/natural soft/medium stiff soils would be conditioned (i.e., sorted, dried, blended) and thoroughly compacted. Where required to raise the subgrade, an approved soil/fill will be placed and thoroughly compacted in thin lifts.

A geotextile fabric that separates the subgrade or raised subgrade and the select granular base layer is recommended, if silty and/or cohesive subgrade fills are used or the natural cohesive/fine-grained soils are present. The use of a thin gravel cushion, as a capillary break, or a thin sand cushion over a vapor barrier that is placed beneath the concrete slabs are at the discretion of the design architect/engineer or as required by local code.

Above the approved subgrade, a minimum eight-inch thick select granular fill (i.e., number two crusher run stone or equal) layer is preliminarily recommended as the base course for a concrete floor slabs. The preliminary recommended subgrade modulus at the top of the base layer for a concrete floor slab bearing on a thoroughly compacted (i.e., minimum 95 percent compaction) base layer and prepared soil/fill subgrade (i.e., minimum 92 percent compaction) is recommended not to exceed 150 pounds per cubic inch with a Poisson Ratio of 0.40. Isolation of the floor slabs from the foundations-piers-columns and walls does appear to be warranted.

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LIMITATIONS: This report is based on the preliminary information that is provided by project representatives and the subsurface conditions that were encountered at the test boring locations. Due to the nature of the investigation method, test pit excavation will provide a greater level of delineation of the subsurface soil/fill/rock conditions than can be defined by the test boring data alone. As detailed in Appendix E "Limitations, modification regarding proposed building/structure locations and other site developments can result in changes to the provided preliminary recommendations.

Thank you for the opportunity to assist on this project. If questions should arise, please call either of the undersigned at your earliest convenience.

Very truly yours,
BARRON & ASSOCIATES, INC.
and
BUFFALO DRILLING COMPANY, INC.

Andrew J. Camping
Senior Geologist

James S. Barron, P.E.
President

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10.19.15

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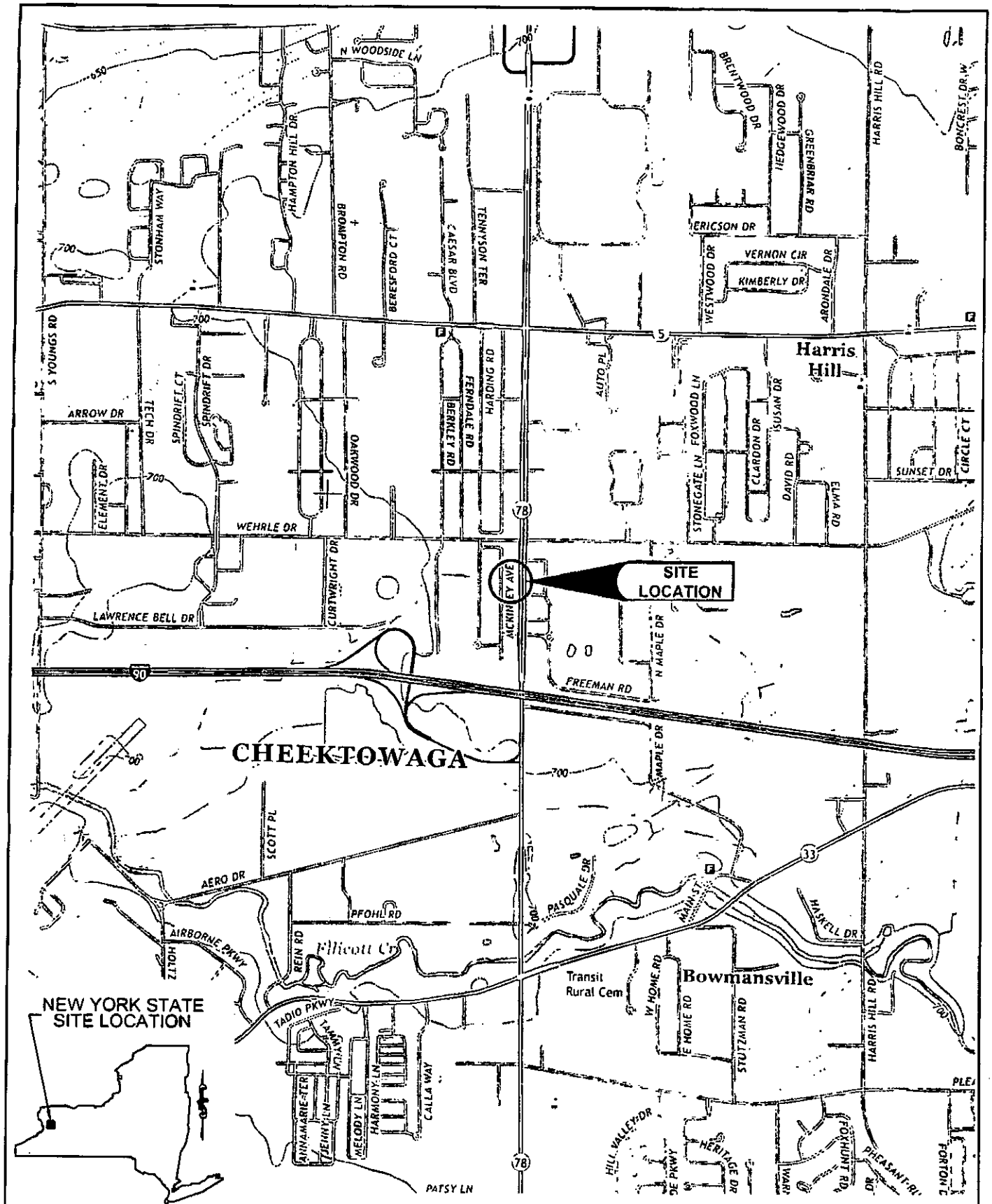
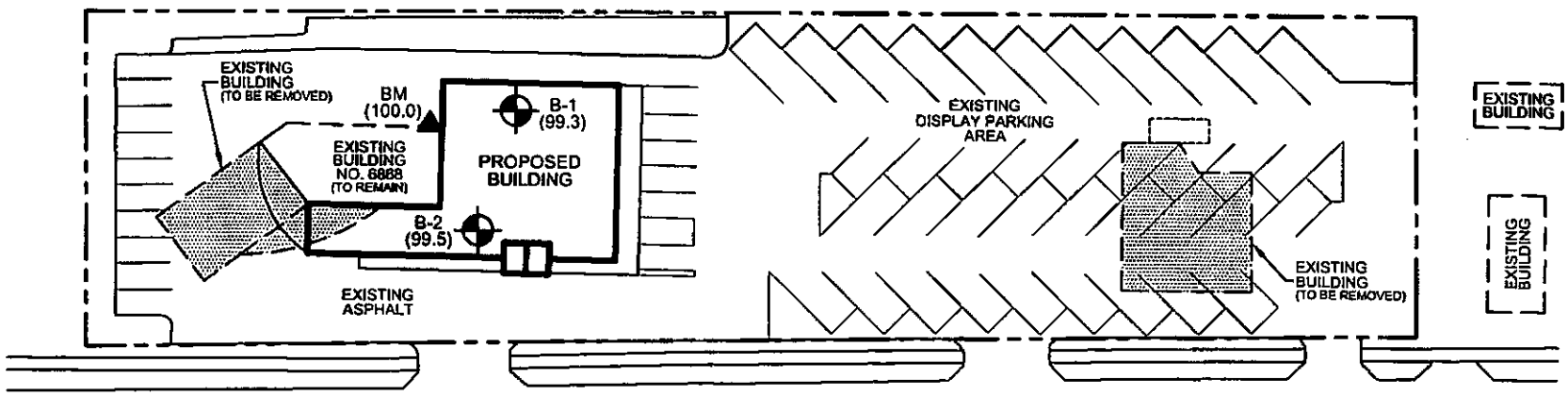


BARRON & ASSOCIATES, P.C. & BUFFALO DRILLING COMPANY 10440 MAIN ST. CLARENCE, NY 14031 (716)759-7821 FAX (716)759-7823 INFO@BUFFALODRILLING.COM INFO@BARRONANDASSOCIATESPC.COM DRAWN: DAN KASPROWICZ	CLIENT: BASIL RESALE CENTER - TRANSIT 6868 TRANSIT ROAD WILLIAMSVILLE, NEW YORK 14221 PROJECT: PROPOSED BUILDING ADDITION FOR BASIL RESALE CENTER - TRANSIT 6868 TRANSIT ROAD (NYS ROUTE 78) TOWN OF AMHERST, ERIE CO., NEW YORK 14221	USGS SITE LOCATION PLAN LANCASTER, N.Y. QUAD 2013 JOB NO.: 15-591 | SCALE: 1" = 2000' ± DATE: 10/6/2015 | FIGURE NO. 1

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)



TRANSIT ROAD (NYS ROUTE 78)

LEGEND	
B-2	= TEST BORING & NO.
(99.5)	= RELATIVE GROUND SURFACE ELEVATION (FT.)
BM	= BENCH MARK (FINISH FLOOR OF EXISTING BUILDING)

NOTES:

1. BORINGS, BUILDINGS, SITE FEATURES, PROPERTY LINE LOCATIONS, AND SCALE OF DRAWING ARE APPROXIMATE.
2. BASE MAP REFERENCE PROVIDED BY SUTTON ARCHITECTURE, TITLED "PROPOSED ADDITION/RENOVATION", DATED 6/29/2015.

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DRAWN: DAN KASPROWICZ

CLIENT: BASIL RESALE CENTER - TRANSIT
6868 TRANSIT ROAD
WILLIAMSVILLE, NEW YORK 14221

PROJECT: PROPOSED BUILDING ADDITION FOR
BASIL RESALE CENTER - TRANSIT
6868 TRANSIT ROAD (NYS ROUTE 78)
TOWN OF AMHERST, ERIE CO., NEW YORK 14221

TEST BORING LOCATION PLAN

0 30 60 120

JOB NO.: 15-591	SCALE: 1" = 60' ±
DATE: 10/6/2015	FIGURE NO. 2

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

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APPENDIX A

TEST BORING LOGS

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

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CLARENCE, NEW YORK 14031
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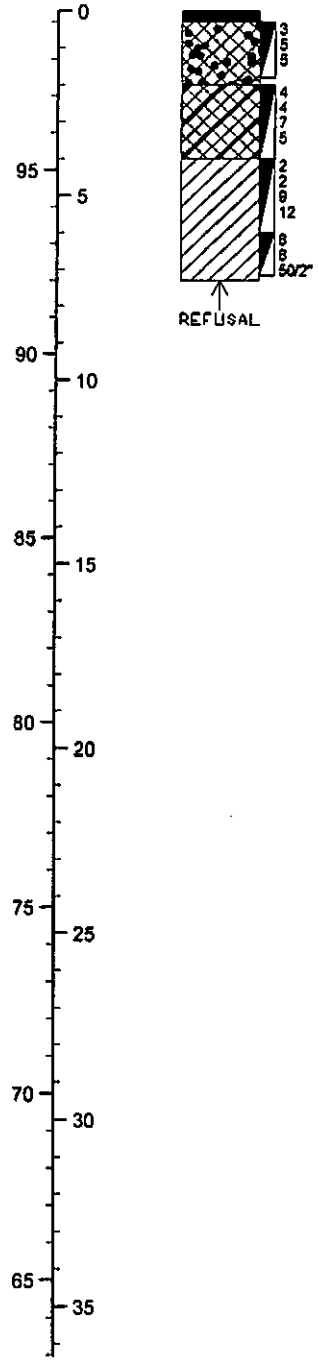
TEST BORING LOG

JOB No.: 15-591 **BORING No.:** B-1

PROJECT: Proposed Building Addition to Basil Resale Center - Transit
6868 Transit Road (NYS Route 78), Town of Amherst, Erie Co., New York 14221

DRILLER:	J. Gardner	**TYPE OF DRILL RIG:**	Diedrich D-50
SAMPLING METHODS:	ASTM D1586	**SIZE AND TYPE OF BIT:**	2 1/4" Hollow Stem Auger
DATE STARTED:	10/13/15	**SURFACE ELEVATION (ft.):**	99.3
DATE COMPLETED:	10/13/15	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None



Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
			Asphalt (4")
S-1 : 0.3'- 1.8'	8	30	Dk. brown, loose f/c Sand and Gravel, little Silt, tr. Asphalt, tr. Plastic, tr. Organic matter, tr. Roots, moist (SM/GM-Fill)
S-2 : 2.0'- 4.0'	11	50	Dk. brown, stiff Clay, some Silt, little f/c Sand, little Gravel, tr. Organic matter, tr. Roots, tr. Asphalt, tr. Concrete, mod. plastic, moist (CL-Fill)
S-3 : 4.0'- 6.0'	11	80	Brown, stiff CLAY, some Silt, some f. Sand, tr. Gravel, sl. to mod. plastic, moist (CL)
S-4 : 6.0'- 7.2'	58+	75	...grade: hard
			Depth to Bottom of Hole: 7.3 feet

Logged by:

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

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CLARENCE, NEW YORK 14031
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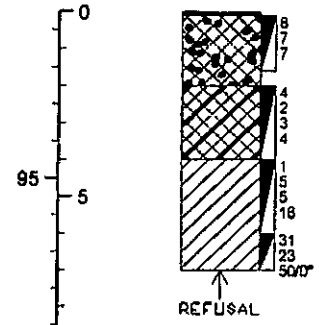
TEST BORING LOG

JOB No.: 15-591 **BORING No.:** B-2

PROJECT: Proposed Building Addition to Basil Resale Center - Transit
6868 Transit Road (NYS Route 78), Town of Amherst, Erie Co., New York 14221

DRILLER:	J. Gardner	**TYPE OF DRILL RIG:**	Diedrich D-50
SAMPLING METHODS:	ASTM D1586	**SIZE AND TYPE OF BIT:**	2 1/4" Hollow Stem Auger
DATE STARTED:	10/13/15	**SURFACE ELEVATION (ft.):**	99.5
DATE COMPLETED:	10/13/15	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None



Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
			Asphalt (2")
S-1 : 0.1'- 1.6'	15	20	Gray, m. dense f/c Sand and Gravel, little Silt, tr. Asphalt, tr. Roots, moist (SM/GM-Fill)
S-2 : 2.0'- 4.0'	5	55	Dk. brown, m. stiff Clay, some Silt, little f/c Sand, tr. Gravel, tr. Organic matter, tr. Roots, tr. Asphalt, mod. plastic, moist (CL-Fill)
S-3 : 4.0'- 6.0'	10	80	Brown, stiff CLAY, some Silt, some f. Sand, tr. Gravel, sl. to mod. plastic, moist (CL)
S-4 : 6.0'- 7.0'	73+	65	...grade: hard
			Depth to Bottom of Hole: 7.0 feet

Logged by:

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

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APPENDIX B

GEOTECHNICAL REFERENCE STANDARDS

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

GEOTECHNICAL REFERENCE STANDARDS
SUMMARY OF LOGGING TECHNIQUES

Depth (ft.)	Blows per .5 ft.	Sample No.	N	% REC (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS

Depth- The depth column provides the vertical scale of the boring log in feet below ground surface.

The number of blows obtained from each of the 0.5 ft. intervals of sampler penetration.

NOTE: WR represents the static weight of drill rods. WH represents the static weight of rods and hammer.

Sample Identification Number- Disturbed samples are identified with "S" preceding the sample number. Undisturbed samples (shelby tube) samples are identified with "U" preceding the sample number. Rock core samples are identified with "C" preceding the core run.

% Recovery- The length of sample recovered divided by the total length sampled. The result is numerically expressed as percent.

(RQD)- The "Rock Quality Designation". The total length of pieces>4 inches divided by the total length of core run.

N-value- The Standard Penetration Test N-value, as specified by ASTM D1586 is defined as the number of blows required by a 140-pound hammer falling 30 inches each blow to drive a 2 inch outside diameter split spoon sampler 12 inches.

TERMINOLOGY USED FOR SOIL DESCRIPTION

Density Description of Granular Soil

Number of Blows per ft., N.	Relative Density
0-4	Very loose
4-10	Loose
10-30	Medium
30-50	Dense
Over 50	Very dense

Consistency Description of Cohesive Soil

Number of Blows per ft., N.	Consistency
Below 2	Very soft
2-4	Soft
4-8	Medium
8-15	Stiff
15-30	Very stiff
Over 30	Hard

Grain Size

- Boulder - greater than 12 inch diameter
- Cobble - passing 12 inch, retained on 3 inch
- Gravel - passing 3 inch, retained on No. 4 sieve
- Sand - Coarse - passing No. 4 sieve, retained on No. 10 sieve
  Medium - passing No. 10 sieve, retained on No. 40 sieve
  Fine - passing No. 40 sieve, retained on No. 200 sieve
- Silt - 0.074 mm to 0.005 mm
- Clay - smaller than 0.005 mm

Description of Percentage or Proportions Used in Soil Sample Classification

Trace	0-10%
Little	10-20%
Some	20-35%
And	35-50%

Abbreviations Used In Soil Sample Classification

f - fine	v - very
m - medium	gr - gray
c - coarse	br - brown
f/m - fine to medium	yel - yellow
f/c - fine to coarse	sl - slight
tr - trace	

Plasticity

- Non-plastic - A 1/8 inch thread cannot be rolled at any water content.
- Slight plasticity - The thread can barely be rolled.
- Moderate Plasticity - Thread is easy to roll and little time is required to reach plastic limit.
- Plastic - Considerable time is required to reach plastic limit. Thread can be re-rolled several times after reaching the plastic limit.

Moisture

- Dry - Absence of moisture, dusty, dry to the touch.
- Moist - Small quantity of moisture. Soil usually above groundwater level.
- Wet - Moisture noticeable to the touch. Soil may be below groundwater level.
- Saturated - Visible free water, usually soil is below groundwater level.

TERMINOLOGY USED FOR ROCK DESCRIPTION

Bedding

Parting	Less than 0.02 ft.
Band	0.02 to 0.2 ft.
Thin bed	0.2 to 0.5 ft.
Medium bed	0.5 to 1.0 ft.
Thick bed	1.0 to 2.0 ft.
Massive	Over 2.0 ft.

Hardness

- Very Soft or Plastic - Can be indented w/ thumb
- Soft - Can be scratched with fingernail
- Moderately Hard - Can be scratched easily with knife; cannot be scratched with fingernail
- Hard - Difficulty to scratch with knife
- Very hard - Cannot be scratched with knife

Voids

- Pourous - Smaller than a pinhead. Their presence is indicated by the degree of absorbency.
- Pitted - Pinhead size to 1/4 inch. If only thin walls separate the individual pits, the core may be described as honeycombed.
- Vug - 1/4 inch to the diameter of the core. The upper limit will vary with core size.
- Cavity - Larger than the diameter of the core.

Crystallinity or Texture

Dense - Crystals are so small they cannot be distinguished with the naked eye.

Very Fine Crystalline - Crystals barely discernible with the naked eye.

Crystalline - Crystals are medium size -up to 1/8 inch diameter.

Very Coarsely Crystalline - Crystals larger than 1/8 inch diameter.

Remarks - Denotes exact depth of recovery and general documentation of drilling efforts.

Notes - Description and classification are based on visual inspection of samples and boring operations.

The stratum lines shown on the boring logs are based upon interpretation and may not represent precise subsurface conditions.

Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. Fluctuations in the water level may occur due to other factors than those present at the time measurements taken.

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

SOIL CLASSIFICATION CHART
(Unified Soil Classification System)

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS More than 50% of material larger than No. 200 sieve	GRAVELS- More than 50% of coarse fraction larger than No. 4 sieve	Clean Gravels (little or no fines)		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		Gravels with appreciable amounts of fines		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS- Less than 50% of coarse fraction larger than No. 4 sieve	Clean sands (little or no fines)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		Sand with appreciable amounts of fines		SM	Silty sands, silt-sand mixtures
				SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS Less than 50% of material larger than No. 200 sieve	SILTS AND CLAYS Low plasticity Liquid Limit < 50%			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS High plasticity Liquid limit > 50%			MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
	Highly Organic Soils			Pt	Peat, humus, swamp soils with organic contents
	Miscellaneous Fill			FILL	Miscellaneous fill may belong in any division but is identified as FILL

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

BARRON & ASSOCIATES, P.C. &
BUFFALO DRILLING COMPANY,
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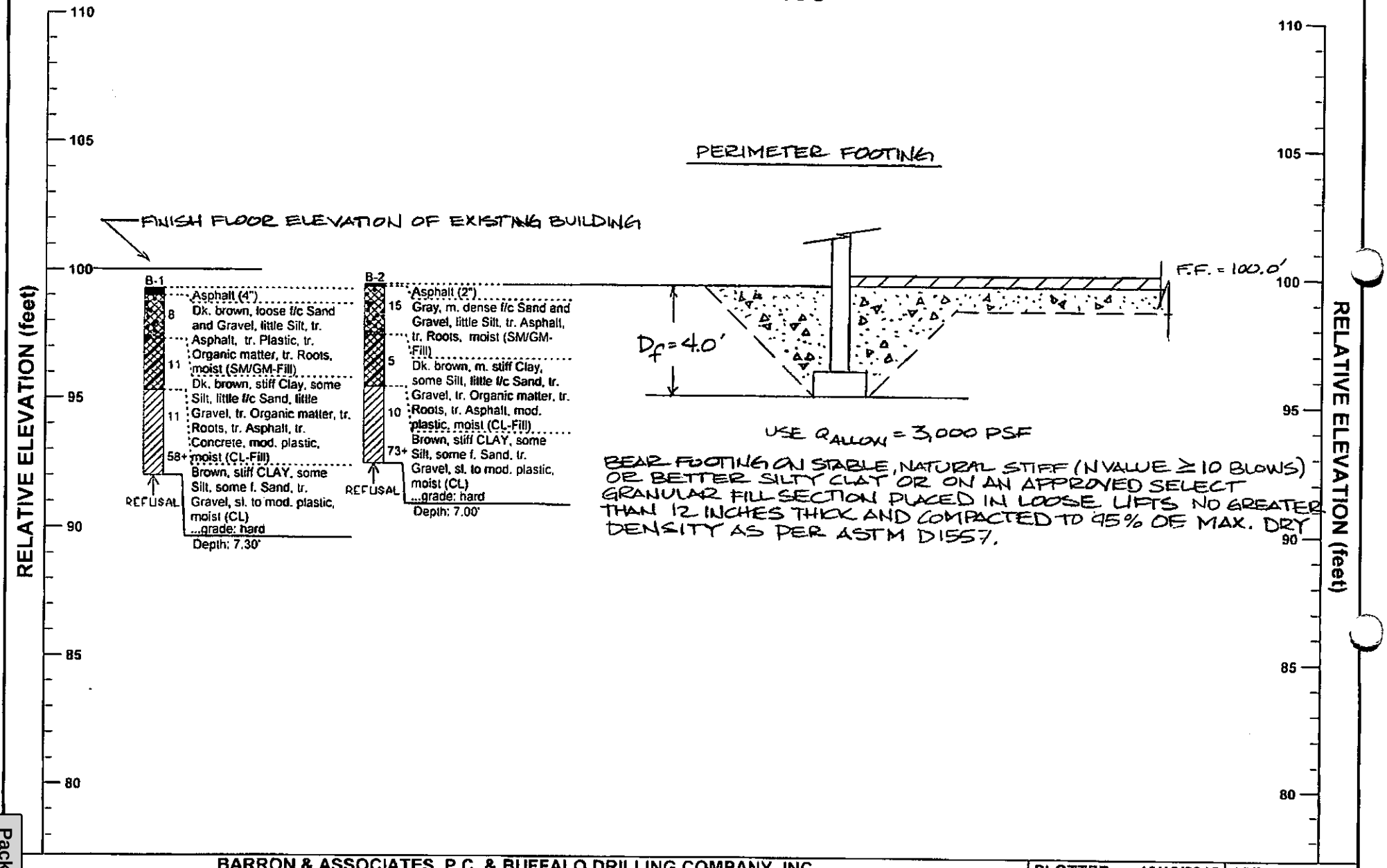
APPENDIX C

ENGINEERING COMPUTATIONS AND SCHEMATICS

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

"PROFILE OF BORINGS"



BARRON & ASSOCIATES, P.C. & BUFFALO DRILLING COMPANY, INC. 10440 MAIN STREET, CLARENCE, NEW YORK 14031		PLOTTED: 10/19/2015 BY: A. Camping	JOB NO.: 15-591
PROJECT: Proposed Building Addition to Basil Resale Center - Transit 6868 Transit Road (NYS Route 78), Town of Amherst, Erie Co., New York 14221		PAGE NO.: 1 of 2	FIGURE NO.: P-1

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

BARRON & ASSOCIATES, P.C. &
BUFFALO DRILLING COMPANY, INC.
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info@barronandassociatespc.com

DATA INPUT BY: Andrew J. Camping
B&A JOB NO.: 15-591
CLIENT: Basil Resale Center - Transit
PROJECT: Proposed Building Addition to
Basil Resale Center - Transit
6868 Transit Road (NYS Route 78)
Town of Amherst, Erie Co., New York 14221

BUILDING CODE OF NEW YORK STATE © - 2010: USGS 2008 ACCELERATIONS at 2% IN 50 YEARS CALCULATED BY LATITUDE AND LONGITUDE

Site Latitude (o) = +42.9544

Site Longitude (o) = -78.6974

Seismic Site Class = D

Building/Structure with Shallow Foundation

S_s = 0.2 sec acceleration value for Class B (in g's)

Acceleration Values Below are S_s

LAT. =	LONG. = -78.7000	-78.6974	-78.6500
42.9500	0.22092		0.22117
+42.9544	0.22098	0.22099	0.22121
43.0000	0.22158		0.22162

S_1 = 1.0 sec acceleration value for Class B (in g's)

Acceleration Values Below are S_1

LAT. =	LONG. = -78.7000	-78.6974	-78.6500
42.9500	0.05126		0.05141
+42.9544	0.05127	0.05128	0.05142
43.0000	0.05138		0.05152

SEISMIC SITE CLASS	Site Coefficient and Design Spectral Response Acceleration Values			
	0.2 Second		1.0 Second	
	F_a	$S_{ds} = 0.6667 * F_a * S_s$	F_v	$S_{d1} = 0.6667 * F_v * S_1$
A	0.8000	0.1179 g	0.8000	0.0274 g
B	1.0000	0.1473 g	1.0000	0.0342 g
C	1.2000	0.1768 g	1.7000	0.0581 g
D	1.6000	0.2357 g	2.4000	0.0821 g
E	2.5000	0.3683 g	3.5000	0.1197 g
F	2.5000	0.3683 g	3.5000	0.1197 g

<<—— USE THESE VALUES FOR SHALLOW FOUNDATIONS

NOTE: F_a and F_v values are linearly interpolated, for the above S_s and S_s values, respectively, within the appropriate range of the mapped spectral response accelerations. (Gridded data at 0.05 degree increments from: http://earthquake.usgs.gov/research/hazmaps/products_data/2008/data/)

Z:\Reports\Seismic and Engineering Sheets\USGS 2008 Seismic g's (Job version 1.0)

Created By: Carmen M. Panuccio

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

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APPENDIX D

GENERAL EARTHWORK SPECIFICATION

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

Barron & Associates, P.C.
GENERAL EARTHWORK SPECIFICATION

PART 1 GENERAL

1.1 SITE AND SUBSURFACE CONDITIONS

1.1.1 Overview

This specification is included as a courtesy to the clients of Barron & Associates, P.C, and addresses earthwork site preparation. Additions and modifications are necessary to create a job-specific specification. This specification may serve as a basis for the development for a technical specification under Division 2, *Site Work.*

1.1.2 Site Conditions

The site-specific conditions are described under separate cover or may be available from the OWNER.

1.1.3 Subsurface Conditions

The site-specific subsurface conditions are described under separate cover or may be available from the OWNER.

1.2 REFERENCES

American Standard for Testing and Measurement (ASTM):

ASTM C136	Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C2922	Density for Soil and Soil-Aggregate in Place by Nuclear Methods
ASTM D422	Test Method for Particle-Size Analysis of Soils
ASTM D1140	Amount of Material in Soils Finer Than the No. 200 Sieve
ASTM D1557	Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft^3)
ASTM D2216	Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock
ASTM D2487	1990 Classification of Soils for Engineering Purposes
ASTM D4318	Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.3 DEFINITIONS

1.3.1 Unacceptable Material

Soil material containing debris, wood, scrap material, vegetation, refuse, soft unsound particles, and other organic, frozen, deleterious, or objectionable materials. Contaminated soils shall be properly documented and removed or remediated on site. If necessary, remediation procedure will be defined by the OWNER.

1.3.2 Unsuitable Material

Brown, organic topsoil and underlying soft pockets of organic silt or wet, reworked silty clay.

1.3.3 Ordinary Fill

Friable soil containing no stone greater than two-thirds loose lift thickness and no unacceptable or unsuitable materials. In general, existing random fill is expected to be acceptable for reuse as ordinary fill given proper sorting, blending, drying, and controlled placement methods.

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

1.3.4 Granular Fill

Ordinary fill meeting the designation of ASTM D2487 classification of GW with a maximum of 10 percent by weight passing ASTM D1140, No. 200 sieve.

1.3.5 Select Granular Fill

Clean, uncoated soil which contains no unacceptable materials and conforms to the gradation requirements defined in Table A: Select Granular Fill.

Table A: Select Granular Fill	
Sieve Size	Percent Finer by Weight
2/3 of the loose lift thickness	100
No. 10	30 - 95
No. 40	10 - 70
No. 200	0 - 15

1.3.6 Sand and Gravel

Clean, hard, durable, uncoated particle of sand and gravel, free from lumps of clay, containing no unacceptable matter, and conforming to gradation requirements of *Table B : Sand and Gravel*

Table B: Sand and Gravel	
Sieve	Percent Finer by Weight
*	100
No. 4	50 - 85
No. 10	--
No. 40	10 - 35
No. 100	--
No. 200	0 - 8

* Job-Specific. To be determined by the ENGINEER

1.3.7 Crushed Stone

Clean, durable, sharp-angled fragments of rock or crushed gravel stone of uniform quality, containing no unacceptable matter, free from coatings, and conforming to gradation requirements of *Table C: Crushed Stone*

Table C: Crushed Stone		
	Percent Passing	
Sieve Size	¾-inch Stone	1 ¼-inch Stone
1 ½-inch	—	100
1 ¼-inch	—	85-100
1- inch	100	—
¾-inch	90-100	10-40
5/8-inch	—	—
½-inch	10-50	0-8
3/8-inch	0-20	—
#4	0-5	—

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

1.3.8 Flowable Fill

Also known as Controlled Low Strength Material – Controlled Density Fill (CLSM-CDF), this material is available under a variety of producer names (e.g., K-Krete©, M-Crete, Flash Fill©, Flowable Mortar, Unshrinkable Fill, etc.). This non-settling backfill mixture is most commonly used for its flowable characteristics, its support strength under traffic loads, and its removability at a later date. The material may be produced on-site or off-site. In either case, the producer of such materials and the product must meet certain certification criteria. Such information is beyond the scope of this specification and will be considered on a site-specific basis.

Flowable fill may be acceptable for use as a backfill for utility trenches of other low-lying areas which require a compacted granular fill. Its use and warranty of performance is left to the CONTRACTOR in such applications.

The use of flowable fill under load-bearing structural components in place of properly placed and compacted granular fill is NOT common and is questionable. The localized use of such material may have profound affects on the performance of a foundation system. Site-specific conditions and the extent of anticipated use of flowable fill must be examined by geotechnical engineer. Cost of such consultation shall be borne by the CONTRACTOR unless specifically directed by the OWNER to seek such consultation. Without such consultation, warranty of performance for such use is left to the CONTRACTOR.

1.4 SUBMITTALS

The following submittals shall be provided in accordance with approved submittals procedures.

1. Fill Source: Provide name and source locations of fill material.

2. Field Test Reports: Field tests will be performed by OWNER's Representative as needed. CONTRACTOR may be required to perform such tests on proposed off-site fill materials.
a. Fill material grain size analyses per ASTM C136, D422, D1140, D2487
b. Moisture/Density test results per ASTM D2216
c. Liquid limit, plastic limit, and plasticity index per ASTM D4318
d. Compaction/Density test results per ASTM C2922 and D1557

3. Sample: Geotextile fabric

PART 2 PRODUCTS

Geotextile Fabric: Mirafi 600X or equal. (Also referred to as synthetic fabric).

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 General

Manner of excavation shall minimize disturbance of underlying natural ground. If deemed necessary by the Engineer, alter construction procedures to reduce subgrade disturbance. Excavate areas which have been excessively disturbed to firm ground and backfill with properly compacted granular fill.

3.1.2 Roads and Walks

Keep roads and walks free of dirt and debris at all times.

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

3.1.3 Trees, Shrubs, and Existing Facilities

Protect from any damage all vegetation and facilities identified to remain.

3.1.4 Utility Lines

Locate all utilities within the area of disturbance prior to the start of work. Show locations on initial plans. Protect utility lines from damage. Notify the ENGINEER immediately of damage to or an encounter with an unknown utility. Damage to utility lines are to be repaired by the CONTRACTOR at no additional cost. The CONTRACTOR shall have underground utility owners stake out utility locations prior to the start of clearing and excavation operations.

3.2 VERIFICATION OF CONDITIONS/PROOF-ROLLING

Prior to placement of the initial layer of fill over the natural ground, proof-roll the exposed natural ground above the groundwater table elevation by making two passes with a fully-loaded ten-wheel truck. Excavate unstable areas detected by this process and replace with compacted granular fill.

3.3 PREPARATION

3.3.1 Surface Preparation

Within the site limits indicated on the drawings, excavate all unsuitable material to firm natural ground in the manner specified herein. Follow a construction procedure which permits visual identification of firm natural ground. In the even that groundwater is encountered, the ENGINEER may require that the size of the open excavation be limited to that which can be handled by open pumping to allow visual inspection of the excavation bottom and the performance of backfill operations to be conducted in a dry state.

Excavation of unsuitable material shall be limited to the greater of the following:

- A distance of 5 feet beyond building lines or
- The area defined by a one-horizontal to one-vertical line sloping down from the outside bottom edge of exterior footings to firm natural ground.

3.4 PLACEMENT AND COMPACTION

3.4.1 General

Place fill in accordance with *Table D: Compaction Alternatives.* These alternatives are provided as minimum compaction
standards only and in no way relieve the CONTRACTOR of his obligation to achieve any specified degree of compaction by whatever means may be necessary.

Grade to provide positive drainage and a smooth surface which will readily shed water. To the extent practicable, compact each layer to the specified density on the same day placed. Place fill in horizontal layers. Where horizontal layers meet a natural slope, key layer into slope by cutting a bench.

Fill that is too wet for proper compaction: Disc, harrow, or otherwise dry to proper moisture content for compaction to the required density.

Fill that is too dry for proper compaction: Uniformly apply water over the surface of the loose layer in sufficient quantity to allow compaction to the required density.

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

Table D: Compaction Alternatives					
Compaction Method	Max. Stone Size	Maximum Loose Lift Thickness (inches)		Maximum Number of Passes	
		Below Structure and Pavements	Less Critical Areas	Below Structure and Pavements	Less Critical Areas
Hand operated vibratory plate of light roller in confined areas	3	4	4	4	4
Hand operated vibratory drum rollers weighing at least 1,000 pounds in confined areas	4	6	8	4	4
Loaded 10-wheel truck or D-8 crawler	6	10	12	4	2
Light vibratory drum roller; Min. weight at drum 8,000lbs; Min. dynamic force 10,000lbs.	8	12	12	6	2
Minimum vibratory drum; Min. weight at drum 10,000lbs; Min. dynamic force 20,000lbs.	8	18	18	6	4

3.4.2 Dewatering

Provide adequate pumping and drainage facilities to keep excavated areas sufficiently dry of groundwater and surface run-off. Dewatering shall avoid adversely affection construction procedures or causing excessive disturbance of underlying natural ground. Drain all pumped water in such a manner as to avoid damage to adjacent property.

If requested by the ENGINEER, place a 6-inch to 12-inch layer of sand and gravel or crushed stone over the natural underlying soil to stabilize area which have been disturbed due to groundwater seepage pressures and to expedite dewatering operations. Particular attention shall be given areas under proposed foundations.

3.5 FIELD QUALITY CONTROL

3.5.1 Compaction Requirements

Allow the ENGINEER sufficient time to make necessary observations and tests. Base the degree of compaction on maximum dry density as determined by ASTM D1557. The minimum degree of compaction for placed fill shall be as indicated *in Table E: Compaction Requirements.*

Table E: Compaction Requirements	
Area	Minimum Degree of Compaction (%)
Below foundation	95
Pavement and building subbase and base courses	95
Below building slab base course and above bottom of foundation	92
Below pavement subbase and base courses	90
Trench backfill outside of building	90
Trench backfill inside of building	Refer to one of the above-listed categories
Ordinary fill within 5 feet of grade	90
Vegetated areas below 5 feet of grade	85

3.5.2 Testing

Site work should be monitored and tested by geotechnical ENGINEER or his representative and in accordance with requirements of the design team to assure compliance with earthwork and foundation construction specifications.

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

The owner will retain a geotechnical ENGINEER or his representative to perform on-site observations and testing during this phase of construction operations. The geotechnical ENGINEER or his representative will:

- Observe excavation and dewatering of building and controlled fill areas;
- Observe backfill and compaction within building and controlled fill areas;
- Laboratory test and analyze fill material; and
- Observe construction – and performing water content, gradation, and compaction tests.

On a timely basis, the CONTRACTOR will receive copies of test results submitted to the OWNER. In addition, during construction the geotechnical ENGINEER will advise the OWNER and CONTRACTOR in writing of conditions which fail to conform to the Contract Documents. The CONTRACTOR shall take immediate action to remedy indicated deficiencies.

The geotechnical ENGINEER or his representative will not supervise or direct the actual work of the CONTRACTOR or employees and representatives of the CONTRACTOR. The presence of, observations by, and testing performed by the geotechnical ENGINEER or his representatives shall not excuse the CONTRACTOR from defects discovered in the work.

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

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APPENDIX E

LIMITATIONS

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

LIMITATIONS

1. This report is based on the data that was obtained from the subsurface explorations and on the design of the proposed building addition as submitted to the geotechnical engineer. A geotechnical engineer, who is experienced in foundation construction and earthwork, should be engaged to review the final design and specifications in order to determine whether any change in concept may have any effect on the validity of the conclusions presented herein, and whether these conclusions have, in fact, been implemented in the design and specifications.

2. The subsurface conditions, including thickness, between the exploration locations are approximate and simplified representations of the strata and transitions. There is the possibility that variations in soil and rock conditions and boundaries will be encountered during construction. In order to permit correlation between the exploratory soil data and the actual soil conditions encountered during construction and so as to assess conformance with the plans and specifications as originally contemplated, it is recommended that a geotechnical engineer, who is experienced in foundation construction and earthwork monitoring, should be retained to perform continuous construction review during the site preparation and foundation construction operations.

3. The subsurface exploration logs and subsurface conditions may aid in estimating material quality and quantities, such as topsoil/organic matter, fills, natural soils, and rock, but are not to be relied upon as the exclusive means for bid preparation purposes. It is the responsibility of the contractor to perform any additional site examinations and explorations and to prepare an accurate bid.

4. Disclaimers:

   a. In the event that any changes in the nature, design or location of the structure are planned, the conclusions that are contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report are modified or verified in writing.

   b. The geotechnical engineering report has been prepared for this project by Barron & Associates, P.C. This report is for assistance in design only and is not a sufficient basis on which to prepare an accurate bid.

   c. This report has been prepared for the exclusive use of Basil Resale Center - Transit of Williamsville, New York and their designated design representatives, for specific application to the construction of an addition to the existing Basil Resale Building at 6868 Transit Road (NYS Route 78), in Town of Amherst, New York and in accordance with generally accepted geotechnical engineering practice. No other warranty, expressed or implied, is made.

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

Kost, Ellen

From: Rutkowski, Edward (DOT) [Edward.Rutkowski@dot.ny.gov]
Sent: Thursday, October 15, 2015 5:24 PM
To: Kost, Ellen
Cc: Palumbo, Jeffery D.
Subject: Basil Resale 6868, 6886 & 6888 Transit Road, Town of Amherst
Attachments: basil-10152015134809-0001.pdf

Ellen,

This is in response to the site plan that was submitted for the subject project dated 10/5/15. New York State Department of Transportation reviewed the site plan and has the following comments:

- NYSDOT has concerns with the location and number of driveways shown for the redevelopment of the subject project.

- Based on our phone conversation, you stated that the next Planning Board meeting is not until Jan ~~December~~. NYSDOT would not object to the Town providing a conditional approval stating that the applicant satisfies our concerns since we understand that revising the plans to address our concerns could possibly add a significant delay to this project, given that the next meeting is two months away.

If you have any questions, please contact me by phone or email.

Sincerely,
Ed

Edward S. Rutkowski, P. E.
SEQR/Site Plan Review Coordinator
NYSDOT - Region 5
100 Seneca Street
Buffalo, New York 14203
716-847-3575

NEW YORK STATE OF OPPORTUNITY. | Department of Transportation

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

TOWN OF AMHERST
BUILDING DEPARTMENT
ERIE COUNTY, NEW YORK
5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221

PHONE: (716) 631-7080
FAX: (716) 631-7192

BRIAN P. ANDRZEJEWSKI, P.E.
Commissioner of Building

DATE: October 15, 2015

TO: Ellen Kost, Associate Planner

FROM: Doug G. Gesel Code Enforcement Officer

RE: Major Site Plan Review, SP 2000-14B - Automobile Showroom and Repair Facility at 6868, 6886 & 6888 Transit Road

☒ Site Plan is: ☐ Subdivision is: ☐ ODA is: ☐ CSP is:

☒ Approved with the following conditions or changes:

1. Photometric plan must be submitted for review.

☒ Other Comments:

1. No above ground accessory structures including utility structures, except as shown, shall be located on the property unless approved as part of a site plan approval.
2. The Zoning Ordinance mandates that all off-street parking setback areas be fully landscaped. Therefore, these setbacks are measured from the outside face of any perimeter curbs, wheel blocks or bumpers.
3. This review did not include Building Code compliance except as noted in the comments. Review for compliance with the Building Code will occur when working plans are submitted for a building permit.

Doug Gesel
Code Enforcement Officer

DGG/js

cc: Carmina Wood Morris Architects & Eng.
John Basil
Brian Andrzejewski, PE

RECEIVED
OCT 15 2015
TOWN OF AMHERST
PLANNING DEPT.

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

Amherst
Town of Amherst Planning Department
Erie County, New York

Barry A. Weinstein
Supervisor
Eric W. Gillert, A
Planning Direct
Gary Black, AI
Assistant Planning D

MEMORANDUM

October 14, 2015

TO: Building Department
Brian Armstrong, Assistant Municipal Engineer

FROM: Planning Department, Ellen M. Kost, AICP, Associate Planner

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-2000-14B**. PROPOSED AUTOMOBILE SHOWROOM AND REPAIR FACILITY; PROPERTY LOCATED AT **6868, 6886 & 6888 TRANSIT ROAD**. JOHN BASIL, PETITIONER.

GEOTECHNICIAL REPORT
Received October 14, 2015

The attached report is for your information and file.

Thank you.

EK/jb
Att.

X:\Current_Planning\Files\Site Plans\2000\SP-2000-14B(6868,6886&6888_Transit_Rd)\Transmittal_Geotechnical_Report_101415_EK.doc

cc: Carmina Wood Morris, Architects & Eng., PC, 487 Main Street, Suite 500
Buffalo, New York 14203
John Basil, 6868 Transit Road, Williamsville, New York 14221

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

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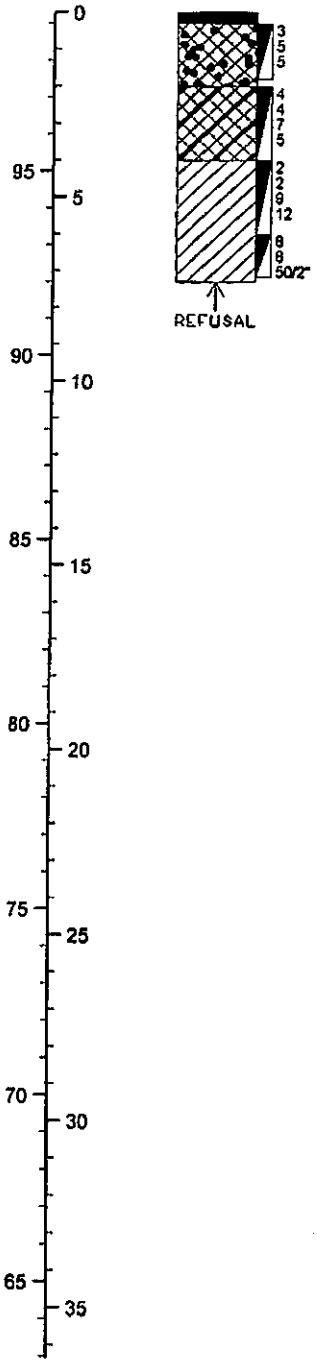
10440 MAIN STREET
CLARENCE, NEW YORK 14031
(716) 759-7821 FAX: (716) 759-7823

TEST BORING LOG

JOB No.: 15-591 **BORING No.:** B-1

PROJECT: Proposed Building Addition to Basil Resale Center - Transit
6868 Transit Road (NYS Route 78), Town of Amherst, Erie Co., New York 14221

DRILLER:	J. Gardner	**TYPE OF DRILL RIG:**	Diedrich D-50
SAMPLING METHODS:	ASTM D1586	**SIZE AND TYPE OF BIT:**	2 1/4" Hollow Stem Auger
DATE STARTED:	10/13/15	**SURFACE ELEVATION (ft.):**	99.3
DATE COMPLETED:	10/13/15	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None



Elevation/ Depth (feet)	Soil Symbols Sampler Symbols Field Test Data	Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
					Asphalt (4")
		S-1 : 0.3'- 1.8'	8	30	Dk. brown, loose f/c Sand and Gravel, little Silt, tr. Asphalt, tr. Plastic, tr. Organic matter, tr. Roots, moist (SM/GM-Fill)
		S-2 : 2.0'- 4.0'	11	50	Dk. brown, stiff Clay, some Silt, little f/c Sand, little Gravel, tr. Organic matter, tr. Roots, tr. Asphalt, tr. Concrete, mod. plastic, moist (CL-Fill)
		S-3 : 4.0'- 6.0'	11	80	Brown, stiff CLAY, some Silt, some f. Sand, tr. Gravel, sl. to mod. plastic, moist (CL)
		S-4 : 6.0'- 7.2'	58+	75	...grade: hard
					Depth to Bottom of Hole: 7.3 feet

RECEIVED
OCT 14 2015
TOWN OF AMHERST
PLANNING DEPT.

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

Logged by:

BARRON & ASSOCIATES, P
BUFFALO DRILLING COMPANY, INC.
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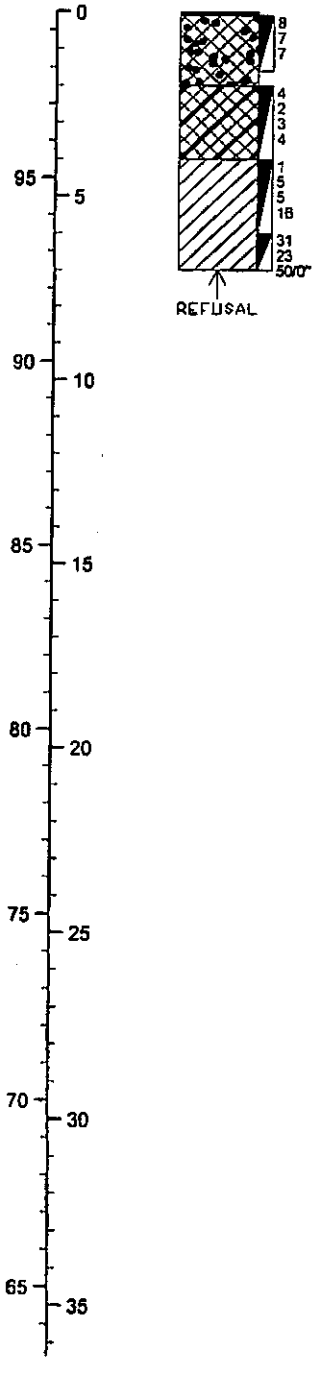
CLARENCE, NEW YORK 14031
(716) 759-7821 FAX: (716) 759-7823

TEST BORING LOG

JOB No.: 15-591 **BORING No.:** B-2

PROJECT: Proposed Building Addition to Basil Resale Center - Transit
6868 Transit Road (NYS Route 78), Town of Amherst, Erie Co., New York 14221

DRILLER:	J. Gardner	**TYPE OF DRILL RIG:**	Diedrich D-50
SAMPLING METHODS:	ASTM D1586	**SIZE AND TYPE OF BIT:**	2 1/4" Hollow Stem Auger
DATE STARTED:	10/13/15	**SURFACE ELEVATION (ft.):**	99.5
DATE COMPLETED:	10/13/15	**GROUNDWATER DEPTH (ft.):** (measured at completion unless indicated below)	None

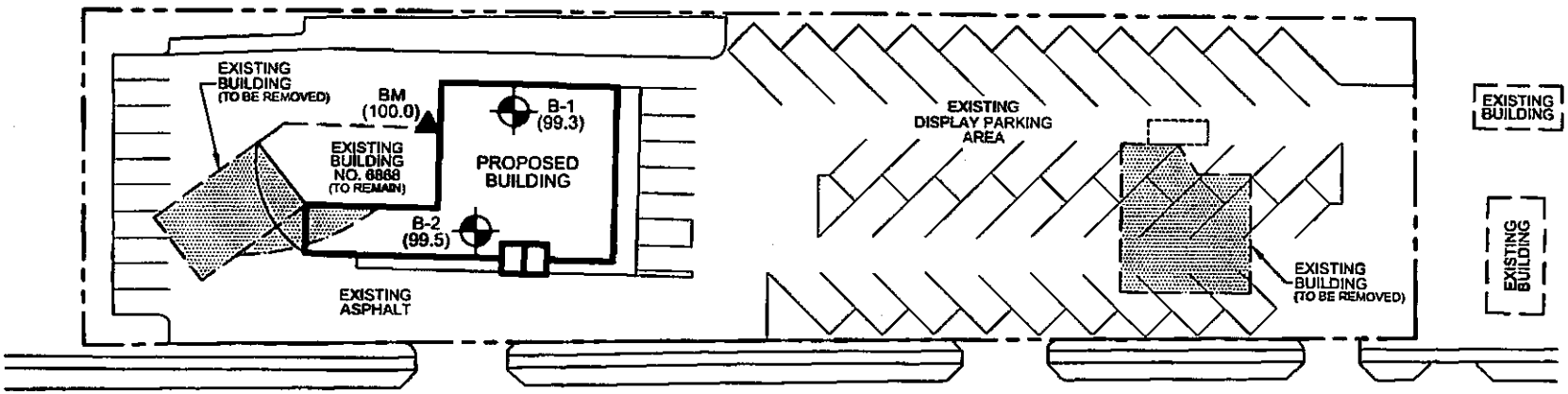


Sample No. : Range	N-Value	% REC (RQD)	Soil and Rock Description / Remarks
			Asphalt (2")
S-1 : 0.1'- 1.6'	15	20	Gray, m. dense f/c Sand and Gravel, little Silt, tr. Asphalt, tr. Roots, moist (SM/GM-Fill)
S-2 : 2.0'- 4.0'	5	55	Dk. brown, m. stiff Clay, some Silt, little f/c Sand, tr. Gravel, tr. Organic matter, tr. Roots, tr. Asphalt, mod. plastic, moist (CL-Fill)
S-3 : 4.0'- 6.0'	10	80	Brown, stiff CLAY, some Silt, some f. Sand, tr. Gravel, sl. to mod. plastic, moist (CL)
S-4 : 6.0'- 7.0'	73+	65	...grade: hard

Depth to Bottom of Hole: 7.0 feet

Logged by:

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)



TRANSIT ROAD (NYS ROUTE 78)

LEGEND	
B-2	= TEST BORING & NO.
(99.5)	= RELATIVE GROUND SURFACE ELEVATION (FT.)
BM	= BENCH MARK (FINISH FLOOR OF EXISTING BUILDING)

NOTES:

1. BORINGS, BUILDINGS, SITE FEATURES, PROPERTY LINE LOCATIONS, AND SCALE OF DRAWING ARE APPROXIMATE.
2. BASE MAP REFERENCE PROVIDED BY SUTTON ARCHITECTURE, TITLED "PROPOSED ADDITION/RENOVATION", DATED 6/29/2015.

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10440 MAIN ST.
CLARENCE, NY 14031
(716)759-7821
FAX (718)759-7823
INFO@BUFFALODRILLING.COM
INFO@BARRONANDASSOCIATESPC.COM

DRAWN: DAN KASPROWICZ

CLIENT: BASIL RESALE CENTER - TRANSIT
6868 TRANSIT ROAD
WILLIAMSVILLE, NEW YORK 14221

PROJECT: PROPOSED BUILDING ADDITION FOR
BASIL RESALE CENTER - TRANSIT
6868 TRANSIT ROAD (NYS ROUTE 78)
TOWN OF AMHERST, ERIE CO., NEW YORK 14221

TEST BORING LOCATION PLAN

0 30 60 120

JOB NO.: 15-591	SCALE: 1" = 60' ±
DATE: 10/6/2015	FIGURE NO. 2

Attachment: SP-2000-14C application 042122 (25491 : Sp-2000-14_C)

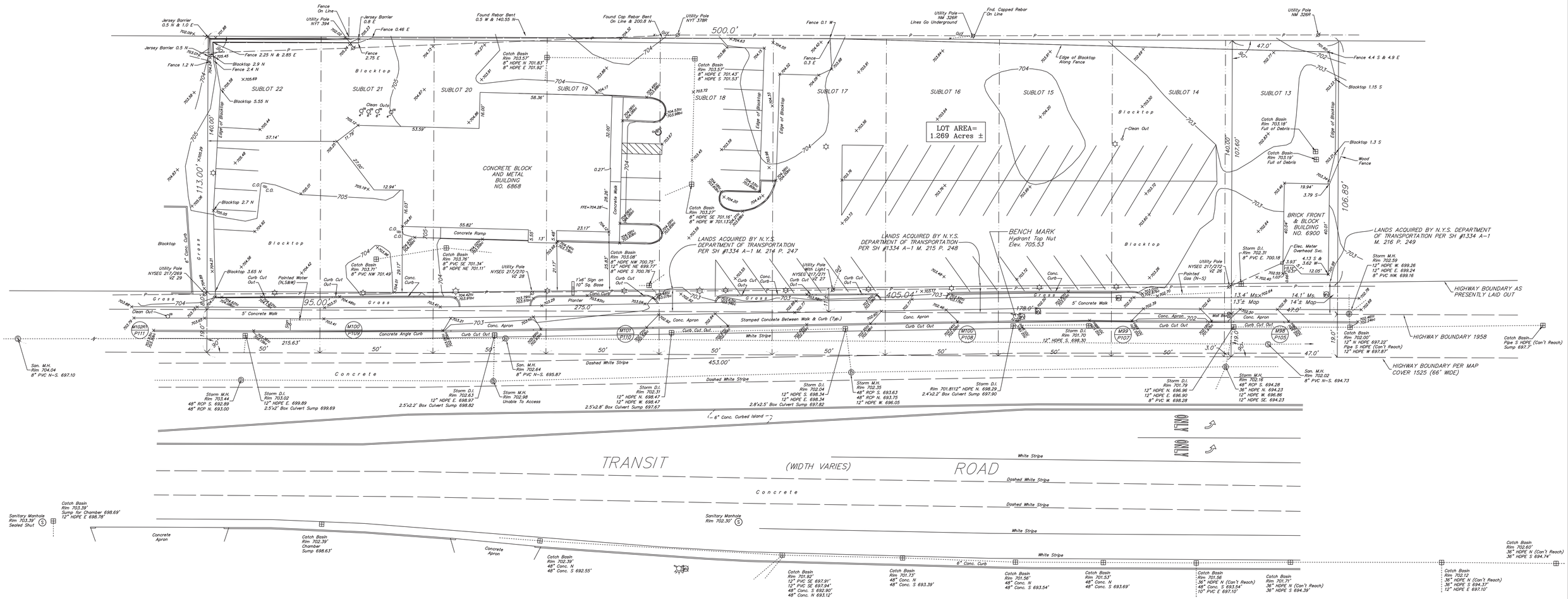
M100 / P109 — APPROPRIATIONS BY N.Y.S. DEPARTMENT OF PUBLIC WORKS IN 1957. SH #1.334 A-1, PER THE MAP NO. AND PARCEL NO. DESIGNATED IN CIRCLE.

25309

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



ELEVATION DATUM

ELEVATIONS ON THIS MAP WERE DETERMINED UTILIZING GPS DATUM: NAVD NAD83 (2011) EPOCH 2010.0 DATUM

SITE BENCH MARK:
TOP SHUTOFF, FIRE HYDRANT – AS SHOWN HEREON

UTILITIES

The underground utilities shown have been located from field survey information & existing drawings. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from the information available. This surveyor has not physically located the underground utilities.

Note: Underground Utility information has been ordered from the respective utility companies. As the information is received, this map will be amended to reflect said information.

National Fuel Attn: Ed Kulpa (716) 857-7000	Time Warner Cable Attn: Thomas Trigilio (716) 558-8615	Verizon Attn: Anne Baglio (716) 840-8748
Erie County Water Dept. Attn: Daniel Walkowiak (716) 684-1510	N.Y.S. Electric & Gas Attn: Sam Cappoglia (716) 651-5256	National Grid Attn: Eric Wright (716) 857-4031

LEGEND

UTILITY / SERVICE POLE	R.O.W. RIGHT OF WAY
WATER LINE VALVE	CONC. CONCRETE
FIRE HYDRANT	INV. INVERT
D.I. (DROP INLET – STORM)	M.H. MANHOLE
MANHOLE (STORM)	GAS LINE
MANHOLE (ELECTRIC)	WATER LINE
MANHOLE (TRAFFIC)	TELEPHONE LINE
MANHOLE (SANITARY)	ELECTRIC LINE
MANHOLE (TELEPHONE)	UTILITY LINES
GASLINE MARKER	CABLE LINES
GAS LINE VALVE	D. DEED
LIGHT STANDARD	M. MEASURED
SIGN	L. LIBER
H.C. HANDICAP	P. PAGE

INSTRUMENT(S) UTILIZED IN DETERMINING LOCATION OF BOUNDARY LINES: LIBER 11164 PAGE 5369, LIBER 10981 PAGE 6990 & LIBER 11153 PAGE 8731

THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED IN SAID ABSTRACT.

NOTE: PROPERTY CORNER MONUMENTS WERE NOT PLACED AS PART OF THIS SURVEY.

THIS SURVEY MAP WAS PREPARED IN ACCORDANCE WITH THE CURRENT STANDARDS FOR LAND SURVEYS ADOPTED BY THE EMP ASSOCIATION OF ERIE COUNTY AT THE REQUEST OF Bliss Construction

TRANDIS C. DELLES NYSPLS No. 050477

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150 AERO DRIVE
BUFFALO, NEW YORK 14225
PHONE (716) 631-5140 ~ FAX 631-3811

AMEND:
SURVEY DATE: 11-19-21
©DRAWING DATE: 11-23-21
SCALE: 1" = 20'
"ALL RIGHTS RESERVED"

PART OF SUBLOTS 13 THROUGH 21 INCLUSIVE
~ MAP COVER 1525

PART OF LOT 83 SECTION ____ TOWNSHIP 11 RANGE 7 OF THE: Holland Land Company's SURVEY – Erie COUNTY, N.Y.

SURVEY OF: 6868 Transit Road, Town of Amherst

THIS MAP VOID UNLESS EMBOSSED WITH NEW YORK STATE LICENSED LAND SURVEYOR'S SEAL. ALTERING ANY ITEM ON THIS MAP IS A VIOLATION OF THE LAW EXCEPT AS PROVIDED IN SECTION 7209, PART 2, OF THE NEW YORK STATE EDUCATION LAW.

SBL No. 82.09-5-3.4,5.112&25

Attachment: SP-2000-14C drawings 042122 [Revision 1] (25491 : Sp-2000-14, C)

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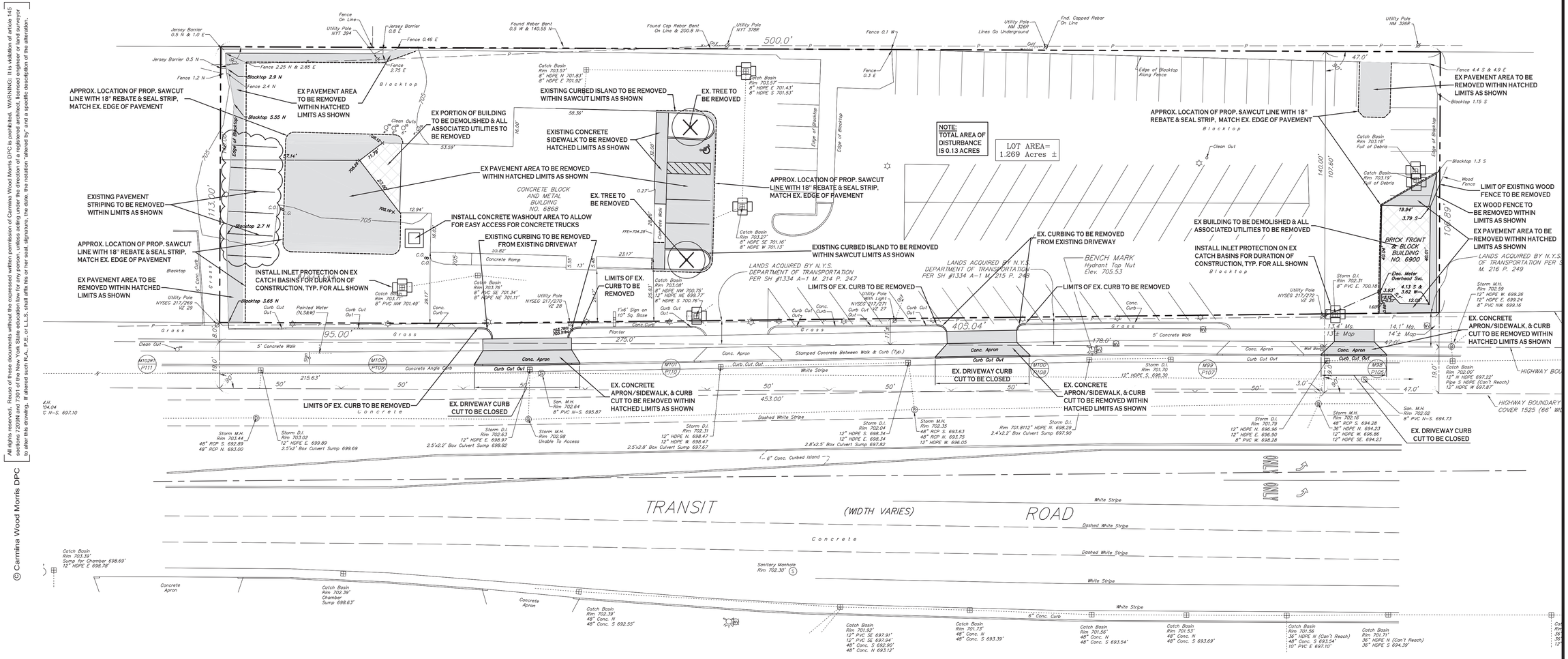
APPROX. LOCATION OF PROP. SAWCUT LINE WITH 18" REBATE & SEAL STRIP, MATCH EX. EDGE OF PAVEMENT
EX PAVEMENT AREA TO BE REMOVED WITHIN HATCHED LIMITS AS SHOWN
EX PORTION OF BUILDING TO BE DEMOLISHED & ALL ASSOCIATED UTILITIES TO BE REMOVED
EXISTING CURBED ISLAND TO BE REMOVED WITHIN SAWCUT LIMITS AS SHOWN
EX. TREE TO BE REMOVED
EXISTING CONCRETE SIDEWALK TO BE REMOVED HATCHED LIMITS AS SHOWN
EX PAVEMENT AREA TO BE REMOVED WITHIN HATCHED LIMITS AS SHOWN
CONCRETE BLOCK AND METAL BUILDING NO. 6868
EX. TREE TO BE REMOVED
APPROX. LOCATION OF PROP. SAWCUT LINE WITH 18" REBATE & SEAL STRIP, MATCH EX. EDGE OF PAVEMENT
EXISTING PAVEMENT STRIPING TO BE REMOVED WITHIN LIMITS AS SHOWN
INSTALL CONCRETE WASHOUT AREA TO ALLOW FOR EASY ACCESS FOR CONCRETE TRUCKS
EXISTING CURBING TO BE REMOVED FROM EXISTING DRIVEWAY
APPROX. LOCATION OF PROP. SAWCUT LINE WITH 18" REBATE & SEAL STRIP, MATCH EX. EDGE OF PAVEMENT
EX PAVEMENT AREA TO BE REMOVED WITHIN HATCHED LIMITS AS SHOWN
INSTALL INLET PROTECTION ON EX CATCH BASINS FOR DURATION OF CONSTRUCTION, TYP. FOR ALL SHOWN
LIMITS OF EX. CURB TO BE REMOVED
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 214 P. 247
LIMITS OF EX. CURB TO BE REMOVED
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 215 P. 249
EX. CURBING TO BE REMOVED FROM EXISTING DRIVEWAY
LIMITS OF EX. CURB TO BE REMOVED
EX. DRIVEWAY CURB CUT TO BE CLOSED
EX. CONCRETE APRON/SIDEWALK, & CURB CUT TO BE REMOVED WITHIN HATCHED LIMITS AS SHOWN
LIMITS OF EX. CURB TO BE REMOVED
EX. CONCRETE APRON/SIDEWALK, & CURB CUT TO BE REMOVED WITHIN HATCHED LIMITS AS SHOWN
EX. DRIVEWAY CURB CUT TO BE CLOSED
NOTE: TOTAL AREA OF DISTURBANCE IS 0.13 ACRES
LOT AREA= 1.269 Acres ±
APPROX. LOCATION OF PROP. SAWCUT LINE WITH 18" REBATE & SEAL STRIP, MATCH EX. EDGE OF PAVEMENT
EX BUILDING TO BE DEMOLISHED & ALL ASSOCIATED UTILITIES TO BE REMOVED
INSTALL INLET PROTECTION ON EX CATCH BASINS FOR DURATION OF CONSTRUCTION, TYP. FOR ALL SHOWN
BENCH MARK Hydrant Top Nut Elev. 705.53
EX PAVEMENT AREA TO BE REMOVED WITHIN HATCHED LIMITS AS SHOWN
LIMITS OF EXISTING WOOD FENCE TO BE REMOVED
EX WOOD FENCE TO BE REMOVED WITHIN LIMITS AS SHOWN
EX PAVEMENT AREA TO BE REMOVED WITHIN HATCHED LIMITS AS SHOWN
LANDS ACQUIRED BY N.Y.S. OF TRANSPORTATION PER S M. 216 P. 249
BRICK FRONT & BLOCK BUILDING NO. 6900
EX. CONCRETE APRON/SIDEWALK, & CURB CUT TO BE REMOVED WITHIN HATCHED LIMITS AS SHOWN
HIGHWAY BOUNDARY
HIGHWAY BOUNDARY COVER 1525 (66' WI
EX. DRIVEWAY CURB CUT TO BE CLOSED
LIMITS OF EX. CURB TO BE REMOVED
EX. CONCRETE APRON/SIDEWALK, & CURB CUT TO BE REMOVED WITHIN HATCHED LIMITS AS SHOWN
EX. DRIVEWAY CURB CUT TO BE CLOSED
TRANSIT (WIDTH VARIES) ROAD
Concrete
Concrete Angle Curb
Concrete Apron
Conc. Apron
Curb Cut Out
Gross
Planter
5' Concrete Walk
Stamped Concrete Between Walk & Curb (Typ.)
White Stripe
Dashed White Stripe
6" Conc. Curbed Island
Sanitary Manhole Rim 702.30' (S)
Catch Basin Rim 703.39' Sump for Chamber 698.69' 12" HDPE E 698.78'
Catch Basin Rim 702.39' Chamber Sump 698.63'
Catch Basin Rim 702.39' 48" Conc. N 48" Conc. S 692.55'
Catch Basin Rim 701.92' 12" PVC SE 697.91' 12" PVC SE 697.94' 48" Conc. S 692.90' 48" Conc. N 693.12'
Catch Basin Rim 701.73' 48" Conc. N 48" Conc. S 693.39'
Catch Basin Rim 701.56' 48" Conc. N 48" Conc. S 693.54'
Catch Basin Rim 701.53' 48" Conc. N 48" Conc. S 693.69'
Catch Basin Rim 701.56 36" HDPE N (Can't Reach) 48" Conc. S 693.54' 10" PVC E 697.10'
Catch Basin Rim 701.71' 36" HDPE N (Can't Reach) 36" HDPE S 694.39'
Storm M.H. Rim 703.44 48" RCP S. 692.89 48" RCP N. 693.00
Storm D.I. Rim 703.02 12" HDPE E. 699.89 2.5'x2' Box Culvert Sump 699.69
Storm D.I. Rim 702.63 12" HDPE E. 698.97 2.5'x2.2' Box Culvert Sump 698.82
Storm M.H. Rim 702.98 Unable To Access
San. M.H. Rim 702.64 8" PVC N-S. 695.87
Storm D.I. Rim 702.31 12" HDPE N. 698.47 12" HDPE W. 698.47 2.5'x2.8' Box Culvert Sump 697.67
Storm D.I. Rim 702.04 12" HDPE E. 698.34 12" HDPE E. 698.34 2.8'x2.5' Box Culvert Sump 697.82
Storm M.H. Rim 702.35 48" RCP S. 693.63 48" RCP N. 693.75 12" HDPE W. 696.05
Storm D.I. Rim 701.81 12" HDPE N. 698.29 2.4'x2.2' Box Culvert Sump 697.90
Storm D.I. Rim 701.70 12" HDPE S. 698.30
Storm D.I. Rim 702.31 8" PVC E. 700.18
Storm D.I. Rim 701.79 12" HDPE N. 696.96 12" HDPE E. 696.90 8" PVC W. 698.28
Storm M.H. Rim 702.16 48" RCP S. 694.28 36" HDPE N. 694.23 12" HDPE W. 696.86 12" HDPE SE. 694.23
San. M.H. Rim 702.02 8" PVC N-S. 694.73
Storm M.H. Rim 702.59 12" HDPE W. 699.26 12" HDPE E. 699.24 8" PVC NW. 699.16
Catch Basin Rim 702.00' 12" N. HDPE 697.22' Pipe S. HDPE (Can't Reach) 12" HDPE W 697.87'
Catch Basin Rim 703.27' 8" HDPE SE 701.16' 8" HDPE W 701.13'
Catch Basin Rim 703.57' 8" HDPE N 701.83' 8" HDPE E 701.92'
Catch Basin Rim 703.57' 8" HDPE E 701.43' 8" HDPE S 701.53'
Catch Basin Rim 703.08' 8" HDPE NW 700.75' 12" HDPE NE 699.77' 8" HDPE S 700.76'
Catch Basin Rim 703.76' 8" PVC SE 701.34' 8" HDPE NE 701.11'
Catch Basin Rim 703.37' 8" PVC NW 701.49'
Utility Pole NYSEG 217/269 VZ 29
Utility Pole NYSEG 217/270 VZ 28
Utility Pole With Light NYSEG 217/271 VZ 27
Utility Pole NYSEG 217/272 VZ 26
Utility Pole NM 326R
Utility Pole NYT 378R
Utility Pole NYT 394
Fence On Line
Jersey Barrier 0.5 N & 1.0 E
Jersey Barrier 0.5 N
Jersey Barrier 0.8 E
Fence 0.46 E
Fence 1.2 N
Fence 2.25 N & 2.85 E
Fence 2.75 E
Fence 2.4 N
Fence 0.1 W
Fence 0.3 E
Fence 4.4 S & 4.9 E
Found Rebar Bent 0.5 W & 140.55 N
Found Cap Rebar On Line & 200.8 N
Find. Capped Rebar On Line
Edge of Blacktop
Edge of Blacktop Along Fence
Blacktop 2.9 N
Blacktop 5.55 N
Blacktop 2.7 N
Blacktop 3.65 N
Blacktop 1.15 S
Blacktop 1.3 S
Clean Outs
Wood Fence
Concrete Ramp
Concrete Wall
Pointed Water (N,S&W)
1'x6' Sign on 10" Sq. Base
Curb Cut Out
Conc. Curb
Clean Out
Gross
5' Concrete Walk
Mail Box
Conc. Apron
Curb Cut Out
Catch Basin Rim 703.18' Full of Debris
Catch Basin Rim 703.19' Full of Debris
Storm D.I. Rim 702.31 8" PVC E. 700.18
Storm M.H. Rim 702.59 12" HDPE W. 699.26 12" HDPE E. 699.24 8" PVC NW. 699.16
Elec. Meter Overhead Svc.
Utility Pole NYSEG 217/272 VZ 26
Utility Pole NYSEG 217/270 VZ 28
Utility Pole NYSEG 217/269 VZ 29
Clean Out
Pointed Water (N,S&W)
Curb Cut Out
Conc. Curb
Gross
5' Concrete Walk
Conc. Apron
Curb Cut Out
Concrete Angle Curb
Planter
White Stripe
Dashed White Stripe
Concrete

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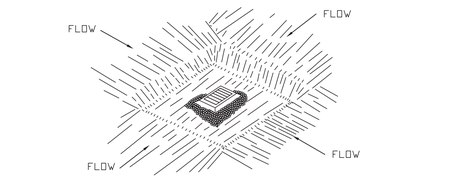
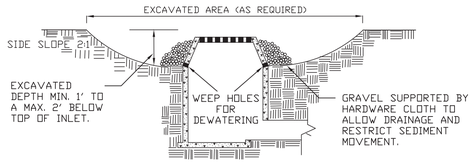




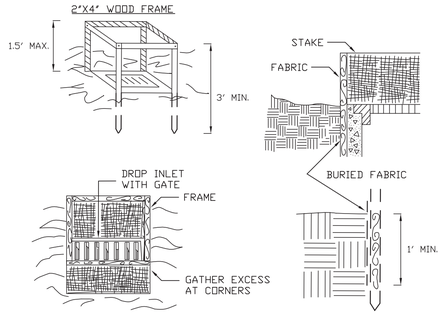
CONSTRUCTION SPECIFICATIONS

1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1

NOT TO SCALE



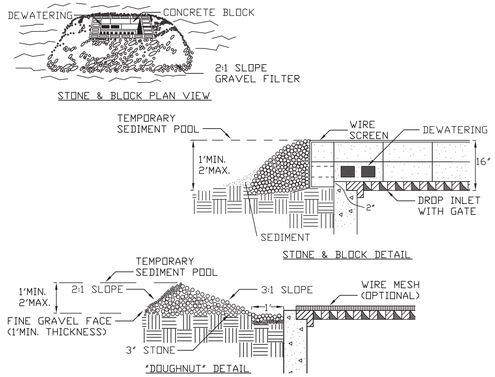
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2' x 4' WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2' x 4' WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 2

NOT TO SCALE



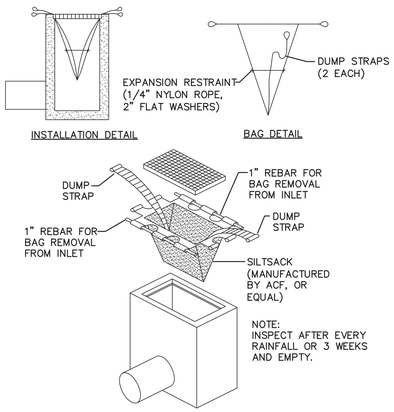
CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3

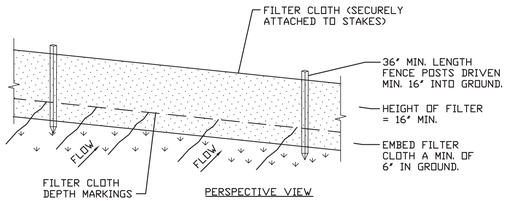
NOT TO SCALE

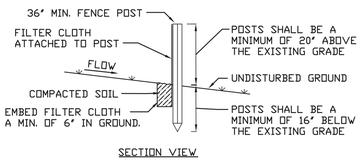


SILT SACK DETAIL

NOT TO SCALE

NOTE: INSTALL ONE OF THE INLET PROTECTION OPTIONS SHOWN FOLLOWING INSTALLATION OF THE PROPOSED CB'S



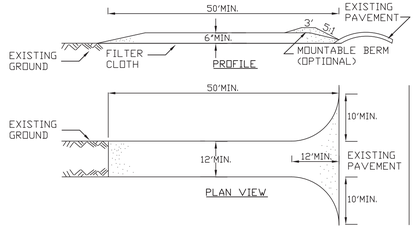


CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER 'T' OR 'U' TYPE OR HARDWOOD.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

NOT TO SCALE

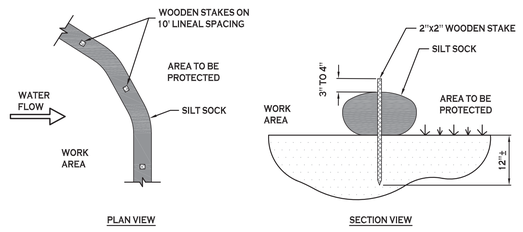


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



NOTES:

CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED ½ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

SILT SOCK DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK · CHRISTOPHER M. WOOD · 076394 · LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date
1	Rev. per 03/07/22 Town Comments	03/17/22

PROJECT NAME:

New Construction for:

Basil Mitsubishi

6868, 6886, 6888, & 6900 Transit Road
Town of Amherst, New York

Issued for Construction:
Municipality Submission: 02/2022
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demo & Erosion Control Details

DRAWING NO.

C-002

Project no.: 21-328

Attachment: SP-2000-14C drawings 042122 [Revision 1] (25491 : Sp-2000-14. C)

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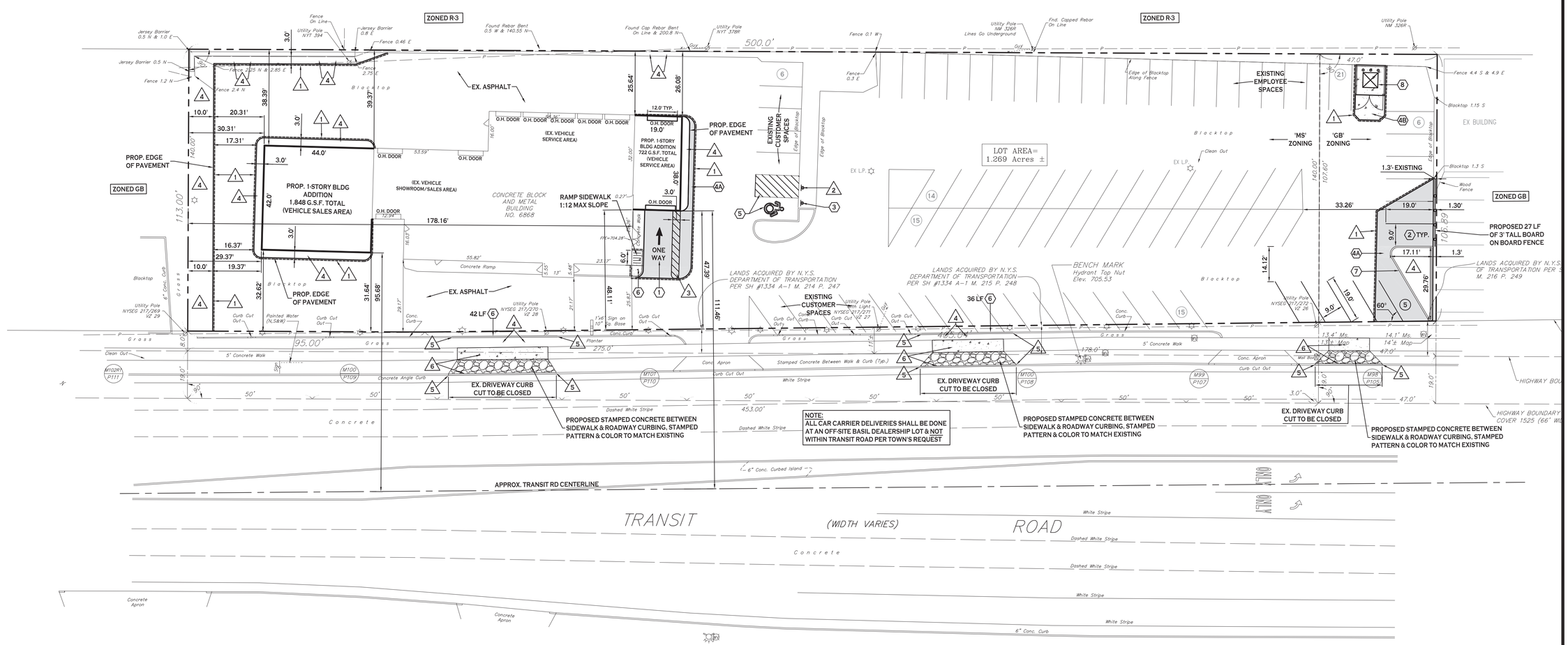

SITE PLAN

SCALE: 1"=20'

NOTES:

1. ALL RADII SHALL BE 3'-0" UNLESS OTHERWISE NOTED.
2. ALL DISTURBED AREAS: SHALL HAVE 4" MIN. OF TOPSOIL AND SEED.
3. ALL DIMENSIONS FROM PROPERTY LINES SHALL BE MEASURED PERPENDICULAR TO THE PROPERTY LINE.
4. CENTER ENTRANCE SIDEWALKS ON DOOR OPENINGS.
5. BUILDING DIMENSIONS ARE APPROXIMATE, REFER TO ARCHITECTURAL DRAWINGS FOR LAYOUT DIMENSIONS.
6. CURB SETBACK DIMENSIONS ARE TO THE BACKSIDE OF THE CURB

DETAIL LEGEND SEE SITE DETAIL SHEET

1. PAINTED TRAFFIC ARROWS
2. 90° PARKING STALL
3. HANDICAPPED PARKING SIGN
4A. STANDARD DUTY ASPHALT
4B. SLAB ON GRADE CONCRETE
5. HANDICAPPED PAVEMENT MARKINGS
6. CONCRETE SIDEWALK
7. CONCRETE CURB
8. DUMPSTER ENCLOSURE

NOTE LEGEND

1. APPROX. LOCATION OF SAWCUT LINE, PROVIDE UNIFORM TRANSITION MATCHING INTO EX. PAVEMENT
2. INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. R7-1C
3. 4" WIDE YELLOW PAVEMENT STRIPES @ 2' O.C. & @ 45°
4. LANDSCAPED AREA - SEE LANDSCAPE PLAN, IF NO PLANTINGS, INSTALL TOPSOIL & SEED
5. RUNOUT CURB IN 2' OR MATCH EXISTING CURB
6. EX. CONCRETE APRON & DEPRESSED CURB TO BE REMOVED; REPLACE CONCRETE SIDEWALK & CURB PER NYSDOT SPECIFICATIONS

GENERAL NOTES:

1. INSTALL ALL MATERIALS TO MANUFACTURER'S RECOMMENDATIONS AND BEST STANDARDS OF TRADE INVOLVED.
2. SUBSTITUTIONS SHALL BE MADE ONLY WITH OWNER'S APPROVAL AND BE OF EQUIVALENT QUALITY TO WHAT IS SPECIFIED.
3. WORK SHALL BE COMPLETED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND OSHA SAFETY RULES AND REGULATIONS.
4. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE SITE. NOTIFY OWNER & ENGINEER OF DISCREPANCIES IN CONDITIONS SHOWN ON DRAWINGS PRIOR TO PROCEEDING WITH THE WORK.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ANY EXISTING STRUCTURES TO REMAIN AND ANY FINISH MATERIAL INSTALLED WHILE WORKING ON OTHER COMPONENTS.
6. CONTRACTOR SHALL KEEP JOB FREE OF DEBRIS AND MAKE FINAL CLEANUP TO SATISFACTION OF OWNER.
7. CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION SO THAT THIS WORK WILL NOT DISTURB EXISTING LINES AND/OR INSTALLATIONS. COORDINATE ALL WORK WITH THE APPLICABLE UTILITY COMPANIES.
8. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS NECESSARY TO PERFORM THE WORK.

SITE DATA

SITE AREA = 1.2± AC (0.13 ACRES TO BE DISTURBED)
ZONED: MS (MOTOR SERVICE)
USE: PROPOSED 722 G.S.F. (SERVICE BAY) AREA & 1,848 G.S.F.1-STORY (SALES) BUILDING ADDITIONS

SETBACKS - BUILDING	REQUIRED	PROVIDED
FRONT (BLDG. HEIGHT OVER 30')	30 FT	31.64 FT MIN., 47.39 FT MIN.
FRONT FROM C.L. OF TRANSIT RD	135 FT	95.68 FT MIN., 111.47 FT MIN.
SIDE (ABUTTING NON-RESIDENTIAL)	10 FT	29.37 FT MIN., 178.16 FT MIN.
REAR (ABUTTING RESIDENTIAL)	30 FT **	38.39 FT MIN., 25.64 FT MIN.
SETBACKS - PARKING		
FRONT	10 FT	0.0 FT MIN. (EX.)
SIDE (ABUTTING NON-RESIDENTIAL)	10 FT	1.30 FT MIN. (EX.)
REAR (ABUTTING RESIDENTIAL)	15 FT	N/A (EX.)
PARKING		
# OF SPACES - SEE CALCULATION BELOW	39	94
90° PARKING SPACE SIZE	9' x 19'	9' x 19'
MAX. BUILDING HEIGHT	65 FT	34.92 FT MAX.
LANDSCAPING		
5% OF INTERIOR PARKING AREA	275 SF	926 SF

PARKING CALCULATION:

VEHICLE SALES -
REQ'D = 2 SPACES PER 300 G.S.F. + 1 PER 2 EMPLOYEES ON MAX. SHIFT
REQ'D PARKING = 1,848 GSF PROP ÷ 5,409 GSF EX 7,257 GSF / 300 + 5 EMPLOYEES / 2 = 26.69 = 27 SPACES

VEHICLE SERVICE -
REQ'D = 2 SPACES PER BAY
REQ'D PARKING = 1 PROP. + 5 EX = 6 BAYS x 2 = 12 SPACES

TOTAL = 27 + 12 = 39 SPACES

SITE LEGEND

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED SIDEWALK / CONCRETE PAD
- NUMBER OF PARKING SPACES (27)
- PROPOSED SIGN

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

20' 20 0 20 40Ft.

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STATE OF NEW YORK CHRISTOPHER WOOD 076394 PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date
1	Rev. per 03/07/22 Town Comments	03/17/22
2	Rev. per 04/01/22 Town/NYSDOT Comments	04/05/22

PROJECT NAME:
New Construction for:
Basil Mitsubishi
6868, 6886, 6888, & 6900 Transit Road
Town of Amherst, New York

Issued for Construction:
Municipality Submission: 02/2022
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Plan

DRAWING NO.
C-100

Project no.: 21-328

Attachment: SP-2000-14C drawings 042122 [Revision 1] (25491 : Sp-2000-14, C)

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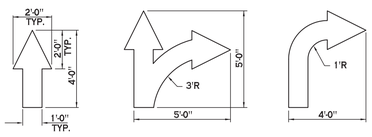
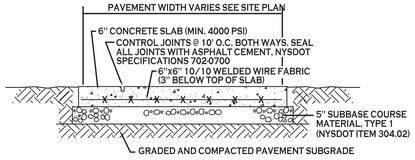


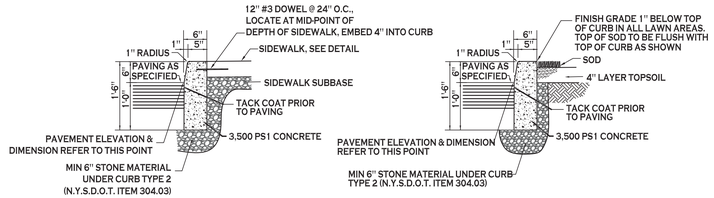
PAINTED TRAFFIC ARROWS - 1



NOTE: CONCRETE PAVEMENT MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 502-3.

EXTERIOR CONCRETE

SLAB-ON-GRADE SECTION - 4B

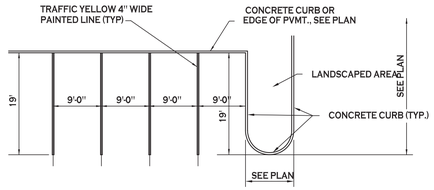


ABUTTING SIDEWALK

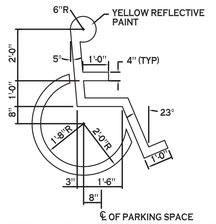
ABUTTING LANDSCAPE/GRASS

NOTES:
1. CONTROL JOINTS TO BE 2" DEEP AT 15'-0" O.C. - SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700
2. WHERE THE CURB DROPS (IS FLUSH WITH ASPHALT) THE DEPTH OF CURB BELOW GRADE SHALL BE INCREASED TO 1'-6" AND OTHER DIMENSIONS ADJUSTED ACCORDINGLY

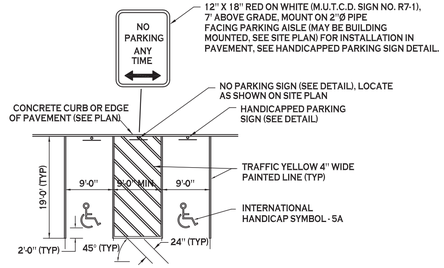
TYPE "A" CONCRETE CURB - 7



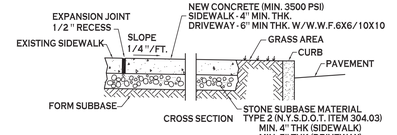
90° PARKING STALL LAYOUT - 2



INTERNATIONAL HANDICAP SYMBOL - 5A

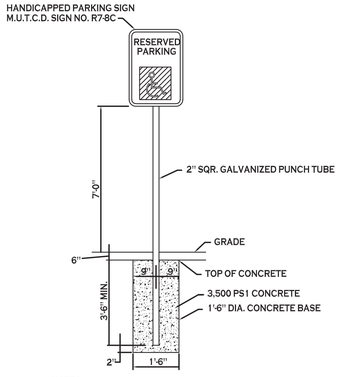


HANDICAPPED PAVEMENT MARKINGS & SIGNAGE - 5



NOTES:
1. CONTROL JOINTS TO BE AT 5'-0" O.C., BOTHWAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. CONCRETE SIDEWALK AND DRIVEWAY MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 608-3.
3. SUBBASE GRADE SHALL FOLLOW THE PROPOSED GRADE OF THE SIDEWALK AND SLOPE AWAY FROM BUILDING WHERE APPLICABLE, PROVIDE CONTINUOUS STONE PATH TO CURB UNDERDRAIN WHERE PROVIDED.
4. FULL DEPTH EXPANSION JOINTS SHALL BE INSTALLED EVERY 20' O.C., BOTHWAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
5. SEE CURB DETAIL FOR DOWLING REQUIREMENTS WHERE ABUTTING CURB
6. INSTALL 6" LONG #3 DOWELS @ 12" O.C. WHERE SIDEWALK ABUTS A BUILDING WALL AT AN ENTRANCE, THICKEN SIDEWALK TO 6" AT BUILDING WALL AND INSTALL DOWEL CENTERED IN THE 6" DEPTH. DOWELS AND THICKENING OF SIDEWALK SHALL EXTEND 18" EITHER SIDE OF ENTRANCE.
7. INSTALL ½" PREMOLDED EXPANSION JOINT WITH BACKER ROD & SEALANT WHERE SIDEWALK ABUTS BUILDING OR OTHER STRUCTURE

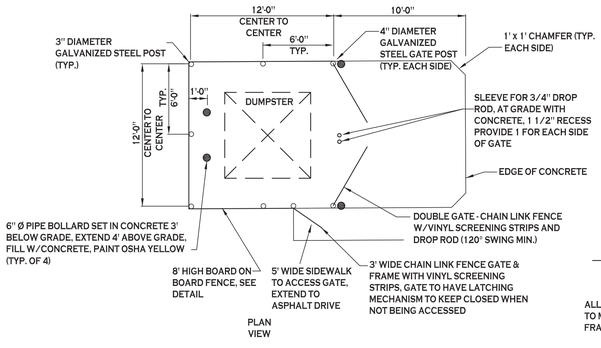
CONCRETE SIDEWALK - 6

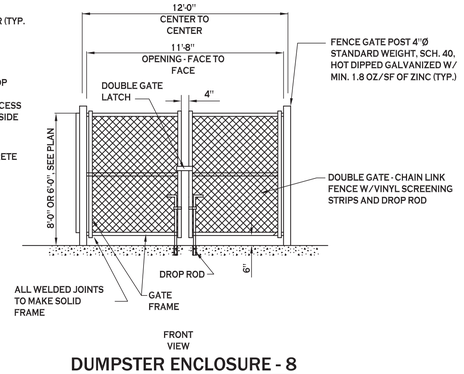


NOTES:
1. HANDICAPPED PARKING SIGN SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS.

HANDICAP PARKING SIGNS - 3

INSTALLED IN GRASS/LANDSCAPED AREA

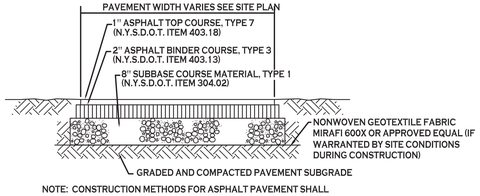




DUMPSTER ENCLOSURE - 8

CHAIN LINK FENCE GATE NOTES:

1. GATE POST FOOTINGS TO BE MIN. 36" DEEP x (4x) POST DIAMETER, EXTEND POST TO WITHIN 6" OF BOTTOM.
2. GATE FRAMES TO BE 2" SQ. GALVANIZED STEEL, WEIGHING 2.60 LB/FT IN ACCORDANCE WITH ASTM F 900.
3. CHAIN LINK FENCE FABRIC SHALL BE 2" MESH, 9 GAUGE, ZINC COATED STEEL CORE WIRE. INSTALL MESH WITH HOOK BOLTS AND TENSION BARS ON ALL 4 SIDES, ATTACH AT 15" MAX.
4. DOUBLE GATE LATCH TO BE FORKED TYPE CAPABLE OF RETAINING GATE IN CLOSED POSITION AND HAVE PROVISION FOR PAD LOCK. LATCH SHALL BE OPERABLE FROM EITHER SIDE OF GATE.
5. ALL HARDWARE TO BE HOT DIPPED GALVANIZED STEEL TO SUIT GATE SIZE.



NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

STANDARD DUTY ASPHALT SECTION - 4A

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STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date
1	Rev. per 03/07/22 Town Comments	03/17/22

PROJECT NAME:
New Construction for:
Basil Mitsubishi
6868, 6886, 6888, & 6900 Transit Road
Town of Amherst, New York

Issued for Construction:
Municipality Submission: 02/2022
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Details

DRAWING NO.
C-101

Project no.: 21-328

Attachment: SP-2000-14C drawings 042122 [Revision 1] (25491 : Sp-2000-14_C)

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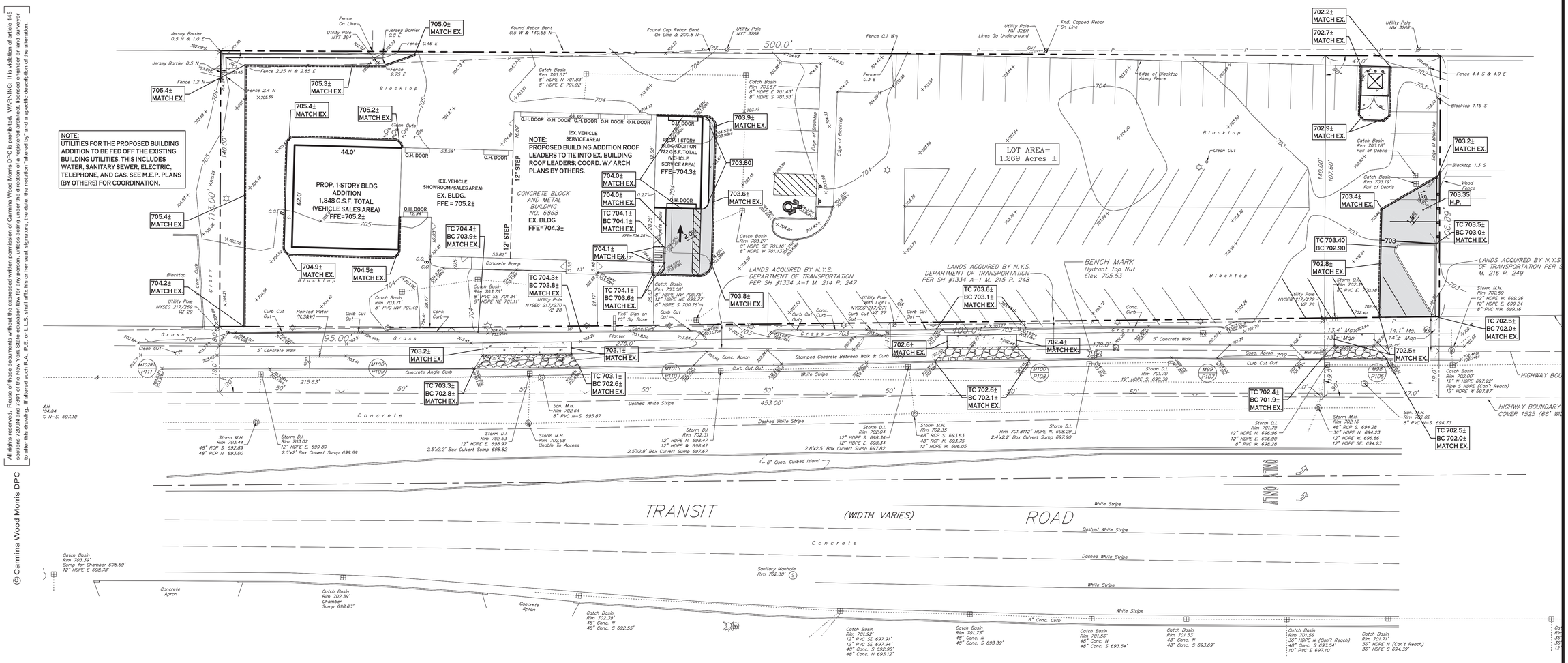
NOTE:
UTILITIES FOR THE PROPOSED BUILDING ADDITION TO BE FED OFF THE EXISTING BUILDING UTILITIES. THIS INCLUDES WATER, SANITARY SEWER, ELECTRIC, TELEPHONE, AND GAS. SEE M.E.P. PLANS (BY OTHERS) FOR COORDINATION.
PROP. 1-STORY BLDG ADDITION 1,848 G.S.F. TOTAL (VEHICLE SALES AREA) FFE=705.2±
(EX. VEHICLE SHOWROOM/SALES AREA) EX. BLDG. FFE = 705.2±
NOTE: PROPOSED BUILDING ADDITION ROOF LEADERS TO TIE INTO EX. BUILDING ROOF LEADERS; COORD. W/ ARCH PLANS BY OTHERS.
(EX. VEHICLE SERVICE AREA)
CONCRETE BLOCK AND METAL BUILDING NO. 6868 EX. BLDG FFE=704.3±
PROP. 1-STORY BLDG/ADDITION 722 G.S.F. TOTAL (VEHICLE SERVICE AREA) FFE=704.3±
LOT AREA= 1.269 Acres ±
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 214 P. 247
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 215 P. 248
BENCH MARK Hydrant Top Nut Elev. 705.53
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER S M. 216 P. 249
HIGHWAY BOUNDARY
TRANSIT (WIDTH VARIES) ROAD
Blacktop
Concrete
5' Concrete Walk
Conc. Apron
Curb Cut Out
Stamped Concrete Between Walk & Curb
Concrete Angle Curb
6" Conc. Curbed Island
White Stripe
Dashed White Stripe
Fence 2.25 N & 2.85 E
Fence 2.4 N
Fence 0.46 E
Fence 2.75 E
Fence 0.1 W
Fence 0.3 E
Fence 4.4 S & 4.9 E
Jersey Barrier 0.5 N & 1.0 E
Jersey Barrier 0.5 N
Fence 1.2 N
Jersey Barrier 0.8 E
Utility Pole NYT 394
Utility Pole NM 326R
Utility Pole NYT 378R
Utility Pole NYSEG 217/269 VZ 29
Utility Pole NYSEG 217/270 VZ 28
Utility Pole NYSEG 217/272 VZ 26
Utility Pole With Light NYSEG 217/271 VZ 27
Found Rebar Bent 0.5 W & 140.55 N
Found Cap Rebar On Line & 200.8 N
Fnd. Capped Rebar On Line
Lines Go Underground
Edge of Blacktop
Edge of Blacktop Along Fence
Clean Outs
Catch Basin Rim 703.57 8" HDPE N 701.83' 8" HDPE E 701.92'
Catch Basin Rim 703.57 8" HDPE E 701.43' 8" HDPE S 701.53'
Catch Basin Rim 703.27 8" HDPE SE 701.16' 8" HDPE W 701.13'
Catch Basin Rim 703.08 8" HDPE NW 700.75' 12" HDPE NE 699.77' 8" HDPE S 700.76'
Catch Basin Rim 703.76 8" PVC SE 701.34' 8" HDPE NE 701.11'
Catch Basin Rim 703.71 8" PVC NW 701.49
Catch Basin Rim 701.70 12" HDPE S 698.30
Catch Basin Rim 702.00' 12" N HDPE 697.22' Pipe S HDPE (Can't Reach) 12" HDPE W 697.87'
Catch Basin Rim 703.39' Sump for Chamber 698.69' 12" HDPE E 698.78'
Catch Basin Rim 702.39' Chamber Sump 698.63'
Catch Basin Rim 702.39' 48" Conc. N 48" Conc. S 692.55'
Catch Basin Rim 701.92' 12" PVC SE 697.91' 12" PVC SE 697.94' 48" Conc. S 692.90' 48" Conc. N 693.12'
Catch Basin Rim 701.73' 48" Conc. N 48" Conc. S 693.39'
Catch Basin Rim 701.56' 48" Conc. N 48" Conc. S 693.54'
Catch Basin Rim 701.53' 48" Conc. N 48" Conc. S 693.69'
Catch Basin Rim 701.56 36" HDPE N (Can't Reach) 48" Conc. S 693.54' 10" PVC E 697.10'
Catch Basin Rim 701.71' 36" HDPE N (Can't Reach) 36" HDPE S 694.39'
Catch Basin Rim 703.18' Full of Debris
Catch Basin Rim 703.19' Full of Debris
Storm M.H. Rim 703.44 48" RCP S. 692.89 48" RCP N. 693.00
Storm D.I. Rim 703.02 12" HDPE E. 699.89 2.5'x2' Box Culvert Sump 699.69
Storm D.I. Rim 702.63 12" HDPE E. 698.97' 2.5'x2.2' Box Culvert Sump 698.82
Storm M.H. Rim 702.98 Unable To Access
San. M.H. Rim 702.64 8" PVC N-S. 695.87
Storm D.I. Rim 702.31 12" HDPE N. 698.47 12" HDPE W. 698.47 2.5'x2.8' Box Culvert Sump 697.67
Storm D.I. Rim 702.04 12" HDPE E. 698.34 12" HDPE E. 698.34 2.8'x2.5' Box Culvert Sump 697.82
Storm M.H. Rim 702.35 48" RCP S. 693.63 48" RCP N. 693.75 12" HDPE W. 696.05
Storm D.I. Rim 701.811 12" HDPE N. 698.29 2.4'x2.2' Box Culvert Sump 697.90
Storm D.I. Rim 701.79 12" HDPE N. 696.96 12" HDPE E. 696.90 8" PVC W. 698.28
Storm M.H. Rim 702.16 48" RCP S. 694.28 36" HDPE N. 694.23 12" HDPE W. 696.86 12" HDPE SE. 694.23
San. M.H. Rim 702.02 8" PVC S. 694.73
Sanitary Manhole Rim 702.30' (S)
Storm M.H. Rim 703.59 12" HDPE N. 699.26 12" HDPE E. 699.24 8" PVC NW. 699.16
Storm D.I. Rim 702.3 8" PVC E. 700.18
Storm D.I. Rim 703.59 12" HDPE E. 700.40
Wood Fence
Blacktop 1.15 S
Blacktop 1.3 S
Clean Out
Concrete Ramp
2.0%
18%
16.8%
4.0'
14.1' Max
13.4' Max
O.H. DOOR
Gross
Pointed Water (N,S&W)
Curb Cut Out
Conc. Curb
Planter
1'x6' Sign on 10" Sq. Base
Storm D.I. Rim 703.44 48" RCP S. 692.89 48" RCP N. 693.00
Storm D.I. Rim 703.02 12" HDPE E. 699.89 2.5'x2' Box Culvert Sump 699.69
Storm D.I. Rim 702.63 12" HDPE E. 698.97' 2.5'x2.2' Box Culvert Sump 698.82
Storm M.H. Rim 702.98 Unable To Access
San. M.H. Rim 702.64 8" PVC N-S. 695.87
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Storm D.I. Rim 702.04 12" HDPE E. 698.34 12" HDPE E. 698.34 2.8'x2.5' Box Culvert Sump 697.82
Storm M.H. Rim 702.35 48" RCP S. 693.63 48" RCP N. 693.75 12" HDPE W. 696.05
Storm D.I. Rim 701.811 12" HDPE N. 698.29 2.4'x2.2' Box Culvert Sump 697.90
Storm D.I. Rim 701.79 12" HDPE N. 696.96 12" HDPE E. 696.90 8" PVC W. 698.28
Storm M.H. Rim 702.16 48" RCP S. 694.28 36" HDPE N. 694.23 12" HDPE W. 696.86 12" HDPE SE. 694.23
San. M.H. Rim 702.02 8" PVC S. 694.73
Storm M.H. Rim 702.59 12" HDPE W. 699.26 12" HDPE E. 699.24 8" PVC NW. 699.16
Storm D.I. Rim 703.3 8" PVC E. 700.18
Storm D.I. Rim 703.59 12" HDPE E. 700.40
Catch Basin Rim 703.27 8" HDPE SE 701.16' 8" HDPE W 701.13'
Catch Basin Rim 703.08 8" HDPE NW 700.75' 12" HDPE NE 699.77' 8" HDPE S 700.76'
Catch Basin Rim 703.76 8" PVC SE 701.34' 8" HDPE NE 701.11'
Catch Basin Rim 703.71 8" PVC NW 701.49
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Catch Basin Rim 702.39' Chamber Sump 698.63'
Catch Basin Rim 702.39' 48" Conc. N 48" Conc. S 692.55'
Catch Basin Rim 701.92' 12" PVC SE 697.91' 12" PVC SE 697.94' 48" Conc. S 692.90' 48" Conc. N 693.12'
Catch Basin Rim 701.73' 48" Conc. N 48" Conc. S 693.39'
Catch Basin Rim 701.56' 48" Conc. N 48" Conc. S 693.54'
Catch Basin Rim 701.53' 48" Conc. N 48" Conc. S 693.69'
Catch Basin Rim 701.56 36" HDPE N (Can't Reach) 48" Conc. S 693.54' 10" PVC E 697.10'
Catch Basin Rim 701.71' 36" HDPE N (Can't Reach) 36" HDPE S 694.39'
Catch Basin Rim 703.18' Full of Debris
Catch Basin Rim 703.19' Full of Debris
Storm M.H. Rim 703.59 12" HDPE W. 699.26 12" HDPE E. 699.24 8" PVC NW. 699.16
Storm D.I. Rim 703.3 8" PVC E. 700.18
Storm D.I. Rim 703.59 12" HDPE E. 700.40
Wood Fence
Blacktop 1.15 S
Blacktop 1.3 S
Clean Out
Concrete Ramp
2.0%
18%
16.8%
4.0'
14.1' Max
13.4' Max
O.H. DOOR
Gross
Pointed Water (N,S&W)
Curb Cut Out
Conc. Curb
Planter
1'x6' Sign on 10" Sq. Base
Storm D.I. Rim 703.44 48" RCP S. 692.89 48" RCP N. 693.00
Storm D.I. Rim 703.02 12" HDPE E. 699.89 2.5'x2' Box Culvert Sump 699.69
Storm D.I. Rim 702.63 12" HDPE E. 698.97' 2.5'x2.2' Box Culvert Sump 698.82
Storm M.H. Rim 702.98 Unable To Access
San. M.H. Rim 702.64 8" PVC N-S. 695.87
Storm D.I. Rim 702.31 12" HDPE N. 698.47 12" HDPE W. 698.47 2.5'x2.8' Box Culvert Sump 697.67
Storm D.I. Rim 702.04 12" HDPE E. 698.34 12" HDPE E. 698.34 2.8'x2.5' Box Culvert Sump 697.82
Storm M.H. Rim 702.35 48" RCP S. 693.63 48" RCP N. 693.75 12" HDPE W. 696.05
Storm D.I. Rim 701.811 12" HDPE N. 698.29 2.4'x2.2' Box Culvert Sump 697.90
Storm D.I. Rim 701.79 12" HDPE N. 696.96 12" HDPE E. 696.90 8" PVC W. 698.28
Storm M.H. Rim 702.16 48" RCP S. 694.28 36" HDPE N. 694.23 12" HDPE W. 696.86 12" HDPE SE. 694.23
San. M.H. Rim 702.02 8" PVC S. 694.73
Sanitary Manhole Rim 702.30' (S)
Storm M.H. Rim 703

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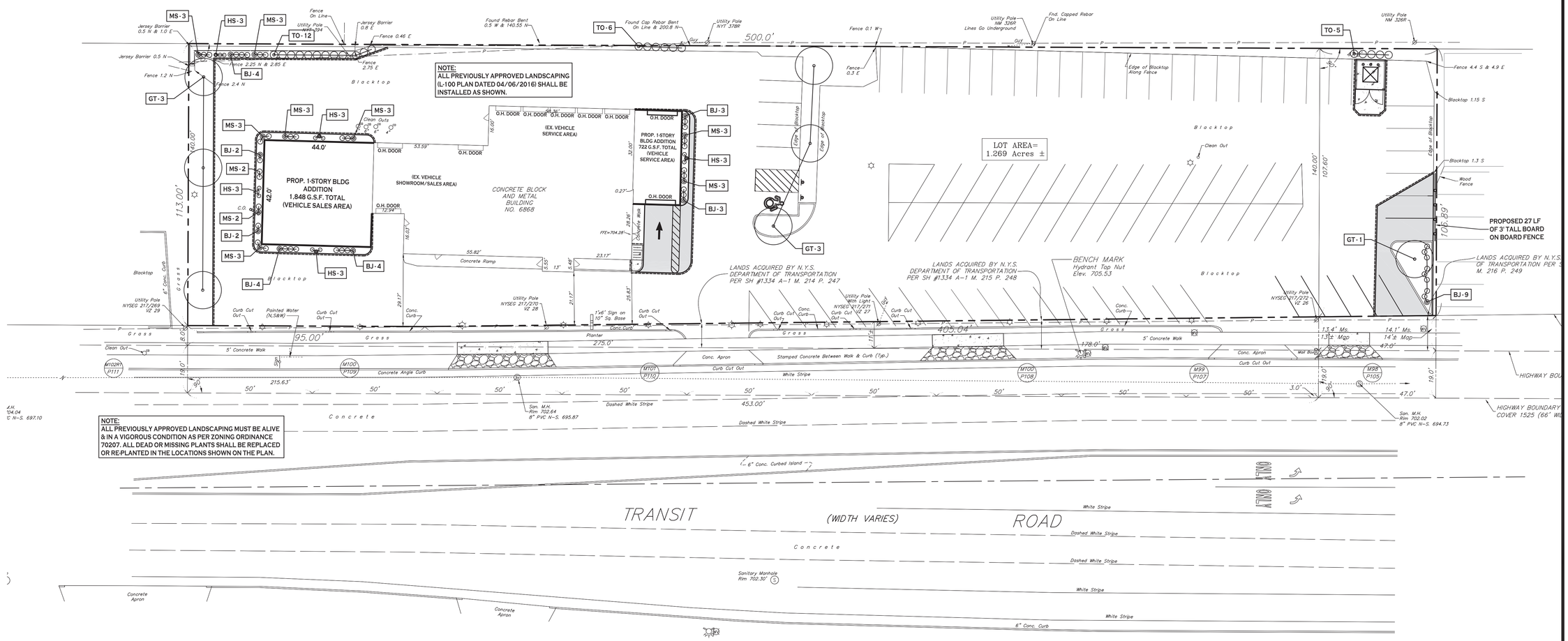


PLANTING NOTES:

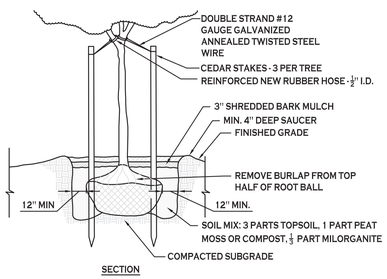
1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PIT SAUCERS RECEIVE "PREEN" HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.. ALL SHRUB BEDS, ORNAMENTAL GRASS BEDS, AND PERENNIAL FLOWER BEDS SHALL RECEIVE TWO (2) INCHES DEPTH OF WASHED GRAVEL.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AS PER TREE PLANTING DETAIL.
5. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING TREES WHICH ARE TO THE PRESERVED FROM ALL POSSIBLE TYPES OF ROOT, TRUNK, & LIMB DAMAGE; INCLUDING BUT NOT LIMITED TO, RETAINING WALLS WHICH PREVENT FILLING ON TOPS OF ROOTS OR EXCAVATING TREE ROOTS AS PER ZONING ORDINANCE 7-2-3 (B) (3).

PLANTING SCHEDULE

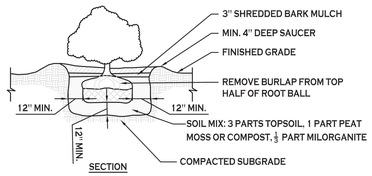
KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		SHRUBS/ORNAMENTAL GRASSES			
MS	28	MISCANTHUS SINENSIS 'GRACILLIMUS	GRACILLIMUS GRASS	#3 CONT.	
HS	15	HERMEROCALLIS STELLA D'ORO	STELLA DAYLILLY	#3 CONT.	
BJ	31	BUXUS MICROPHYLLA JAPONICA 'WINTER GEM'	WINTER GEM BOXWOOD	#3 CONT.	
TO	22	THUJA OCCIDENTALIS 'TECHNY'	TECHNY ARBORVITAE	4' HT. MIN.	B&B, FULL TO GROUND
GT	7	GLEDITSIA TRIACANTHOS INERMIS "SKYLINE"	SKYLINE HONEYLOCUST	2-1/2" CAL. MIN.	B&B

PLANTING NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE BEDS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.



TREE PLANTING DETAIL



SHRUB PLANTING DETAIL

ROBERT C. WALTER
REGISTERED LANDSCAPE ARCHITECT
MEMBER AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS
2765 DODGE ROAD, EAST AMHERST N.Y. 14051-2113
PHONE: (716) 364-5564



N

LANDSCAPE PLAN

SCALE: 1"=20'

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

20' 20 0 20 40Ft.

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REVISIONS:

No.	Description	Date
1	Rev. per 03/07/22 Town Comments	03/17/22
2	Rev. per 04/01/22 Town/NYSDOT Comments	04/05/22

PROJECT NAME:

New Construction for:

Basil Mitsubishi

6868, 6886, 6888, & 6900 Transit Road
Town of Amherst, New York

Issued for Construction:
Municipality Submission: 02/2022
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Landscape Plan

DRAWING NO.

L-100

Project no.: 21-328

Attachment: SP-2000-14C drawings 042122 [Revision 1] (25491 : Sp-2000-14, C)

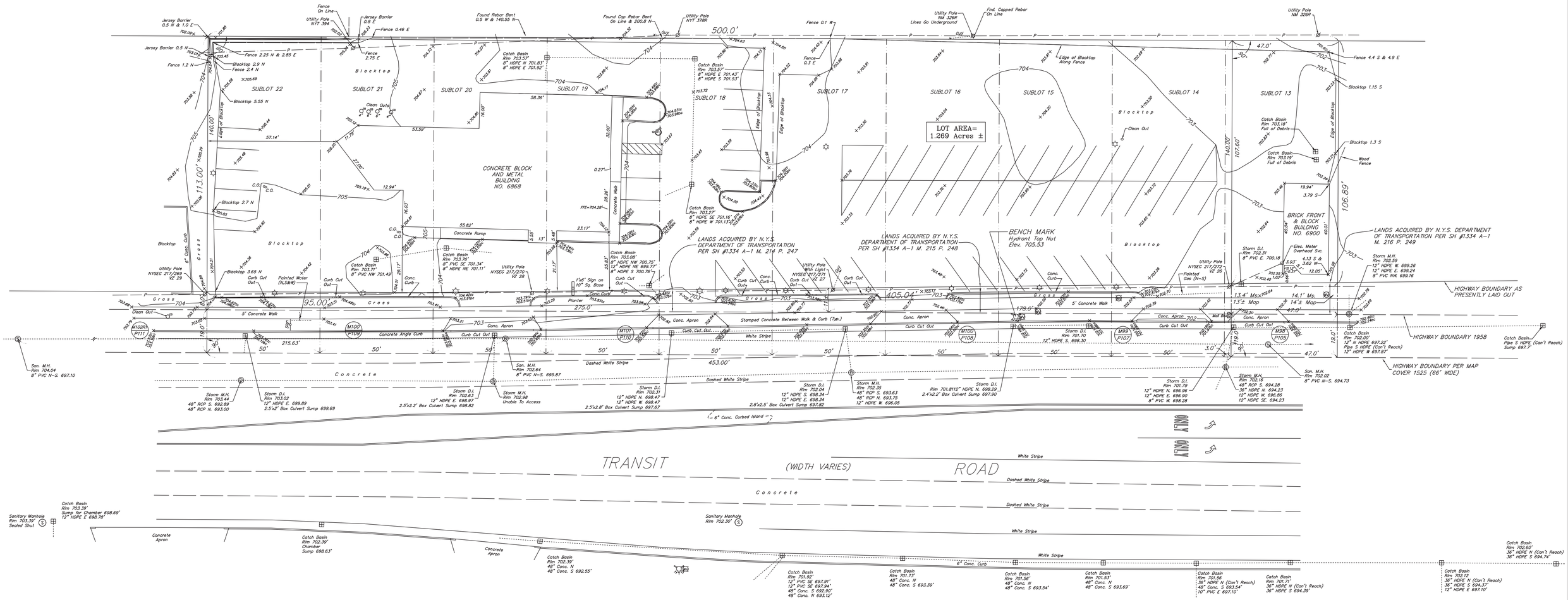
M100 / P109 — APPROPRIATIONS BY N.Y.S. DEPARTMENT OF PUBLIC WORKS IN 1957. SH #1334 A-1, PER THE MAP NO. AND PARCEL NO. DESIGNATED IN CIRCLE.

25309

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.


500.0'
SUBLOT 22
SUBLOT 21
SUBLOT 20
SUBLOT 19
SUBLOT 18
SUBLOT 17
SUBLOT 16
SUBLOT 15
SUBLOT 14
SUBLOT 13
LOT AREA= 1.269 Acres ±
CONCRETE BLOCK AND METAL BUILDING NO. 6868
BRICK FRONT & BLOCK BUILDING NO. 6900
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 214 P. 247
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 215 P. 248
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 216 P. 249
BENCH MARK
Hydrant Top Nut
Elev. 705.53
Concrete Ramp
Blacktop
Gross
Concrete
Fence On Line
Jersey Barrier 0.5 N & 1.0 E
Jersey Barrier 0.5 N
Fence 1.2 N
Fence 2.25 N & 2.85 E
Blacktop 2.9 N
Fence 2.4 N
Blacktop 5.55 N
Blacktop 2.7 N
Blacktop 3.65 N
Fence 0.46 E
Fence 2.75 E
Fence 0.1 W
Fence 0.3 E
Found Rebar Bent 0.5 W & 140.55 N
Found Cap Rebar Bent On Line & 200.8 N
Found Capped Rebar On Line
Utility Pole NYT 394
Utility Pole NYT 378R
Utility Pole NM 3268
Lines Go Underground
Utility Pole NM 3266
Utility Pole NYSEG 217/269 VZ 29
Utility Pole NYSEG 217/270 VZ 28
Utility Pole With Light NYSEG 1217/271 VZ 27
Utility Pole NYSEG 217/272 VZ 26
Edge of Blacktop
Edge of Blacktop Along Fence
Clean Outs
Clean Out
Curb Cut Out
Conc. Curb
Conc. Apron
Concrete Angle Curb
6" Conc. Curb
Concrete Walk
5' Concrete Walk
Stomped Concrete Between Walk & Curb (Typ.)
Planter
1'x6' Sign on 10" Sq. Base
White Stripe
Dashed White Stripe
6" Conc. Curbed Island
Wall Beam
Catch Basin Rim 703.57' 8" HDPE N 701.83' 8" HDPE E 701.92'
Catch Basin Rim 703.53' 8" HDPE E 701.43' 8" HDPE S 701.53'
Catch Basin LRim 703.23' 8" HDPE SE 701.16' 8" HDPE W 701.13'
Catch Basin Rim 703.08' 8" HDPE NW 700.75' 12" HDPE NE 699.77' 8" HDPE S 700.76'
Catch Basin Rim 703.76' 8" PVC SE 701.34' 8" HDPE NE 701.11'
Catch Basin Rim 703.71' 8" PVC NW 701.49'
Catch Basin Rim 703.19' Full of Debris
Catch Basin Rim 703.18' Full of Debris
Storm D.I. Rim 702.31 8" PVC E. 700.18
Storm D.I. Rim 701.70 12" HDPE S. 698.30
Storm M.H. Rim 702.59 12" HDPE W. 699.26 12" HDPE E. 699.24 8" PVC NW. 699.16
Elec. Meter Overhead Svc.
4.13 S. & 3.62 W.
Blacktop 1.15 S
Blacktop 1.3 S
Wood Fence
Fence 4.4 S & 4.9 E
Edge of Blacktop Along Fence
Pointed Gas (N-S)
Painted Water (N.S&W)
Curb Cut Out
Clean Out
Utility Pole NM 3268
Fnd. Capped Rebar On Line
Utility Pole NYT 394
Utility Pole NYT 378R
Jersey Barrier 0.8 E
Fence 0.46 E
Fence 2.75 E
Fence 0.1 W
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Found Rebar Bent 0.5 W & 140.55 N
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Elec. Meter Overhead Svc.
4.13 S. & 3.62 W.
Pointed Gas (N-S)
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Utility Pole NYSEG 217/272 VZ 26

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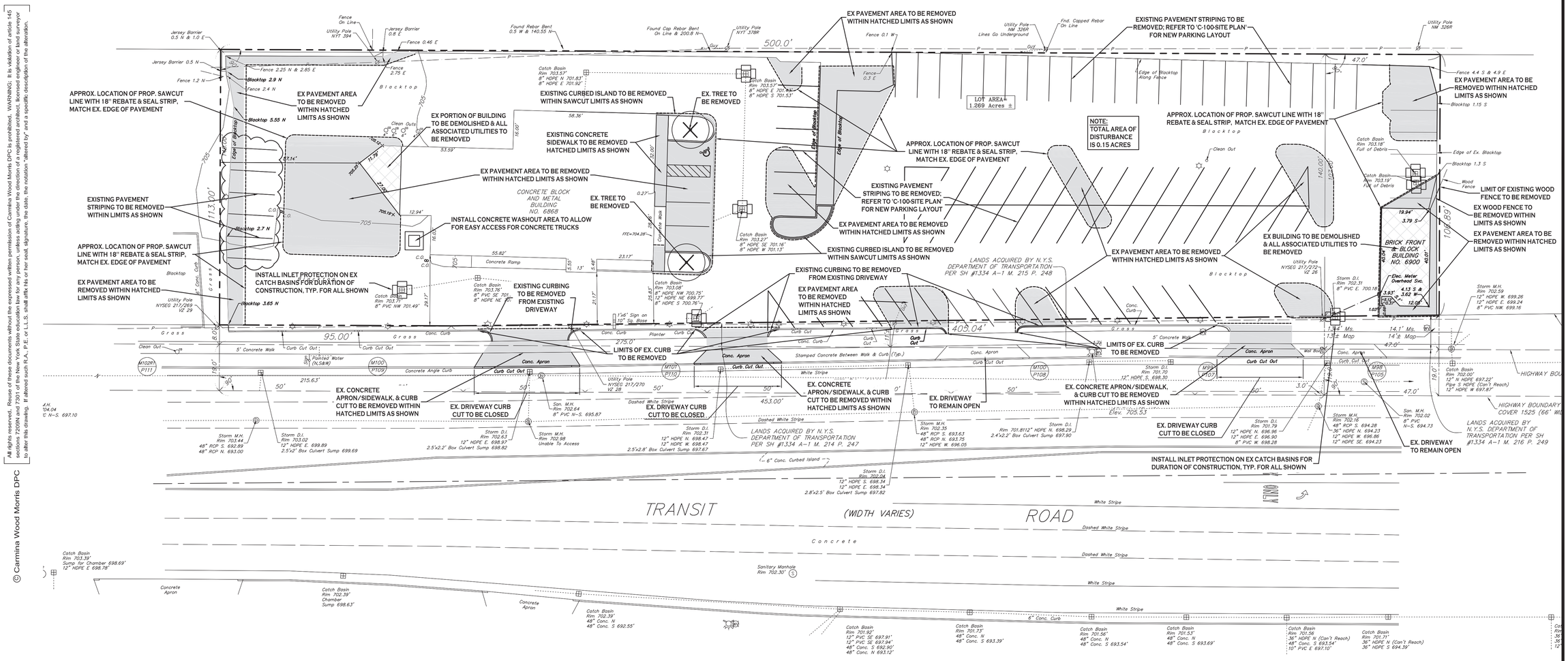

DEMO & EC PLAN

SCALE: 1"=20'

NOTES:

1. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT THOSE ITEMS TO REMAIN, SUCH AS TREES, PROPERTY CORNER PINS, UTILITY POLES, VALVES, HYDRANTS, CURBS, MANHOLES AND CATCH BASINS.
2. TEMPORARY EROSION CONTROL DEVICES TO BE INSTALLED AS DIRECTED BY THE OWNERS FIELD REPRESENTATIVE. MAINTAIN UNTIL VEGETATION IS ESTABLISHED AND PAVEMENT IS INSTALLED.
3. FOR THOSE STRUCTURES TO BE RELOCATED, THE CONTRACTOR SHALL REMOVE WITH CARE AS TO NOT DAMAGE THE ITEMS. ITEMS SHALL BE STORED AND PROTECTED IN AN AREA DESIGNATED BY THE OWNER.
4. THE CONTRACTOR SHALL INSTALL TEMPORARY TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH NYS M.U.T.C.D. STANDARDS PRIOR TO STARTING WORK.

EROSION CONTROL PLAN:
THE FOLLOWING EROSION CONTROL PROCEDURE SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY EROSION CONTROL DEVICES AS DIRECTED BY THE OWNER AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL EROSION CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.
2. THE TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER. ALL LOCAL ORDINANCES REGARDING THE SALE OF TOPSOIL MUST BE FOLLOWED. TOPSOIL MAY NOT BE REMOVED WITHOUT A PERMIT.
3. ALL EROSION CONTROL DEVICES SHALL BE REPLACED WHEREVER THEY BECOME CLOGGED OR INOPERABLE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.
5. THE CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER-SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR, AND WATER SPREAD AS NECESSARY AND AS DIRECTED BY THE OWNER IN ORDER TO CONTROL DUST.
6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED AND ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.
7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH AND SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE AND AS SOON AS PHYSICALLY POSSIBLE.
8. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES, AND CULVERTS. SILT BUILDUP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE CITY.
9. ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES AND MATERIALS SHALL BE IN PLACE PRIOR TO BEGINNING EARTHWORK OPERATIONS AND SHALL BE MAINTAINED UNTIL THE NEW SLOPES ARE STABILIZED WITH SEEDING AND/OR SLOPE PROTECTION, AS DIRECTED BY THE ENGINEER.

DEMO & EROSION CONTROL LEGEND:

- EXISTING PAVEMENT/CONCRETE TO BE REMOVED WITHIN SAWCUT LIMITS SHOWN
- EXISTING BUILDING TO BE REMOVED WITHIN HATCHED LIMITS SHOWN
- INLET PROTECTION
- EXISTING TREE TO BE REMOVED
- PROPOSED SILT FENCE

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

20 0 20 40Ft.
20'

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STATE OF NEW YORK CHRISTOPHER WOOD 097304 PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date
1	Rev. per 03/07/22 Town Comments	03/17/22
2	Rev. per 04/01/22 Town/NYSDOT Comments	04/05/22
3	Rev. per 04/08/22 Town Meeting Comments	04/13/22

PROJECT NAME:
New Construction for:
Basil Mitsubishi
6868, 6886, 6888, & 6900 Transit Road
Town of Amherst, New York

Issued for Construction:
Municipality Submission: 02/2022
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Demolition & Erosion Control Plan

DRAWING NO.
C-001

Project no.: 21-328

Attachment: SP-2000-14C revised drawings recd 041322. (042122 (25491 : Sp-2000-14 C)

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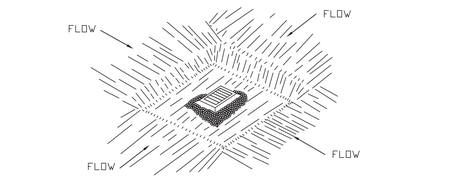
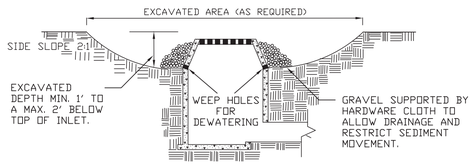




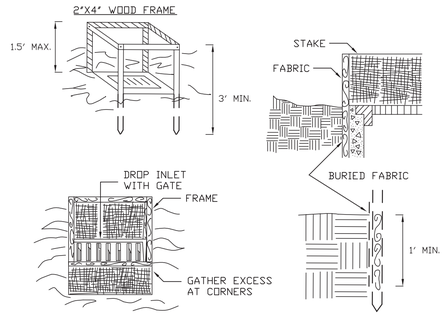
CONSTRUCTION SPECIFICATIONS

1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1

NOT TO SCALE



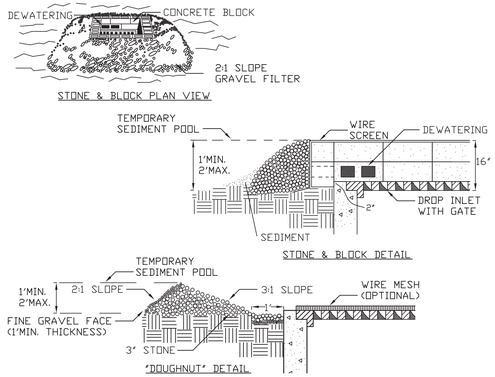
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2' x 4' WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2' x 4' WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 2

NOT TO SCALE



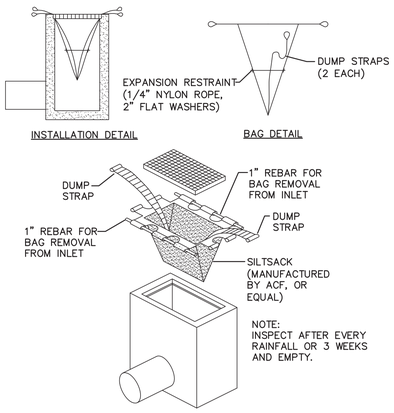
CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3

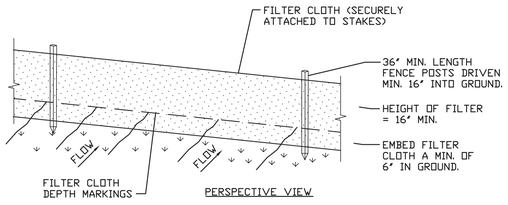
NOT TO SCALE



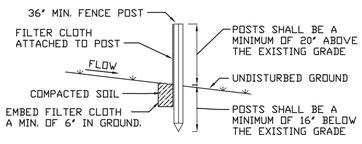
SILT SACK DETAIL

NOT TO SCALE

NOTE: INSTALL ONE OF THE INLET PROTECTION OPTIONS SHOWN FOLLOWING INSTALLATION OF THE PROPOSED CB'S



PERSPECTIVE VIEW



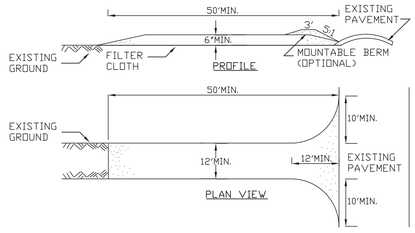
SECTION VIEW

CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER 'T' OR 'U' TYPE OR HARDWOOD.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN 'BULGES' DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

NOT TO SCALE

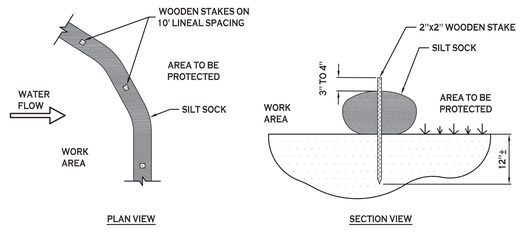


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



NOTES:

CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED ½ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

SILT SOCK DETAIL

NOT TO SCALE

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STATE OF NEW YORK CHRISTOPHER WOOD 076364 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date
1	Rev. per 03/07/22 Town Comments	03/17/22

PROJECT NAME:

New Construction for:

Basil Mitsubishi

6868, 6886, 6888, & 6900 Transit Road
Town of Amherst, New York

Issued for Construction:
Municipality Submission: 02/2022
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demo & Erosion Control Details

DRAWING NO.

C-002

Project no.: 21-328

Attachment: SP-2000-14C revised drawings recd 041322, 042122 (25491 : Sp-2000-14_C)

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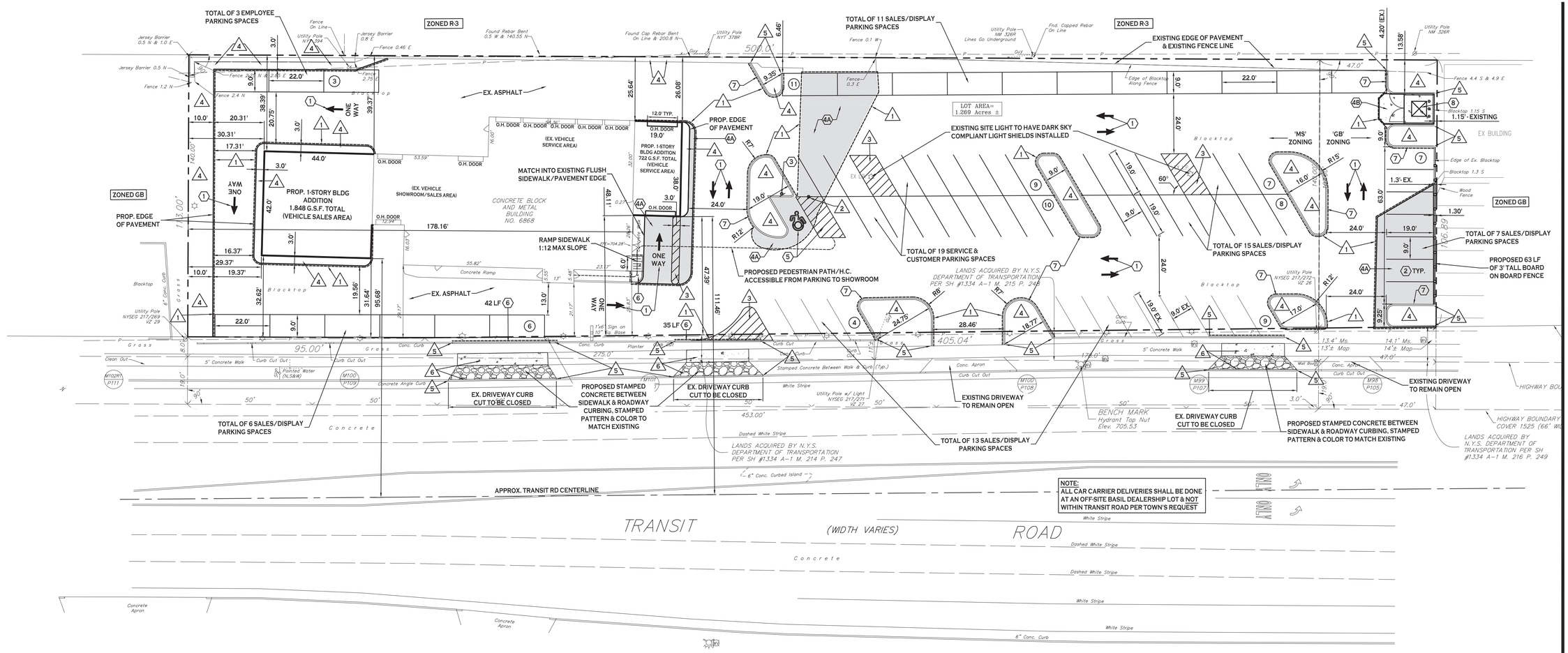

SITE PLAN

SCALE: 1"=20'

NOTES:

1. ALL RADII SHALL BE 3'-0" UNLESS OTHERWISE NOTED.
2. ALL DISTURBED AREAS: SHALL HAVE 4" MIN. OF TOPSOIL AND SEED.
3. ALL DIMENSIONS FROM PROPERTY LINES SHALL BE MEASURED PERPENDICULAR TO THE PROPERTY LINE.
4. CENTER ENTRANCE SIDEWALKS ON DOOR OPENINGS.
5. BUILDING DIMENSIONS ARE APPROXIMATE, REFER TO ARCHITECTURAL DRAWINGS FOR LAYOUT DIMENSIONS.
6. CURB SETBACK DIMENSIONS ARE TO THE BACKSIDE OF THE CURB

DETAIL LEGEND SEE SITE DETAIL SHEET

- (1) PAINTED TRAFFIC ARROWS
- (2) 90° PARKING STALL
- (3) HANDICAPPED PARKING SIGN
- (4A) STANDARD DUTY ASPHALT
- (4B) SLAB ON GRADE CONCRETE
- (5) HANDICAPPED PAVEMENT MARKINGS
- (6) CONCRETE SIDEWALK
- (7) CONCRETE CURB
- (8) DUMPSTER ENCLOSURE

NOTE LEGEND

- 1 APPROX. LOCATION OF SAWCUT LINE, PROVIDE UNIFORM TRANSITION MATCHING INTO EX. PAVEMENT
- 2 INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. R7-1C
- 3 4" WIDE YELLOW PAVEMENT STRIPES @ 2' O.C. & @ 45°
- 4 LANDSCAPED AREA - SEE LANDSCAPE PLAN, IF NO PLANTINGS, INSTALL TOPSOIL & SEED
- 5 RUNOUT CURB IN 2' OR MATCH EXISTING CURB
- 6 EX. CONCRETE APRON & DEPRESSED CURB TO BE REMOVED; REPLACE CONCRETE SIDEWALK & CURB PER NYSDOT SPECIFICATIONS

GENERAL NOTES:

1. INSTALL ALL MATERIALS TO MANUFACTURER'S RECOMMENDATIONS AND BEST STANDARDS OF TRADE INVOLVED.
2. SUBSTITUTIONS SHALL BE MADE ONLY WITH OWNER'S APPROVAL AND BE OF EQUIVALENT QUALITY TO WHAT IS SPECIFIED.
3. WORK SHALL BE COMPLETED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND OSHA SAFETY RULES AND REGULATIONS.
4. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE SITE. NOTIFY OWNER & ENGINEER OF DISCREPANCIES IN CONDITIONS SHOWN ON DRAWINGS PRIOR TO PROCEEDING WITH THE WORK.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ANY EXISTING STRUCTURES TO REMAIN AND ANY FINISH MATERIAL INSTALLED WHILE WORKING ON OTHER COMPONENTS.
6. CONTRACTOR SHALL KEEP JOB FREE OF DEBRIS AND MAKE FINAL CLEANUP TO SATISFACTION OF OWNER.
7. CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION SO THAT THIS WORK WILL NOT DISTURB EXISTING LINES AND/OR INSTALLATIONS. COORDINATE ALL WORK WITH THE APPLICABLE UTILITY COMPANIES.
8. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS NECESSARY TO PERFORM THE WORK.

SITE DATA

SITE AREA = 1.2± AC (0.15 ACRES TO BE DISTURBED)
ZONED: MS (MOTOR SERVICE)
USE: PROPOSED 722 G.S.F. (SERVICE BAY) AREA & 1,848 G.S.F.1-STORY (SALES) BUILDING ADDITIONS

SETBACKS - BUILDING	REQUIRED	PROVIDED
FRONT (BLDG. HEIGHT OVER 30')	30 FT	31.64 FT MIN., 47.39 FT MIN.
FRONT FROM C.L. OF TRANSIT RD	135 FT	95.68 FT MIN., 111.47 FT MIN.
SIDE (ABUTTING NON-RESIDENTIAL)	10 FT	29.37 FT MIN., 178.16 FT MIN.
REAR (ABUTTING RESIDENTIAL)	30 FT	38.39 FT MIN., 25.64 FT MIN.
SETBACKS - PARKING		
FRONT	10 FT	0.0 FT MIN. (EX.)
SIDE (ABUTTING NON-RESIDENTIAL)	10 FT	1.30 FT MIN. (EX.)
REAR (ABUTTING RESIDENTIAL)	15 FT	4.20 FT MIN. (EX.)
PARKING	SERVICE/CUSTOMER - 12	SERVICE/CUSTOMER - 19
# OF SPACES - SEE CALCULATION BELOW	SALES/DISPLAY - 49	SALES/DISPLAY - 52
90° PARKING SPACE SIZE	EMPLOYEES - 3	EMPLOYEES - 3
	TOTAL 64	TOTAL 74
	9' x 19'	9' x 19'
MAX. BUILDING HEIGHT	65 FT	34.92 FT MAX.
LANDSCAPING		
5% OF INTERIOR PARKING AREA	275 SF	926 SF

PARKING CALCULATION:

VEHICLE SALES -
REQ'D = 2 SPACES PER 300 G.S.F. + 1 PER 2 EMPLOYEES ON MAX. SHIFT
REQ'D PARKING =
1,848 GSF PROP + 5,409 GSF EX 7,257 GSF = 14,514 GSF / 300 = 48.38 = 49 SALES/DISPLAY SPACES REQ'D
5 EMPLOYEES / 2 = 2.5 = 3 EXPLOYEE SPACES REQ'D

VEHICLE SERVICE -
REQ'D = 2 SPACES PER BAY
REQ'D PARKING = 1 PROP. + 5 EX = 6 BAYS x 2 = 12 SERVICE VEHICLE SPACES REQ'D

TOTAL = 49 + 3 + 12 = 64 OVERAL SPACES REQUIRED

SITE LEGEND

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED SIDEWALK / CONCRETE PAD
- NUMBER OF PARKING SPACES (27)
- PROPOSED SIGN

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

20' 20 0 20 40Ft.

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STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date
1	Rev. per 03/07/22 Town Comments	03/17/22
2	Rev. per 04/01/22 Town/NYSDOT Comments	04/05/22
3	Rev. per 04/08/22 Town Meeting Comments	04/13/22

PROJECT NAME:
New Construction for:
Basil Mitsubishi
6868, 6886, 6888, & 6900 Transit Road
Town of Amherst, New York

Issued for Construction:
Municipality Submission: 02/2022
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Plan

DRAWING NO.
C-100

Project no.: 21-328

Attachment: SP-2000-14C revised drawings recd 041322, 042122 (25491 : Sp-2000-14_C)

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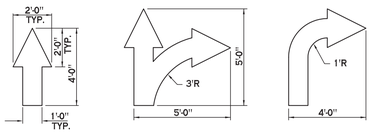
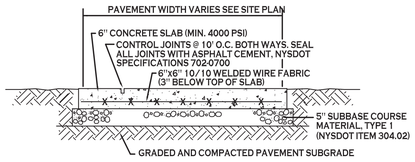


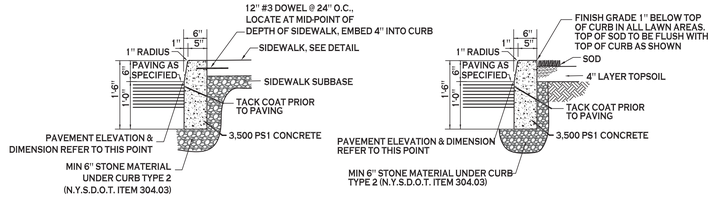
PAINTED TRAFFIC ARROWS - 1



NOTE: CONCRETE PAVEMENT MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 502-3.

EXTERIOR CONCRETE

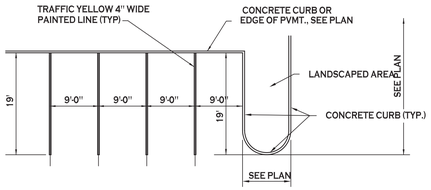
SLAB-ON-GRADE SECTION - 4B



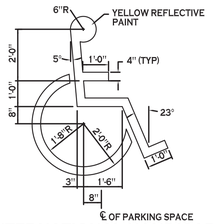
ABUTTING SIDEWALK | ABUTTING LANDSCAPE/GRASS

NOTES:
1. CONTROL JOINTS TO BE 2" DEEP AT 15'-0" O.C. - SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700
2. WHERE THE CURB DROPS (IS FLUSH WITH ASPHALT) THE DEPTH OF CURB BELOW GRADE SHALL BE INCREASED TO 1'-6" AND OTHER DIMENSIONS ADJUSTED ACCORDINGLY

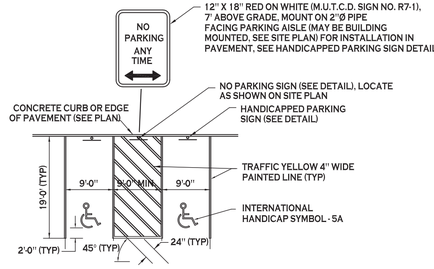
TYPE "A" CONCRETE CURB - 7



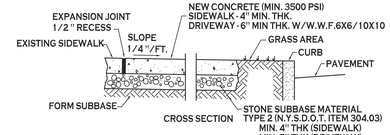
90° PARKING STALL LAYOUT - 2



INTERNATIONAL HANDICAP SYMBOL - 5A

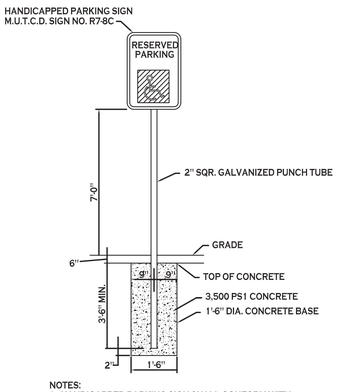


HANDICAPPED PAVEMENT MARKINGS & SIGNAGE - 5



NOTES:
1. CONTROL JOINTS TO BE AT 5'-0" O.C., BOTHWAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. CONCRETE SIDEWALK AND DRIVEWAY MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 608-3.
3. SUBBASE GRADE SHALL FOLLOW THE PROPOSED GRADE OF THE SIDEWALK AND SLOPE AWAY FROM BUILDING WHERE APPLICABLE, PROVIDE CONTINUOUS STONE PATH TO CURB UNDERDRAIN WHERE PROVIDED.
4. FULL DEPTH EXPANSION JOINTS SHALL BE INSTALLED EVERY 20' O.C., BOTHWAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
5. SEE CURB DETAIL FOR DOWLING REQUIREMENTS WHERE ABUTTING CURB
6. INSTALL 6" LONG #3 DOWELS @ 12" O.C. WHERE SIDEWALK ABUTS A BUILDING WALL AT AN ENTRANCE, THICKEN SIDEWALK TO 6" AT BUILDING WALL AND INSTALL DOWEL CENTERED IN THE 6" DEPTH. DOWELS AND THICKENING OF SIDEWALK SHALL EXTEND 18" EITHER SIDE OF ENTRANCE.
7. INSTALL ½" PREMOLDED EXPANSION JOINT WITH BACKER ROD & SEALANT WHERE SIDEWALK ABUTS BUILDING OR OTHER STRUCTURE

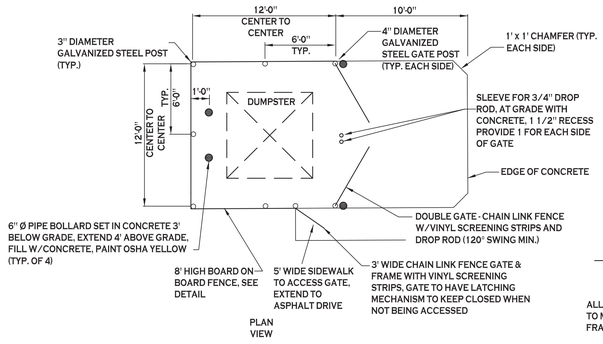
CONCRETE SIDEWALK - 6



NOTES:
1. HANDICAPPED PARKING SIGN SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS.

HANDICAP PARKING SIGNS - 3

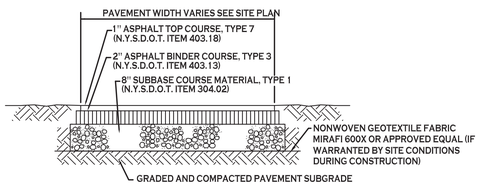
INSTALLED IN GRASS/LANDSCAPED AREA



DUMPSTER ENCLOSURE - 8

CHAIN LINK FENCE GATE NOTES:

1. GATE POST FOOTINGS TO BE MIN. 36" DEEP x (4x) POST DIAMETER, EXTEND POST TO WITHIN 6" OF BOTTOM.
2. GATE FRAMES TO BE 2" SQ. GALVANIZED STEEL, WEIGHING 2.60 LB/FT IN ACCORDANCE WITH ASTM F 900.
3. CHAIN LINK FENCE FABRIC SHALL BE 2" MESH, 9 GAUGE, ZINC COATED STEEL CORE WIRE. INSTALL MESH WITH HOOK BOLTS AND TENSION BARS ON ALL 4 SIDES, ATTACH AT 15" MAX.
4. DOUBLE GATE LATCH TO BE FORKED TYPE CAPABLE OF RETAINING GATE IN CLOSED POSITION AND HAVE PROVISION FOR PAD LOCK. LATCH SHALL BE OPERABLE FROM EITHER SIDE OF GATE.
5. ALL HARDWARE TO BE HOT DIPPED GALVANIZED STEEL TO SUIT GATE SIZE.



NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

STANDARD DUTY ASPHALT SECTION - 4A

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STATE OF NEW YORK CHRISTOPHER WOOD 072394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date
1	Rev. per 03/07/22 Town Comments	03/17/22

PROJECT NAME:

New Construction for:

Basil Mitsubishi

6868, 6886, 6888, & 6900 Transit Road
Town of Amherst, New York

Issued for Construction:
Municipality Submission: 02/2022
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Site Details

DRAWING NO.

C-101

Project no.: 21-328

Attachment: SP-2000-14C revised drawings recd 041322 (042122 (25491 : Sp-2000-14_C)

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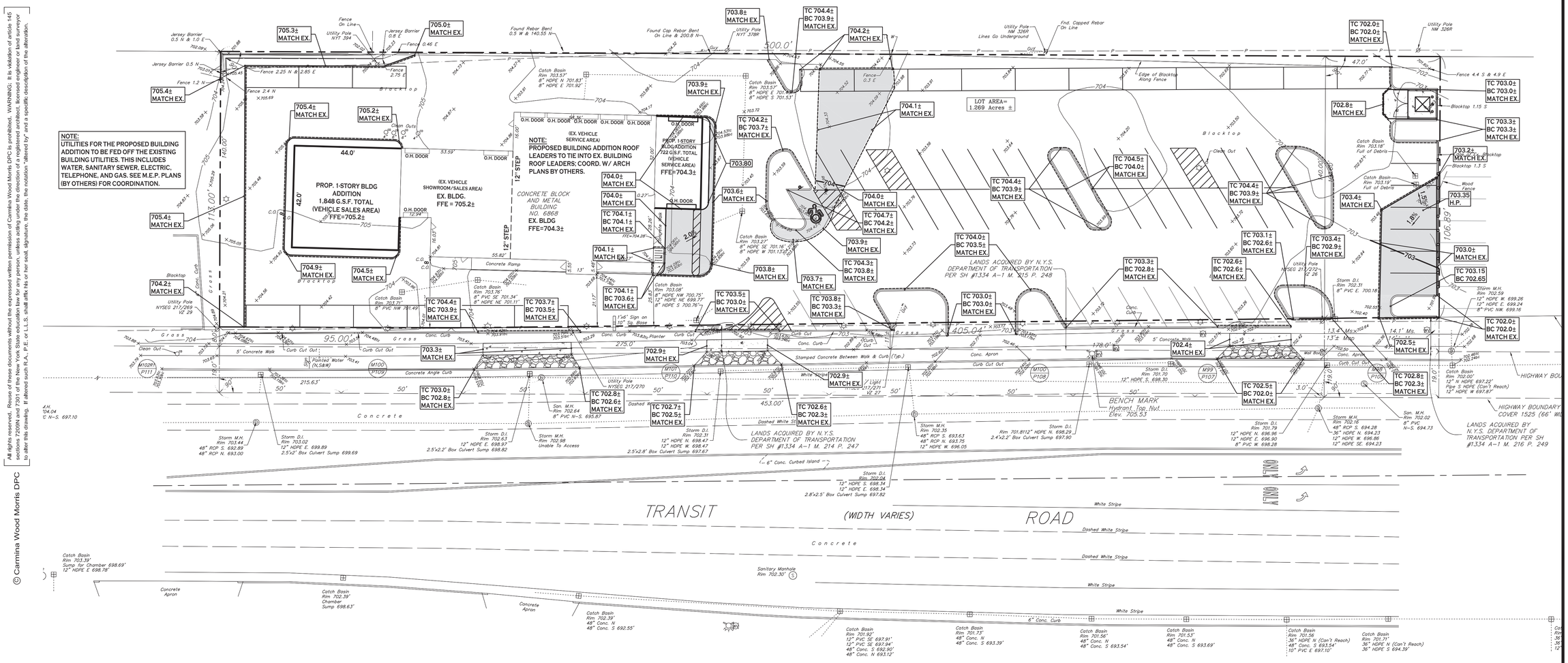

PROPOSED GRADING LEGEND

PROPOSED CONTOUR	101
PROPOSED SPOT ELEVATION	100.80
PROPOSED TOP/BOTTOM OF CURB ELEV.	TC 100.50 BC 100.00
PROPOSED CATCH BASIN	CB
PAVEMENT/GROUND SLOPE	→
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH
PROPOSED STORM SEWER	ST

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

20' 20 0 20 40Ft.

GRADING PLAN

SCALE: 1"=20'

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STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date
1	Rev. per 03/07/22 Town Comments	03/17/22
2	Rev. per 04/01/22 Town/NYSDOT Comments	04/05/22
3	Rev. per 04/08/22 Town Meeting Comments	04/13/22

PROJECT NAME:
New Construction for:
Basil Mitsubishi
6868, 6886, 6888, & 6900 Transit Road
Town of Amherst, New York

Issued for Construction:
Municipality Submission: 02/2022
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Grading Plan

DRAWING NO.
C-200

Project no.: 21-328

Attachment: SP-2000-14C revised drawings recd 041322, 042122 (25491 : Sp-2000-14_C)

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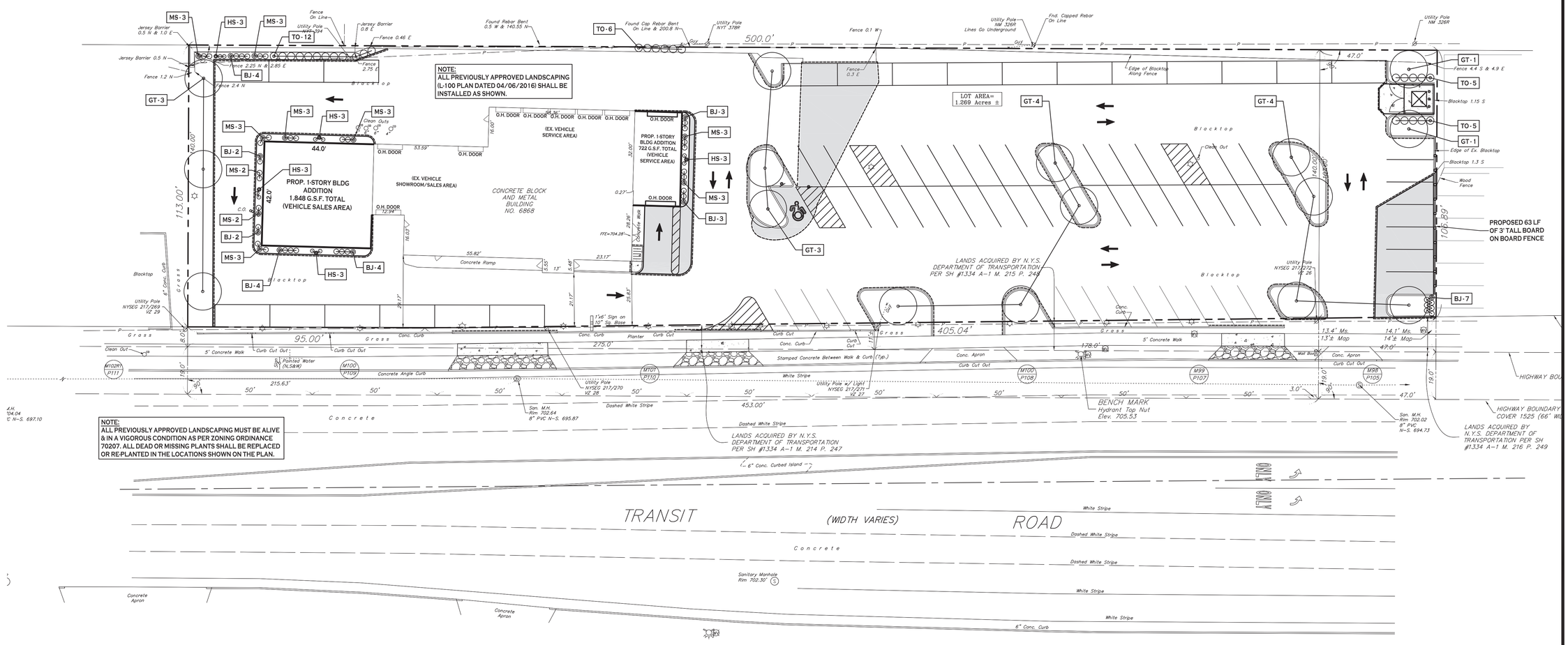

NOTE:
ALL PREVIOUSLY APPROVED LANDSCAPING (L-100 PLAN DATED 04/06/2016) SHALL BE INSTALLED AS SHOWN.
NOTE:
ALL PREVIOUSLY APPROVED LANDSCAPING MUST BE ALIVE & IN A VIGOROUS CONDITION AS PER ZONING ORDINANCE 70207. ALL DEAD OR MISSING PLANTS SHALL BE REPLACED OR RE-PLANTED IN THE LOCATIONS SHOWN ON THE PLAN.
PROP. 1-STORY BLDG ADDITION 1,848 G.S.F. TOTAL (VEHICLE SALES AREA)
(EX. VEHICLE SHOWROOM/SALES AREA)
CONCRETE BLOCK AND METAL BUILDING NO. 6868
(EX. VEHICLE SERVICE AREA)
PROP. 1-STORY BLDG ADDITION 722 G.S.F. TOTAL (VEHICLE SERVICE AREA)
LOT AREA= 1.269 Acres ±
PROPOSED 63 LF OF 3' TALL BOARD ON BOARD FENCE
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 215 P. 249
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 214 P. 247
LANDS ACQUIRED BY N.Y.S. DEPARTMENT OF TRANSPORTATION PER SH #1334 A-1 M. 216 P. 249
BENCH MARK
Hydrant Top Nut
Elev. 705.53
HIGHWAY BOUNDARY
TRANSIT (WIDTH VARIES) ROAD
Concrete Angle Curb
6" Conc. Curbed Island
Concrete Apron
Sanitary Manhole Rim 702.30' (S)
6" Conc. Curb
Blacktop
Grass
Concrete
Gravel
5' Concrete Walk
Stamped Concrete Between Walk & Curb (Typ.)
Conc. Apron
Curb Cut Out
Planter
Curb Cut
Conc. Curb
Dashed White Stripe
White Stripe
Edge of Blacktop Along Fence
Edge of Ex. Blacktop
Blacktop 1.15 S
Blacktop 1.3 S
Wood Fence
Fence 0.1 W
Fence 0.3 E
Fence 4.4 S & 4.9 E
Fence 2.25 N & 2.85 E
Fence 2.75 E
Fence 2.4 N
Fence 1.2 N
Jersey Barrier 0.5 N & 1.0 E
Jersey Barrier 0.5 N
Jersey Barrier 0.6 E
Fence 0.46 E
Found Rebar Bent 0.5 W & 140.55 N
Found Cap Rebar Bent On Line & 200.8 N
Fnd. Capped Rebar On Line
Utility Pole NM 326R
Utility Pole NM 326O Lines Go Underground
Utility Pole NYT 378R
Utility Pole NYSEG 217/269 VZ 29
Utility Pole NYSEG 217/270 VZ 28
Utility Pole NYSEG 217/271 VZ 27
Utility Pole NYSEG 217/272 VZ 26
Pole Mounted Water Valve 594
Clean Outs
Curb Cut Out
Curb Cut
Conc. Curb
Conc. Curb
Conc. Curb
Mail Box
Gut
Gut
Gut

DRAFT

(04/21/2022)

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst
Planning Board

Project: SP-2000-14_C

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: EAF completed; Unlisted action.

Description of Action: This project is a conversion of a used car dealership to a new car dealership and repair facility with two building additions totaling 2,570 square feet of new floor area. The new building additions provide an expansion for a showroom and an enlarged service area. Site improvements include the addition of a landscape buffer at the south property line, a new parking area arrangement for better circulation, and the addition of landscape islands and a dumpster enclosure. Three curb cuts will be closed as part of this project as required by the New York State Department of Transportation. Work will include the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 6868, 6886, 6888, 6900 Transit Road, Amherst, Erie County

Petitioner: Basil Family Dealerships

Attachment: SP-2000-14_C_draft neg dec_042122 (25491 : Sp-2000-14_C)

Reasons Supporting This Determination

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on March 1, 2022 reviewed the Grading, Drainage and Utility Plans submitted on February 22, 2022**,** Erosion Control Plan submitted on February 22, 2022 and Geotechnical Report prepared by Baron & Associates Inc.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on February 22, 2022 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of March 8, 2022 and the Planning Department in their review of March 7, 2022 have reviewed the application documents, along with the Geotechnical Report submitted on February 22, 2022, and determined that the subject project has or will have met all International Building Code – 2015 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. However, the site has been previously disturbed, therefore, the project will not impair the character or quality of important historical resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the Motor Service (MS) and General Business (GB) zoning districts; neighboring uses are an automobile repair service to the north zoned GB, a commercial strip plaza to the south zoned GB, single family homes to the west zoned R-3 and Transit Road and the Town of Clarence to the east; therefore, the project is consistent with surrounding land use.

6. The proposed subject development will include the conversion of a used car dealership to a new car dealership and repair facility with two building additions totaling 2,570 square feet of new floor area which will not cause a major change in the use of either the quantity or type of energy.

7. The project will not create any hazard to human health The Fire Chief's Association on April 5, 2022, has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency has or will have been met.

Attachment: SP-2000-14_C_draft neg dec_042122 (25491 : Sp-2000-14_C)

8. The project will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The addition of 2,570 square feet of floor area will be consistent with the scale of surrounding land uses.

9. The function of the proposed new automobile dealership will not significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated March 2, 2022, and NYSDOT dated April 8, 2022 indicates that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on March 15, 2022, Assessor on March 4, 2022, Plumbing Division on March 3, 2022, and Right-of-Way Agent on March 2, 2022. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Seconded by: Ayes; Noes Absent

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

DU/TV/bf
X:\Current_Planning\Files\Site Plans\2000\SP-2000-14_C_(6868_6886_6888_&_6900_Transit_Rd)_2022\SP-2000-14_C_draft neg dec_042122.doc
cc: Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDEC (type 1's)
NYSDOT (if on state hwy.)
Basil Family Dealerships, 6868 Transit Road, Williamsville, NY 14221
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221

Attachment: SP-2000-14_C_draft neg dec_042122 (25491 : Sp-2000-14_C)

DRAFT (4/21/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2000-14_C

PETITIONER

Basil Family Dealerships
6868 Transit Road
Williamsville, NY 14221

PROPERTY LOCATION

6868, 6886, 6888, 6900 Transit Road

WHEREAS, the Town of Amherst Planning Board on Thursday, April 21, 2022 held a public hearing on a Site Plan for a conversion of a used car dealership to a new car dealership and repair facility with two building additions totaling 2,570 square feet of new floor area, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance approves said Site Plan subject to the following conditions:

1. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

Attachment: SP-2000-14_C_draft resolution_042122 (25491 : Sp-2000-14_C)

DRAFT (4/21/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2000-14_C

PETITIONER	PROPERTY LOCATION
Basil Family Dealerships	6868, 6886, 6888, 6900 Transit Road

2. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

3. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

4. That the petitioner addresses the comments of the Zoning Enforcement Officer, Planning Department and Landscape Architect in their letter dated April 14, 2022, to the satisfaction of those respective departments.

5. That the parcel at 6900 Transit Road be merged with the parcels at 6868, 6886, and 6888 Transit Road, and documentation provided to the Planning Department, prior to the issuance of final site plan drawings.

6. That the petitioner or the petitioner's contractor obtain any and all NYS Highway Work Permits for work being done within the Transit Road right-of-way.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

SM/TV/bf
X:\Current_Planning\Files\Site Plans\2000\SP-2000-14_C_(6868_6886_6888_&_6900_Transit_Rd)_2022\SP-2000-14_C_draft resolution_042122.doc

cc: Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
Basil Family Dealerships, 6868 Transit Road, Williamsville, NY 14221
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221

Approved Plan: _____
Received: _____

Attachment: SP-2000-14_C_draft resolution_042122 (25491 : Sp-2000-14_C)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor

Daniel C. Howard, A
Planning Directo

Daniel J. Ulatowski, A
Assistant Planning Dir

APR27'22 AM10:01 R

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency:	Town of Amherst Planning Board	**Project:**	SP-2000-14_C
Address:	5583 Main Street Williamsville, NY 14221 (716) 631-7051	**Date:**	April 21, 2022

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: EAF completed; Unlisted action.

Description of Action: Conversion of a used car dealership to a new car dealership and repair facility with two building additions totaling 2,570 square feet of new floor area. The new building additions provide an expansion for a showroom and an enlarged service area. Site improvements include the addition of a landscape buffer at the south property line, a new parking area arrangement for better circulation, and the addition of landscape islands and a dumpster enclosure. Three curb cuts along Transit Road will be closed as part of this project as required by the New York State Department of Transportation. Work will include the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 6868, 6886, 6888, 6900 Transit Road, Amherst, Erie County

Petitioner: Basil Family Dealerships

Attachment: SP-2000-14_C_signed_neg_dec_042122 (25491 : Sp-2000-14_C)

APR27'22 AM10:01 RCVD

REASONS SUPPORTING THIS DETERMINATION

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on April 21, 2022 reviewed the Grading, Drainage and Utility Plans submitted on April 13, 2022, Erosion Control Plan submitted on April 13, 2022 and Geotechnical Report prepared by Baron & Associates Inc.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on April 13, 2022 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of March 8, determined that the subject project has or will have met all International Building Code – 2015 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. However, the site has been previously disturbed, therefore, the project will not impair the character or quality of important historical resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the Motor Service (MS) and General Business (GB) zoning districts; neighboring uses are an automobile repair service to the north zoned GB, a commercial strip plaza to the south zoned GB, single family homes to the west zoned Residential District Three (R-3) and Transit Road and the Town of Clarence to the east; therefore, the project is consistent with surrounding land use.

6. The proposed subject development will include the conversion of a used car dealership to a new car dealership and repair facility with two building additions totaling 2,570 square feet of new floor area which will not cause a major change in the use of either the quantity or type of energy.

7. The project will not create any hazard to human health The Fire Chief's Association on April 5, 2022, has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency has or will have been met.

Attachment: SP-2000-14_C_signed_neg_dec_042122 (25491 : Sp-2000-14_C)

APR27'22 AM10:01 RCVD

8. The project will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The addition of 2,570 square feet of floor area will be consistent with the scale of surrounding land uses.

9. The function of the proposed new automobile dealership will not significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated April 18, 2022, and NYSDOT dated April 8, 2022 indicates that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on March 15, 2022, Assessor on March 4, 2022, Plumbing Division on March 3, 2022, and Right-of-Way Agent on March 2, 2022. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: Chmiel; Seconded by: Raffaele; Ayes 6; Noes 0; Absent (1) Gilmour.

Thomas J. Vantl Assistant Planner
signature & title of preparer

4/25/22
Date

For Robert J. Gilmour, Planning Board Chair

4-27-22
Date

TV/ac
X:\Current_Planning\Files\Site Plans\2000\SP-2000-14_C_(6868_6886_6888_&_6900_Transit_Rd)_2022\SP-2000-14_C_neg dec_042122.docx
cc: Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDOT
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221
Paul Bliss, Bliss Construction, 6790 Main Street, Suite 100, Williamsville, NY 14221
Chris Wood, Carmina Wood Morris, 487 Main Street, Suite 500, Buffalo, NY 14203
Dave Sutton, Sutton Architecture, 5409 Main Street #2, Williamsville, NY 14221
Brad Coon, Basil Family Dealerships, 6868 Transit Road, Williamsville, NY 14221

Attachment: SP-2000-14_C_signed_neg_dec_042122 (25491 : Sp-2000-14_C)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2000-14_C

APR27'22 AM10:01 RCVD

PETITIONER

Basil Family Dealerships
6868 Transit Road
Williamsville, NY 14221

PROPERTY LOCATION

6868, 6886, 6888, 6900 Transit Road

WHEREAS, the Town of Amherst Planning Board on Thursday, April 21, 2022 held a public hearing on a Site Plan for a conversion of a used car dealership to a new car dealership and repair facility with two building additions totaling 2,570 square feet of new floor area, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance approves said Site Plan subject to the following conditions:

Attachment: SP-2000-14_C_signed_resolution_042122 (25491 : Sp-2000-14_C)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2000-14_C

APR27'22 AM10:01 RCVD

PETITIONER	PROPERTY LOCATION
Basil Family Dealerships	6868, 6886, 6888, 6900 Transit Road

1. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

2. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

3. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

4. That the petitioner addresses the comments of the Zoning Enforcement Officer in the Planning Department letter dated April 14, 2022 to the satisfaction of that Officer.

5. That the petitioner addresses the comments of the Planning Department in their letter dated April 14, 2022 to the satisfaction of that Department.

6. That the petitioner addresses the comments of the Landscape Architect in the Planning Department letter dated April 14, 2022, to the satisfaction of the Landscape Architect.

7. That the parcel at 6868, 6886, 6888 & 6900 Transit Road be merged into a single parcel, and documentation provided to the Planning Department, prior to the issuance of final site plan drawings that this has been done.

8. That the petitioner or the petitioner's contractor obtain any and all NYS Highway Work Permits for work being done within the Transit Road right-of-way.

The foregoing resolution was adopted by the Town of Amherst Planning Board, April 21, 2022; moved by Chmiel; seconded by Kahn; ayes 6, noes 0; absent (1) Gilmour.

For Robert J. Gilmour, Chair — 4-27-22 Date

Attachment: SP-2000-14_C_signed_resolution_042122 (25491 : Sp-2000-14_C)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2000-14_C

APR27'22 AM10:01 RCVD

PETITIONER	PROPERTY LOCATION
Basil Family Dealerships	6868, 6886, 6888, 6900 Transit Road

TV/ac
X:\Current_Planning\Files\Site Plans\2000\SP-2000-14_C_(6868_6886_6888_&_6900_Transit_Rd)_2022\SP-2000-14_C_resolution_042122.doc

cc: Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221
Paul Bliss, Bliss Construction, 6790 Main Street, Suite 100, Williamsville, NY 14221
Chris Wood, Carmina Wood Morris, 487 Main Street, Suite 500, Buffalo, NY 14203
Dave Sutton, Sutton Architecture, 5409 Main Street #2, Williamsville, NY 14221
Brad Coon, Basil Family Dealerships, 6868 Transit Road, Williamsville, NY 14221

Approved Plan: Carmina Wood Morris DPC
Received: April 13, 2022

Attachment: SP-2000-14_C_signed_resolution_042122 (25491 : Sp-2000-14_C)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

Meeting: 04/21/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Bryan Fadel
Initiator: Dan Howard
Sponsors:
DOC ID: 25493 A

ADOPTED

PLANNING BOARD ITEM (ID # 25493)

Proposed Muir Woods Phase IV - 8-Lot Subdivision Final Plat, SP-2021-24A

Property located at 520 Campbell Boulevard (NCD)
Ciminelli Muir Woods, Petitioner

April 21, 2022
No comments were heard on this proposal. The Petitioner requested an adjournment. Ms. Kahn moved to adjourn until the May Planning Board meeting. The motion was seconded by Mr. Chmiel and carried. Ayes 6, Noes 0, Absent 1 (Gilmour).

ATTACHMENTS:

- SP-2021-24_A application 042122 (PDF)
- SP-2021-24_A drawings 042122 (PDF)
- SP-2021-24A_adjournment_042122 (PDF)
- SP-2021-24_A application 051922 (PDF)
- SP-2021-24_A drawings 051922 (PDF)
- SP-2021-24A_draft_neg_dec_051922 (PDF)
- SP-2021-24A_draft_resolution_051922 (PDF)
- SP-2021-24A_signed_neg_dec_051922 (PDF)
- SP-2021-24A_signed_resolution_051922 (PDF)

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 5/19/2022 6:30 PM**
MOVER:	Carrie H. Kahn, Board Member	
SECONDER:	Michael Chmiel, Board Member	
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn	
ABSENT:	Robert J. Gilmour	

Final Plat Plat Application - Proposed Eight Lot Subdivision - 520 Campbell Boulevard
Applicant: Ciminelli Muir Woods, LLC
Date: February 21, 2022

Prepared By: Sean W. Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 510-4338
E-mail: shopkins@hsmlegal.com

RECEIVED
FEB 22 2022
TOWN OF AMHERST
PLANNING DEPT.

TOWN OF AMHERST PLANNING DEPARTMENT

Application Subdivision Review

For Official Use

File # ~~SUB-~~ SP-2021-24 FP Acreage _____ Fee $ 450.00

Type of Subdivision Application (check one):

Sketch Plan	_____
Preliminary Plat	_____
Final Plat	X

Address Verified by Assessor's Office

_____ Verified By Date

		Fill In Applicable Fees
Sketch Plan	$1,150.00	_____
Preliminary Plat		
1 acre of less	$1,250.00	_____
Each Additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Subdivisions	$1,150.00	_____
Request for Relief of / or Change to Conditions of Subdivision Approval	$1,150.00	_____
Request for Extension of Subdivision Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	_____
5-10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
Final Plat	$ 450.00	$450.00
	TOTAL FEE:	$ $450.00

Materials Received by Planning Department TJV (RECEIVED BY) 2/22/22 (DATE)

Materials Accepted by Town Clerk & Fee Paid _____ (RECEIVED BY) _____ (DATE)

To Be Completed By Applicant

Petitioner: Name: Ciminelli Muir Woods, LLC c/o Sean Hopkins, Esq.
Address: 5500 Main Street, Suite 343
Williamsville, New York 14221
city state zip code
Phone: 510-4338 Fax: _____ E Mail: shopkins@hsm-legal.com

Rev. 12/08
P/Corrplan/Application Forms Working Document/Subdivision App.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

SUBDIVISION REVIEW AND APPROVAL PROCEDURE con't.

Representative: (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Address: Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC

5500 Main Street, Suite 343

Williamsville, New York 14221

city state zip code

Phone: 510-4338 Fax: _____

E Mail: shopkins@hsm-legal.com

Subdivision Name: Phase IV of the Preserve at Muir Woods Subdivision

Subdivision Location & Address: 520 Campbell Boulevard

Town of Amherst, Erie County, New York

Number of Sublots: 8 Lots for Detached Single-Family Homes

Land is Presently Zoned New Community Ditrict - Neighborhood District ("NCD-ND)"

A full size copy of the Subdivision Map as prepared by Mark Andrews, PLC of GPI Engineering, Landscape Architecture & Surveying, LLP is attached and a reduced size copy is also attached as Exhibit "1". The Planning Board granted Site Plan Approval for the proposed residential subdivision during its meeting on February 17, 2022.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

TOWN OF AMHERST

ENGINEERING DEPARTMENT

ERIE COUNTY – NEW YORK

JEFFREY S. BURROUGHS, P.E. – TOWN ENGINEER

March 25, 2022

Ms. Rebecca A. Wightman, P.E.
Erie County Department of Health
503 Kensington Avenue, BB 173
Buffalo, NY 14214

Re: Downstream Sanitary Sewer Capacity
Proposed "Muir Woods Subdivision – Phase 4" – 8 Additional Lots
Town of Amherst Job No. 2005.008A

Dear Ms. Wightman;

We have reviewed the above referenced project for impact on the downstream sanitary sewer capacity. The proposed connections will service eight (8) additional lots within the existing subdivision.

The subject eight (8) additional lots will be serviced by direct lateral connections into the existing 8-inch gravity sewer along Sierra Drive flowing easterly to existing 30-inch gravity sewer flowing northerly along the west side of Campbell Blvd to the north side of North French Rd. Just west of that point, both downstream routings combine and continue westerly along North French Road by 36-inch, 48-inch trunk sewer to the 48-inch trunk sewer west of Sundridge Drive; thence northerly by 48-inch trunk sewer parallel with Sundridge Drive to the Town of Amherst WWTP #16 on Tonawanda Creek Road.

The daily average and peak sanitary sewer flows from these eight (8) additional lots of 0.0028 MGD and 0.0122 MGD respectively, will not adversely impact the downstream sewers. Our records do not indicate that there are any existing back-up or overflow problems in the downstream sewers that will service this project.

In addition and associated with the above project, please note that the subject developer has committed to making the required contribution into the Town's I/I Mitigation Trust-in-Agency Trust Account in an amount equal to $8,476.73, which will be utilized by the Town to continue our I/I mitigation efforts to reduce flows.

If you have any questions regarding these conclusions, please call.

Very truly yours,

Brian J. Armstrong, EIT
Assistant Municipal Engineer

enc.
cc: Jeffrey Konsella, P.E. - NYSDEC Region 9
Sean Hopkins, Esq., 5500 Main St., Suite 343, Williamsville, NY 14221
Ken Zollitsch, GPI, 4950 Genesee St., Suite 100, Buffalo, 14225
Asher S. Pontikos, GIS Analyst

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER
FRENCH/DODGE TRUNK SEWER

TRANSIT ROAD TO PLANT #16
Revised: April 2017

Muir Woods - Amherst, NY

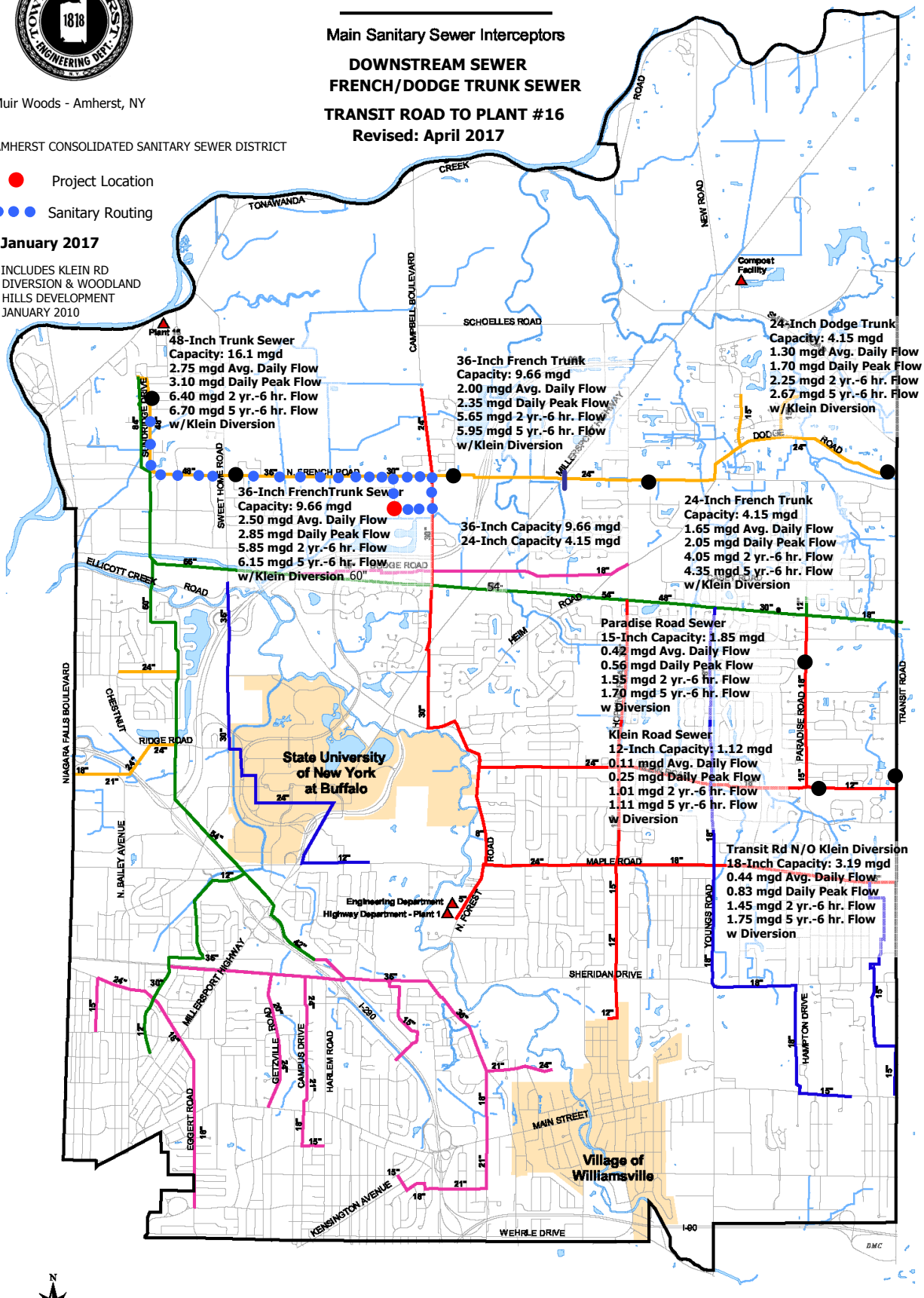
AMHERST CONSOLIDATED SANITARY SEWER DISTRICT

Project Location

Sanitary Routing

January 2017

* INCLUDES KLEIN RD DIVERSION & WOODLAND HILLS DEVELOPMENT JANUARY 2010



Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

ENGINEER'S REPORT

MUIR WOODS SUBDIVISION
PHASE 4
Town of Amherst, New York

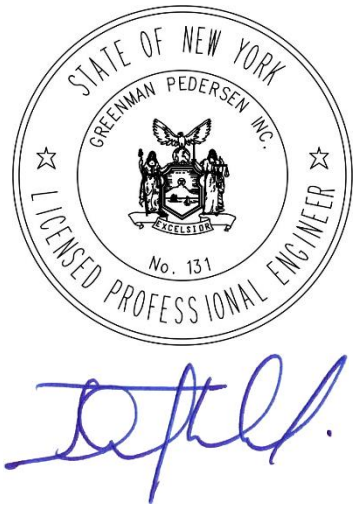
Prepared for:

Ciminelli Muir Woods, LLC
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Prepared by:

GPI

Greenman-Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, New York 14225



Job No. BUF-2013062.40

November 11, 2021
Revised March 2022

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

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Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

I. Introduction

The proposed development, Muir Woods Subdivision Phase Four, is located along the northern side of Sierra Drive near Campbell Boulevard in the Town of Amherst. The 1.75± development is part of the larger 118± acre Muir Woods Subdivision and will be constructed on a portion of an existing vacant parcel of land at 520 Campbell Boulevard (SBL: 27.19-1-34). The project site is bounded on the north and east by single family residential lots fronting Campbell Boulevard; bounded on the south by Sierra Drive; and bounded on the west by vacant land owned and controlled by the developer and Muir Woods Subdivision.

Muir Woods Subdivision Phase Four will consist of a total of eight (8) single family homes and was accounted for during the design of Muir Woods Subdivision. It is estimated that the population for the proposed development will be 28 persons (8 single family residences x 3.5 people/residence). The project is scheduled for a construction start in 2022.

Sanitary sewage service will be provided to the new homes by gravity sewers that were installed during the development of the earlier phases of the subdivision. The sanitary sewer laterals for each home will connect to the existing line along the north side of Sierra Drive and flow to the east to the existing Campbell Boulevard gravity sanitary sewer (owned, operated, and maintained by the Town of Amherst) which ties into the N. French Road Trunk Sewer and is tributary to the Town of Amherst Water Pollution Control Facility.

Water service for domestic use and firefighting will be provided by the water main located on the south side of Sierra Drive which was constructed during the earlier phases of the subdivision. The main was constructed by a private contractor, turned over to the Town of Amherst, and is operated and maintained under a lease management agreement with the Erie County Water Authority.

Storm drainage will be provided on site by rear yard drainage swales and storm sewers discharging into an existing ditch or an onsite retention pond, with both the pond and ditch ultimately discharge to the existing Muir Lake. Water quality, channel protection, and runoff reduction requirements were met during the design of the Muir Woods Subdivision per NYSDEC and Town requirements. Runoff reduction criteria was achieved by conserving natural areas and planting trees throughout the entire development.

Stormwater design of the Muir Woods Subdivision includes 133 single family lots and the additional 8 lots of Phase 4. Stormwater calculations that represent the entire site are provided in more detail within the Stormwater Pollution Prevention Plan (SWPPP) for the Muir Woods Development. A NYSDEC SPDES permit was obtained for SWPPP on 6/28/2018 under permit number NYR 11D909 and remains active.

Stormwater retention and detention facilities on site were designed in accordance with the New York State Stormwater Design Manual and the requirements of SPDES General Permit for Stormwater Discharges from Construction Activities, GP-0-15-002 and Town of Amherst stormwater standards.

The main text of this report summarizes the development of design. Detailed calculations and supplemental information, forms, etc., are located in the appendices.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

II Discussion

A. Sanitary Sewers

1. System Description and Design Flows

Each lot and single family house will be serviced by a 6-inch lateral service line which will connect to the existing 8-inch PVC (SDR-35) sanitary sewer pipe located along the northern side of Sierra Drive.

The estimated domestic sanitary sewer flow of 0.0028 mgd is expected from the 8 single family units (8 homes x 3.5 persons x 100 gpcd). The max flow is 0.01117 mgd (0.0028 mgd x a peaking factor of 3.99) and the minimum flow rate is 0.00056 mgd (0.0028 mgd x 20%).

2. Down Stream Routing of Flow and Capacity

The sanitary sewer flows to the existing 8-inch line along Sierra Drive to the existing Campbell Boulevard gravity sanitary sewer (owned, operated, and maintained by the Town of Amherst). The Campbell Boulevard systems flow north into the 36-inch Trunk Sewer along N. French Road. From there, sewage will flow westerly through the 36-inch Trunk Sewer along N. French Road to Sweet Home Road, at which point the Trunk Sewer becomes 48-inch and continues westerly to Sundridge Drive; the 48-inch Trunk Sewer flows to the north along Sundridge Drive and westerly into the Town of Amherst Water Pollution Control Facility (a.k.a. Plant #16) which has an average daily flow rate of 25.4 mgd and is designed for 36 mgd for the year 2006.

The downstream routing was analyzed during the initial design of the Muir Woods Subdivision and updated for the additional eight lots and indicated that when adding the 0.1981 MGD peak design flows from the overall Muir Woods project to the measured flows the system appears to be operating at 67% of its full flow capacity at Node 1; 34% of its full flow capacity at Node 2; and 57% of its full flow capacity at Node 3 therefore, indicating that there is sufficient downstream capacity in the existing system to support the proposed development. There will be no negative impact on the downstream sewer. The full results of the monitoring and detailed analysis can be found within the Muir Woods Subdivision Engineers Report.

Furthermore, to compensate for the proposed sanitary sewer flows associated with this project, the project owner will be required to comply with the Town of Amherst and New York State Department of Environmental Conservation (NYSDEC) Infiltration/Inflow Mitigation program. In accordance with Town Code, Chapter 160 Local Sewer Use Law, the project owner is required to make a financial contribution to the Town of Amherst Sewer Remediation Trust Fund at the current rate of Two Hundred Fifty Dollars ($250.00) per gallon of Inflow and Infiltration (I/I) mitigated flow (i.e. required I/I removal for the project). The mitigated flow is calculated as follows:

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

I/I Mitigated Flow = Four (4) x Projects Peak Design Flow

Peak Design Flow for this project: 0.0122 mgd = 8.48 gpm
I/I Mitigated Flow: 4 x 8.48 gpm = 33.91 gpm

Req'd Financial Contribution: 33.91 gpm x $250.00 = $8,476.73

The required financial contribution would be provided on a per phase basis dependent on the number of lots and equivalent flow installed per phase. A letter from the developer committing to this contribution is included in Appendix A.

3. Observation of construction will be performed by consultant services agreement operating under the provisions of the Town of Amherst Public Improvement Permit process, overseen by the Town of Amherst Engineering Department.

B. Watermains

1. System Description

Individual water services will be installed from the existing 8-inch PVC line on the south side of Sierra Drive. There is an existing hydrant located on the south side of Sierra Drive near the eastern portion of Phase 4 and an additional hydrant located on the east side of Sierra Drive near the western portion of Phase 4.

2. Design Flow

Erie County Water Authority (ECWA) standards require that design of new watermains be based on the following:

a. Design Population = 8 lots at 3.5 persons per lot = 28 persons
b. Average Daily Demand at 150 gallons per capita per day (gpcd) (28 persons x 150 gpcd)/1440 = 2.92 gpm
c. Maximum Daily Demand at two times average = 5.83 gpm
d. Peak Hourly Demand at three times average = 8.76 gpm

The required water demand for firefighting purposes are based on the Insurance Services Offices (ISO) Guide for Determination of Needed Fire Flow, Edition 05-2008. For One and Two-Family Dwellings not exceeding two stories in height, with a separation distance between structures of 11-30 feet, the fire flow required is 1000 gallons per minute.

Per Erie County Health Department, the system must be capable of supplying 3 gpm per single family home (3 gpm x 8 homes = 24 gpm) plus fire demand (1,000 gpm) which results in a peak flow of 1024 gpm.

Watermain sizing for the Muir Woods Subdivision was completed via

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

hydraulic model utilizing the WaterCad program by Bentley. The full results and detailed analysis can be found within the Muir Woods Subdivision Engineers Report.

C. Stormwater Management

The 1.75± acre Muir Woods Subdivision Phase Four will be converted from a brushed and wooded area to an eight (8) lot development with attendant infrastructure. Stormwater quality and runoff reduction requirements were anticipated and accounted for during the design of the Muir Woods Subdivision. The anticipated construction is permitted under NYSDEC SPDES permit number NYR 11D909 obtained on 6/28/2018 and remains active. Runoff reduction for the site was achieved with conservation of natural areas and tree plantings throughout the development. A downstream analysis was preformed and showed a less than 1% increase in the flow in Ellicott Creek. In accordance with the NYS Stormwater Design Manual peak flow attenuation was determined to not be necessary. The retention ponds onsite provide water quality and channel protection volume only.

The 1.75± acre Muir Woods Subdivision Phase Four storm drainage will be provided on site by new rear yard drainage systems discharging either to an existing culvert under Sierra Drive and south into an existing ditch or will flow to retention pond 1. Both the ditch and retention pond discharge to Muir Lake. Specific Phase 4 design calculations for storm sewer sizing are provided herein. No changes to the overall SWPPP and stormwater pond and ditch analysis were required for the final design of the current Phase 4 due to runoff from this phase being accounted for within the permitted design of the Muir Woods Subdivision.

The storm sewers are designed to flow full or in a non-surcharged state under future condition for a 10 year storm event. The storm retention facilities (wet ponds) were designed to temporarily store run-off from the post developed site, provide water quality enhancement, stream channel protection, and peak flow attenuation. Runoff reduction is being achieved through the use of conserved areas. See Appendix B for the storm sewer sizing calculations.

No portion of the proposed development lies within a 100 year flood plain as mapped on the Flood Insurance Rate Maps (FIRM's) for the Town of Amherst.

1. *Existing Conditions*

The area proposed for the Muir Woods Subdivision Phase 4 is divided into two sections. The eastern section is wooded and currently drains to the south toward a 12-inch HDPE culvert pipe that crosses Sierra Drive and flows to an existing ditch. This ditch flow southwest and discharges into the northeastern inlet of Muir Lake. The western section of Phase 4 is wooded and currently drains to the north into the conservation/wetland area. This area discharges into an existing ditch which flows west to the northwestern inlet of Muir Lake.

The full analysis of Muir Lake as well as the total flows in Ellicott Creek can be found within the original design of Muir Woods Subdivision.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

2. Post Developed Conditions

The 1.75± acres of the site will be converted from a brushed and wooded area to eight (8) lots. During the initial design and development of the Muir Woods Subdivision all associated infrastructure, which includes one (1) bioretention area, two (2) wet ponds, and three (3) pretreatment chambers for stormwater quality and runoff reduction requirements in accordance with Town Drainage Policy and the New York State Stormwater Design Manual in compliance with GP-0-15-002 were previously designed, permitted, and constructed. Additional runoff reduction is achieved with conservation of natural areas and tree plantings throughout the development.

The eastern portion of Phase 4 will consist of seven (7) lots. A drainage swale will capture offsite run-on from the north as well as runoff from the lots. This swale will discharge to a 12-inch HDPE pipe that will connect to the existing 12-inch culvert crossing Sierra Drive and flow into an existing ditch and ultimately to Muir Lake.

The western portion of Phase 4 will consist of one (1) lot. A drainage swale is proposed along the northern boundary of this lot to prevent runoff from flowing into the conservation/wetland area. The swale will discharge to retention pond 1 which was designed and constructed during earlier phases of the Muir Woods Subdivision. This pond discharges to an existing ditch which flows to Muir Lake.

Retention Pond 1:

The original design of retention pond 1 did not include the runoff from the 0.28± acre lot. Below are the updated calculations for the pond:

Two Stage Outlet: 1st Stage- 6-inch Orifice flow @ 571.0 2nd Stage – Weir Flow @ 572.50 discharging into 18-inch HDPE @ 0.74%	
Water Quality Volume Required	0.25 ac-ft
Water Quality Volume Provided	1.8455 ac-ft
Stream Channel Protection Volume Required	0.31 ac-ft
Stream Channel Protection Elevation	571.59
Stream Channel Protection Volume Provided	0.834 ac-ft
Stream Channel Protection Elevation Provided	572.50
Water Surface Elevation	571.0 ft.
Minimum Allowable Top of Bank	574.00 ft.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Routing of design storms through the wet pond results in the following:

Retention Pond 1:

1 YEAR - 24 HOUR STORM	
Peak Inflow Rate	6.54 cfs @ 12.10 hrs.
Volume of Inflow	0.507 ac-ft
Peak Discharge Rate	0.40 cfs @ 14.05 hrs.
Peak Elevation	571.54 ft
Peak Volume of Storage	2.122 ac-ft*

10 YEAR - 24 HOUR STORM	
Peak Inflow Rate	14.71 cfs @ 12.10 hrs.
Volume of Inflow	1.145 ac-ft
Peak Discharge Rate	0.81 cfs @ 14.00 hrs.
Peak Elevation	572.27 ft
Peak Volume of Storage	2.529 ac-ft*

100 YEAR - 24 HOUR STORM	
Peak Inflow Rate	28.85 cfs @ 12.05 hrs.
Volume of Inflow	2.291 ac-ft
Peak Discharge Rate	5.27 cfs @ 12.60 hrs.
Peak Elevation	573.13 ft
Peak Volume of Storage	3.061 ac-ft*

*Storage Volume includes 1.8455 ac-ft below normal water elevation

1 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	6.30 cfs	0.41 cfs	0.40 cfs

10 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	14.15 cfs	0.81 cfs	0.81 cfs

25 Year–24 Hour Storm

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	18.64 cfs	1.38 cfs	1.61 cfs

100 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	27.75 cfs	4.79 cfs	5.27 cfs

The computer modeling results and full calculations for the downstream analysis and onsite water quality ponds are contained in Appendix B.

Due to the original design of Muir Woods Subdivision accounting for the development of Phase 4, no additional analysis was completed. The full analysis of Muir Lake as well as the total flows in Ellicott Creek can be found within the original design of Muir Woods Subdivision.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

APPENDIX A

Sanitary Sewer Application and Calculations

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Sanitary Sewer Flow Calculations

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

GPI

Engineering | Design | Planning | Construction Management

Greenman-Pedersen, Inc. 4950 Genesee Street, Suite 100 Buffalo, NY 14225 t (716) 633-4844 f (716) 633-4940

Western New York Branches: Buffalo | Jamestown | Rochester

Project:	Muir Woods Subdivision Ph 4	By:	EJD	Date:	11/11/2021
Location:	Town of Amherst, New York	Checked:		Date:	

Sanitary Sewer Flow Calculations

** REFERENCE: NYSDEC Design Standards for Wastewater Treatment Works, 1988

No. of New Lots = 8

Total No. = 8

Design Population, p = 28

assumed no. of people per unit = 3.5

assumed no. of people per patio home = 3

Design Average Flow

Hydraulic Loading = 100 gpcd x design population = 2800 gpd = **0.0028 mgd

1.94 gpm

0.00 cfs

Peaking Factor, PF = [(18+((p/1000)^0.5)) / (4+((p/1000)^0.5))] = 4.3595

Peak Design Flow = Design Average Flow x Peaking Factor = 12206 gpd = **0.0122 mgd**

8.48 gpm

0.02 cfs

NOTE: Per the "Recommended Standards for Wastewater Facilities, 2014 Edition - Section 11.243, b.
"The 100 gpcd figure shall be used in conjunction with a peaking factor from Figure 1(as calculated above), is intended to cover normal infiltration for systems built with modern construction techniques."

Infiltration and Inflow: **(Remove 4 gallons of I&I from the existing sanitary sewer system per every 1 gallon of Peak Design Flow)**

Required I&I removal = 4 x the Peak Design Flow = 33.91 gpm

Example of I&I Mitigation Based On Repair or Replacement of Defective Residential Laterals:

Determine the number of Defective Residential Laterals to be repaired or replaced

I&I Contribution per each Defective Residential Lateral = 30 **gpm**

No. of Defective Residential Laterals to be repaired or replaced = **2 laterals**

Example of I&I Mitigation Based On Financial Contribution To The Town of Amherst's I&I Mitigation Trust Fund:

Required Financial Contribution = $ 250.00 per gallon of mitigated flow (i.e., required I&I removal)

X 33.91 gpm

Required Financial Contribution = $ 8,476.73

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Technical Review of Plans and Specifications For Sewage and Waste Treatment Systems (BMW-65)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

TECHNICAL REVIEW OF PLANS AND SPECIFICATIONS
FOR SEWAGE AND WASTE TREATMENT SYSTEMS

PROJECT DATA

1. Type of Facility: Extension of an Existing Sanitary Sewer System
(Treatment Plant, Interceptor, Pumping Station, Additions, etc.)

2. Location: Muir Woods Subdivision Ph 4
Town of Amherst, New York

3. Type of Sewer System: Separate
(Separate or Combined)

4. Population to be Immediately Served: 28

Design Population: 28

5. Design Period: 2021

6. Hydraulic Loading

	Present Flow (mgd)	Design Flow (mgd)
Sanitary Sewage	0	0.0028
Institutional Waste	0	0
Industrial Waste	0	0
Infiltration	0	0
Total	0	0.0028
Minimum Flow	0	0.00056
Maximum Flow	0	0.0122

Engineer's Signature and Seal:



92-15-8 (5/77)
Formerly
BMW-65 (11/73)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Downstream Sanitary Sewer Routing Map and Sewer Capacity Analysis

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

January 18, 2022

Jeffrey S. Burroughs, P.E., Town Engineer
Town of Amherst Engineering Department
1100 North Forest Road
Williamsville, NY 14221

Re: I/I Commitment Letter [SP-2021-24]
520 Campbell Boulevard
Proposed 8 Lot Residential Subdivision
Applicant/Project Sponsor: Ciminelli Muir Woods, LLC

Dear Mr. Burroughs:

On behalf of Ciminelli Muir Woods, LLC, the project sponsor with respect to the development of 520 Campbell Boulevard as an 8 lot residential subdivision in accordance with the pending Site Plan, this letter has been prepared to serve as our commitment to make the required contribution to the Town's Sewer Remediation Trust Fund pursuant to Article XVI of the Town Code of the Town of Amherst ("Sanitary Sewer Law").

To determine the I/I payment contribution, the 2,800 gallons per day ("gpd") of average daily sanitary sewer flow from the 8 lot subdivision as calculated by GPI, the project engineering firm, will result in a peak flow of 8.48 gallons per minute ("gpm"). The I/I contribution requirement to the Town's Sewer Remediation Fund per the Sanitary Sewer Law adopted in 2017 requires a payment of $250/gpm at a 4:1 ratio (4 times peak flow) of the total proposed peak sanitary flow. This results in the required payment into the Sewer Remediation Fund being $ 8,476.73.

We understand that the fee is to be provided following acceptance of the PIP applications. Please contact me at 631-8000 with any questions regarding this letter.

Sincerely,

CIMINELLI MUIR WOODS, LLC

Signature: _____

Print Name: Paul F. Ciminelli

Title: Managing Member

cc: Scott Marshall, Assistant Planning Director
Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC
Ken Zollitsch, Project Manager, GPI

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER
FRENCH/DODGE TRUNK SEWER

TRANSIT ROAD TO PLANT #16
Revised: April 2017

Muir Woods - Amherst, NY

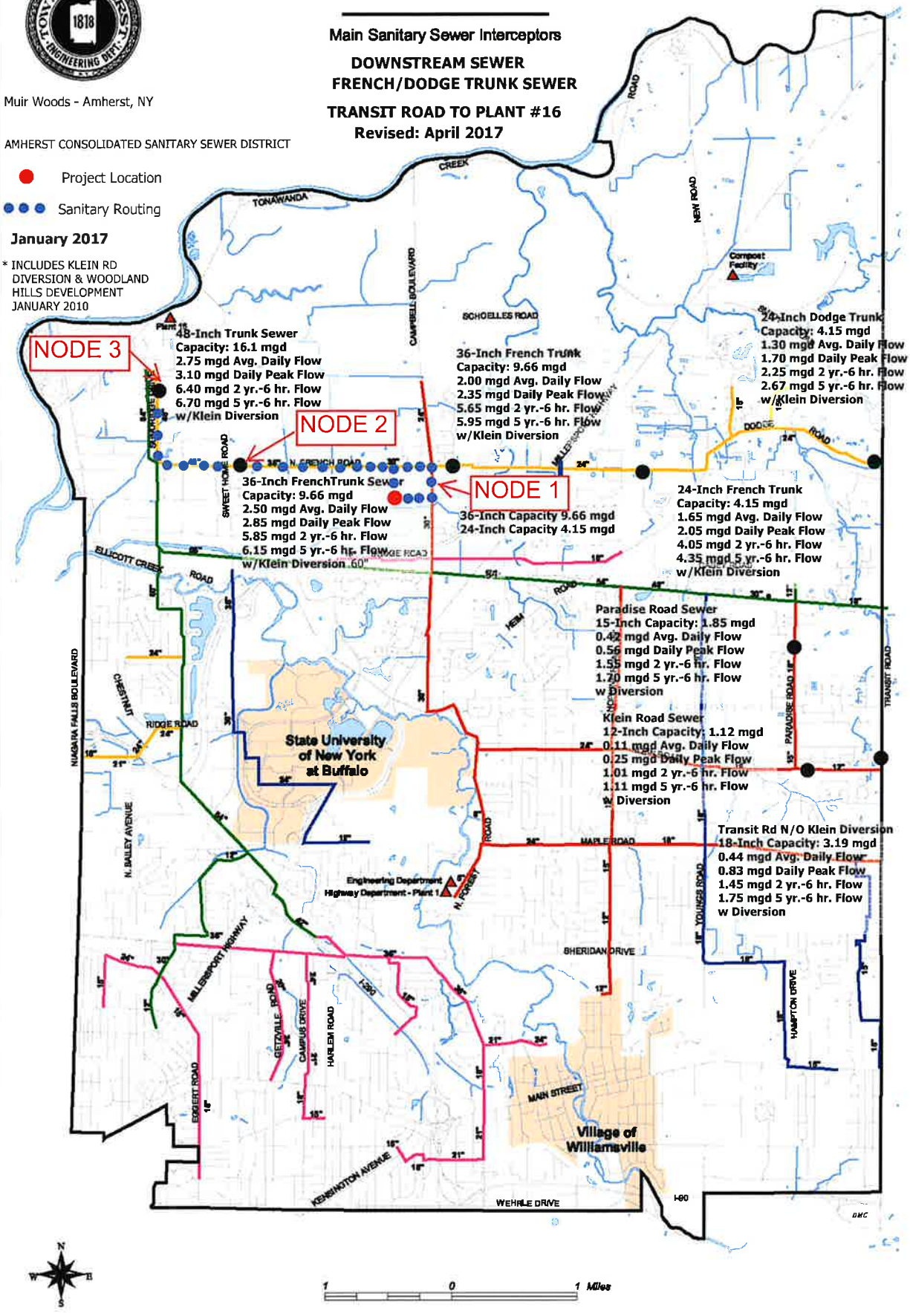
AMHERST CONSOLIDATED SANITARY SEWER DISTRICT

Project Location

Sanitary Routing

January 2017

* INCLUDES KLEIN RD DIVERSION & WOODLAND HILLS DEVELOPMENT JANUARY 2010



Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

GREENMAN-PEDERSEN, INC.

PREPARED BY: K. Zollitsch
DATE: 3/21/2022
REVISED:

PROJECT NO.: BUF-2013062.40
PROJECT: MUIR WOODS SUBDIVISION, PHASE 4
COUNTY / TOWN: ERIE / AMHERST

SANITARY SEWER PIPE CAPACITY

STRUCT. NO.	STRUCT. TYPE	LINE TYPE	LINE LENGTH (FT)	DIA. (IN.)	SLOPE (%)	V (FPS)	CAPACITY (CFS)	CAPACITY (MGD)	NOTES & REMARKS n (conc) = 0.013 n (pvc) = 0.012
									Formulas used for calculations herein are based on Rational Method, Q=CiA; Q=VA; and Manning's Equation
									V=Q/(3.1416*d^2/4); R=d/4 V=1.486/n*R^.6667*S^.5 d=(Q*4/V/3.1416)^.5 S=(V*n/1.486/(d/4)^.6667)^2
NODE 1	Exist. San MH	RCP		30					Location: Btwn. 640 and 644 Campbell Blvd.
					0.058	2.0	9.9	6.38	= Pipe Capacity (MGD)
								1.966	= Peak Flow Measured (MGD) on 2/7/17
								0.1674	+ Project Design Peak Flow (MGD) to Campbell Blvd System
								2.13	= Anticipated Peak Flows (MGD)
								33%	Operating Capacity with Anticipated Peak Flows
								67%	Available Capacity with Anticipated Peak Flows
NODE 2				36					Location: 36-inch French Rd. Trunk Sewer Town of Amherst, Just East of Sweet Home Road (see map)
								9.66	= Pipe Capacity (MGD) From T. Amherst
								6.15	= 5yr.-6hr. Flow (MGD) From T. Amherst w/ Klein Diversion
								0.1981	+ Total Project Design Peak Flow (MGD)
								6.35	= Anticipated Peak Flows (MGD)
								66%	Operating Capacity with Anticipated Peak Flows
								34%	Available Capacity with Anticipated Peak Flows
NODE 3				48					Location: 48-inch Trunk Sewer Town of Amherst, Sundridge Drive (see Map)
								16.10	= Pipe Capacity (MGD) From T. Amherst
								6.70	= 5yr.-6hr. Flow (MGD) From T. Amherst w/ Klein Diversion
								0.1981	+ Total Project Design Peak Flow (MGD)
								6.90	= Anticipated Peak Flows (MGD)
								43%	Operating Capacity with Anticipated Peak Flows
								57%	Available Capacity with Anticipated Peak Flows

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-687-1418
Fax: 716-655-3369

Date: March 17, 2017

SANITARY SEWER FLOW CAPACITY STUDY – Summary Review

Prepared For: 520 Campbell

Ken Zollitsch
Greenman-Pedersen, Inc.
4950 Genesee Street
Suite 100
Buffalo, NY 14225

Project Name: 520 Campbell

Flow Monitoring Period: February 6, 2017 to March 16, 2017

Rain Events (> 0.5-inches) Monitored: February 7 (0.58"), February 25 (0.57") March 7 (0.60") March 14 (0.64")

Number of Monitoring Nodes: One

Node Locations and Descriptions:

- Node 1 520 Campbell Blvd (30")

Summary Conclusion:

Based on the data presented in this report, specifically the flow depth measurements recorded (see graphs below):

- At no time the flow depth exceed the pipe diameter at any of the downstream monitoring points during the rain events monitored.
- At no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

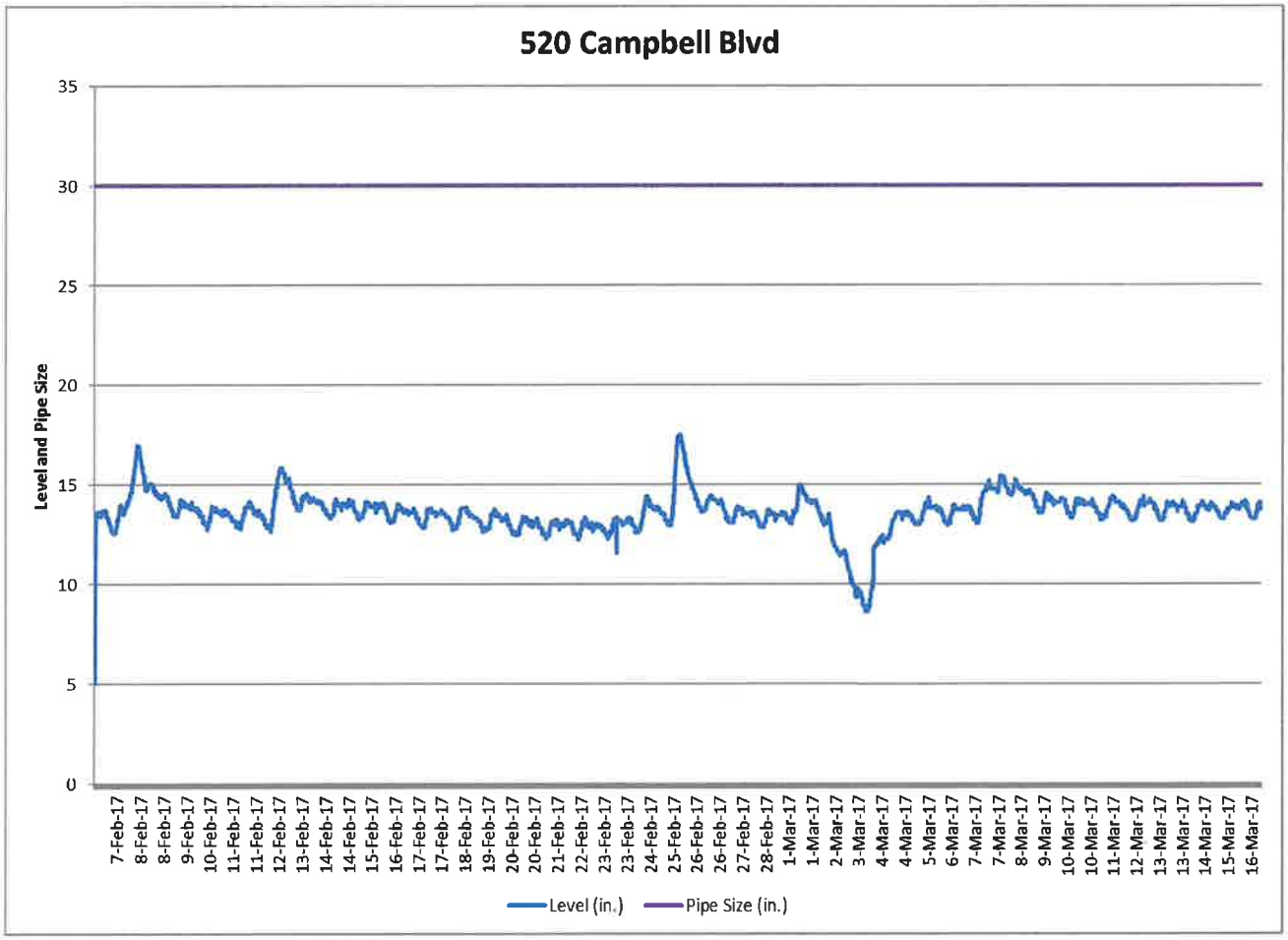
TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-687-1418
Fax: 716-655-3369

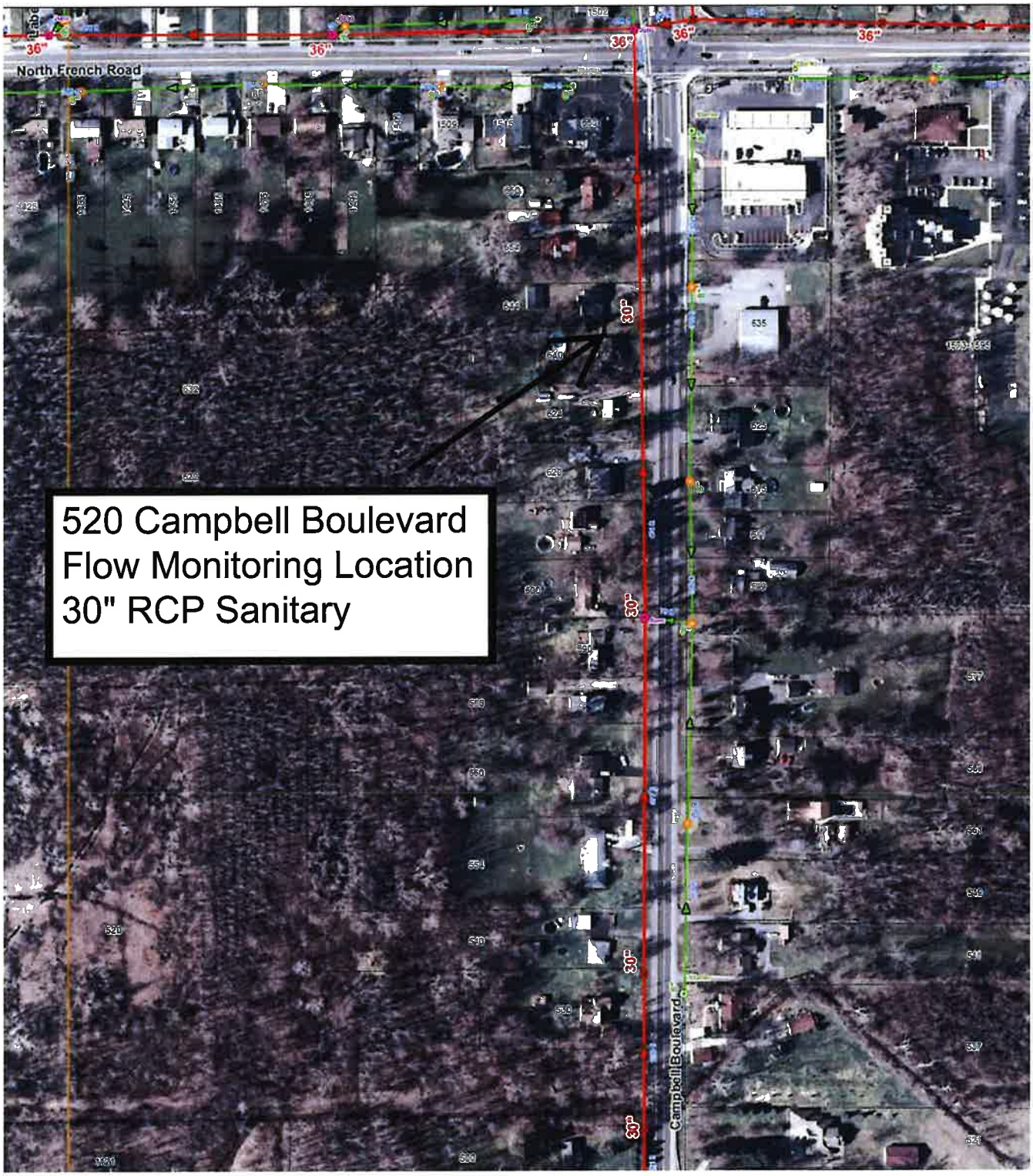
Depth of Flow Capacity Summary:

Depth of flow capacity is based on diameter of pipe. See graphs below.

- At no time during the monitoring period did the depth of flow exceed pipe diameter at Node 1



Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)



Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Project Name:	CIM002
Installation Date/Time:	2/6/17 2:25 PM
Crew Initials:	KK ES

Site Report

TECsmith Environmental

Site Name:	520 Cambell Blvd	Meter Type:	910	S/N:	JAN
Pipe Height:	30"	Pipe Width: 30"	Rim to Invert: 18' 7"	Sensor S/N: TEC 50	I.P.:
Address:			M.E.I:		I.D.:
Location:	520 Cambell Blvd		System Type	Sanitary sewer	





Level(in):	Silt(in): 3"	Hydraulic conditions	Good
Velocity(fps):	Sensor location	upstream	
Flow(mgd):	Pipe Condition:	good	Pipe type: Concrete pipe





Additional information/Comments

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Date	NODE 1			Rain₂
	520 Campbell Blvd (30")			
	FLOW (GAL x 1000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	(inches)
02/06/17	259.734	1.452	13.706	0
02/07/17	850.030	1.966	16.987	0.58
02/08/17	1093.266	1.579	16.915	0.03
02/09/17	883.972	1.189	14.270	0
02/10/17	808.701	1.099	13.959	0.1
02/11/17	868.541	1.397	14.158	0
02/12/17	1103.868	1.519	15.843	0.49
02/13/17	922.729	1.292	14.592	0
02/14/17	790.949	1.557	14.296	0.01
02/15/17	728.390	1.162	14.180	0.07
02/16/17	206.873	1.661	14.014	0
02/17/17	0.000	0.000	13.795	0
02/18/17	0.543	0.052	13.837	0
02/19/17	0.000	0.000	13.758	0
02/20/17	4.176	0.401	13.420	0
02/21/17	0.000	0.000	13.251	0.08
02/22/17	0.000	0.000	13.363	0
02/23/17	367.608	1.183	13.352	0
02/24/17	847.120	1.272	14.389	0.25
02/25/17	1220.647	1.929	17.504	0.57
02/26/17	895.658	1.209	14.543	0
02/27/17	798.699	1.249	13.888	0
02/28/17	780.929	1.212	13.731	0
03/01/17	926.952	1.388	14.970	0.32
03/02/17	726.641	1.269	13.844	0
03/03/17	561.408	1.076	12.133	0
03/04/17	885.159	1.333	13.652	0.02
03/05/17	958.049	1.544	14.356	0
03/06/17	962.689	1.534	13.984	0
03/07/17	1087.078	1.421	15.440	0.6
03/08/17	1143.956	1.437	15.397	0
03/09/17	1105.607	1.450	14.592	0
03/10/17	1106.790	1.518	14.277	0.02
03/11/17	1119.847	1.537	14.415	0.07
03/12/17	900.630	2.181	14.374	0.04
03/13/17	746.621	1.322	14.178	0.1
03/14/17	656.258	1.052	14.131	0.64
03/15/17	332.524	1.170	14.152	0.27
03/16/17	80.287	0.730	14.070	0
---	---	---	---	4.26

Note: Rain data from: http://www.nws.noaa.gov/climate/index.php?wfo=buf

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

INSTALLATION SHEET

SITE DATA

SITE	520 Cambell Blvd	I.D.	1	JOB NO.	CIM002
METER MODEL	910	SERIAL NO	JAN	SENSOR SN.	TEC 50
DATE	02/06/17	TIME	2:35 PM	CREW	KK ES
RIM TO INVERT	18'7"	PIPE SIZE	30 In	LOCATION	Downstream

INITIAL READINGS

LEVEL	13.694	INCHES
FLOW	2.12	MGD
TOTAL	10	GAL x 1000
VEL	1.48	FPS
SIGNAL	12	%
BATTERY	6.0	VDC

ACTUAL MEASURMENTS

Level 1		Measured		Velocity	
Level 2		Measured		Measured	

WORK COMPLETED:			
INSTALL	☑	CHANGE BATTERIES	☐
DOWNLOAD	☐	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☑	CLEAN PROBE	☐
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☑
CHANGE DESICCANT	☐	SET TIME AND DATE	☑
		MANHOLE ENTERY	☑

NOTES:

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

DOWNLOAD SHEET

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	02/13/17	Time	2:09 PM	CREW	KK

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	14.265	INCHES	14.25	INCHES	14.192	INCHES
FLOW	1.38	MGD			1.11	MGD
TOTAL	6391	X1000			6394	GAL x 1000
VEL	0.87	FPS		FPS	0.74	FPS
SIGNAL	66	%			77	%
BATTERY	5.8	VDC			5.7	VDC

DATA DOWNLOAD

WORK COMPLETED:			
INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☐
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

DOWNLOAD SHEET

TECsmith Environmental

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	02/23/17	Time	11:49 AM	CREW	KK

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	13.323	INCHES	13.25	INCHES	13.238	INCHES
FLOW	0	MGD			0.76	MGD
TOTAL	8521	X1000			8522	GAL x 1000
VEL	0.00	FPS		FPS	0.57	FPS
SIGNAL	0	%			83	%
BATTERY	5.7	VDC			5.8	VDC

DATA DOWNLOAD

WORK COMPLETED:			
INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☑
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

DOWNLOAD SHEET

TECsmith Environmental

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	03/02/17	Time	11:49 AM	CREW	KK

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	12.101	INCHES	13.25	INCHES	12.105	INCHES
FLOW	0.8	MGD			0.76	MGD
TOTAL	14738	X1000			14738	GAL x 1000
VEL	0.64	FPS		FPS	0.61	FPS
SIGNAL	83	%			85	%
BATTERY	5.7	VDC			5.5	VDC

DATA DOWNLOAD

WORK COMPLETED:			
INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☐
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

DOWNLOAD SHEET

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	03/16/17	Time	11:48 AM	CREW	ES

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	13.677	INCHES		INCHES		INCHES
FLOW	0.83	MGD				MGD
TOTAL	26732	X1000				GAL x 1000
VEL	0.59	FPS		FPS		FPS
SIGNAL	40	%				%
BATTERY	4.6	VDC				VDC

DATA DOWNLOAD

WORK COMPLETED:			
INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☐	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☐
REMOVE	☑	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

APPENDIX B

Stormwater Management

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

STORMWATER CALCULATIONS

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

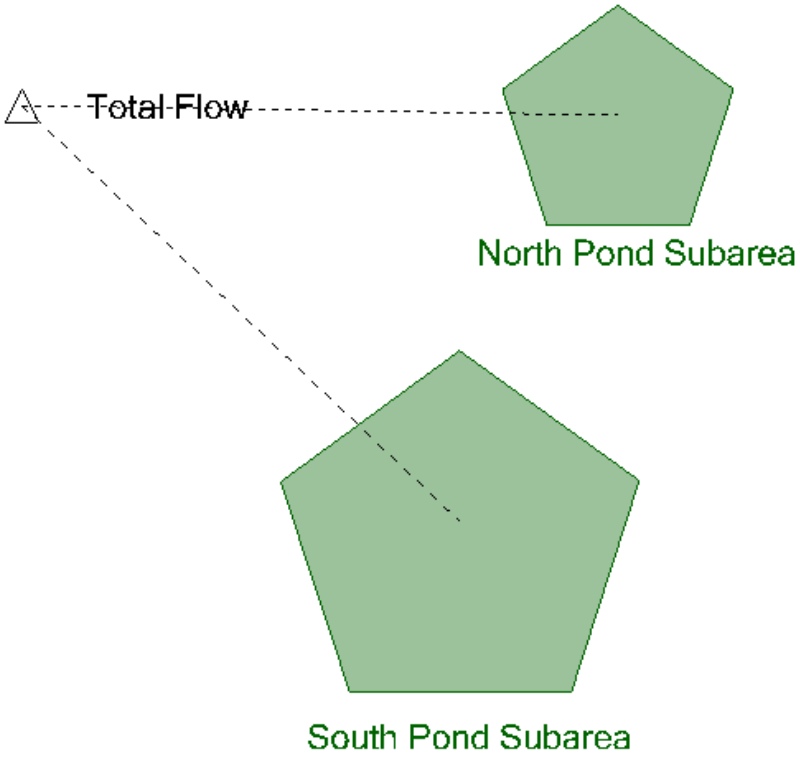
PRE-DEVELOPED CONDITIONS

Attachment: SP_2021-24_A application 042122 (25493 : Sp 2021-24)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds



Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	Without WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30
North Pond Subarea	Without WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15
North Pond Subarea	Without WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64
North Pond Subarea	Without WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75
South Pond Subarea	Without WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	Without WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	Without WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	Without WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	Without WQ Ponds 1 Year 24 Hour	1	1.786	12.100	21.94
Total Flow	Without WQ Ponds 10 Year 24 Hour	10	3.959	12.100	48.65
Total Flow	Without WQ Ponds 25 Year 24 Hour	25	5.233	12.100	63.82
Total Flow	Without WQ Ponds 100 Year 24 Hour	100	7.836	12.100	94.04

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

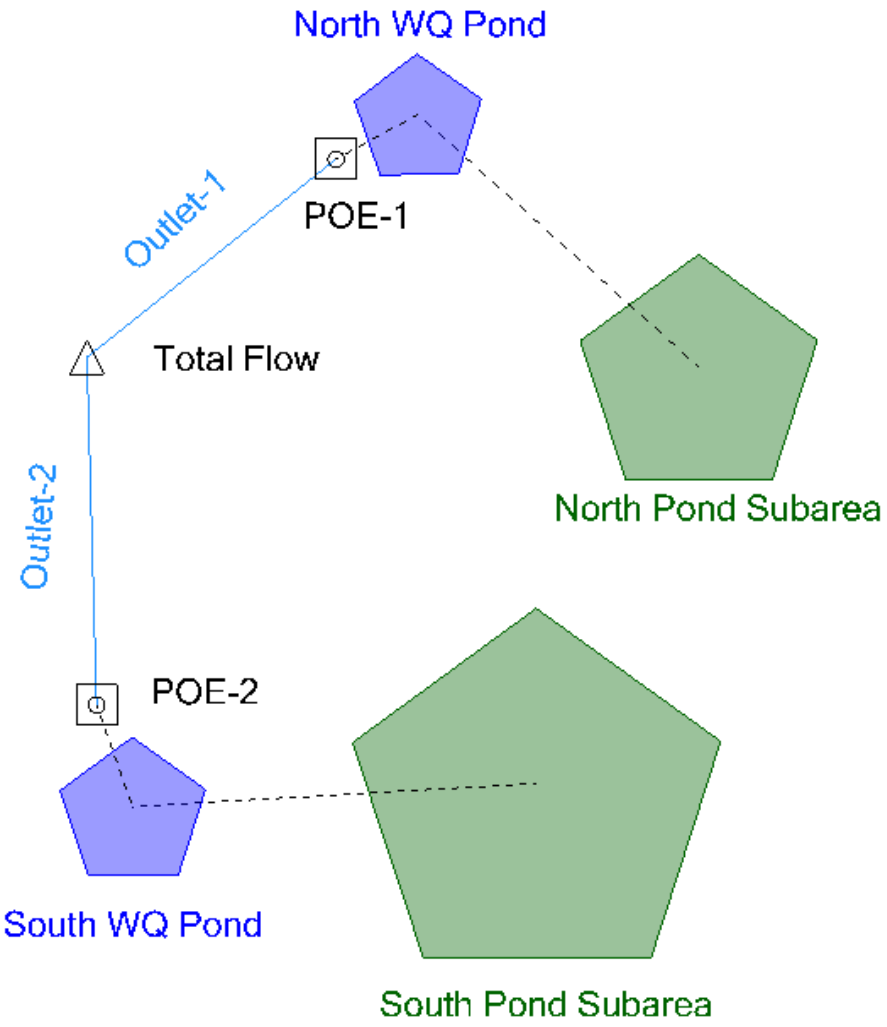
ORIGINAL DESIGN

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds



Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30
North Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15
North Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64
North Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75
South Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	With WQ Ponds 1 Year 24 Hour	1	0.999	14.650	1.10
Total Flow	With WQ Ponds 10 Year 24 Hour	10	2.739	12.500	11.08
Total Flow	With WQ Ponds 25 Year 24 Hour	25	3.833	12.400	18.27
Total Flow	With WQ Ponds 100 Year 24 Hour	100	6.323	12.450	31.37

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.324	14.000	0.39	571.52	2.111
North WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15	(N/A)	(N/A)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	0.702	14.000	0.79	572.22	2.502
North WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	0.926	13.350	1.39	572.57	2.713
North WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	1.572	12.600	4.79	573.08	3.026
South WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.675	15.450	0.71	571.90	2.516
South WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	2.037	12.500	10.35	572.74	3.060
South WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	2.907	12.400	17.40	573.17	3.358
South WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	4.750	12.400	26.88	574.08	4.036

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

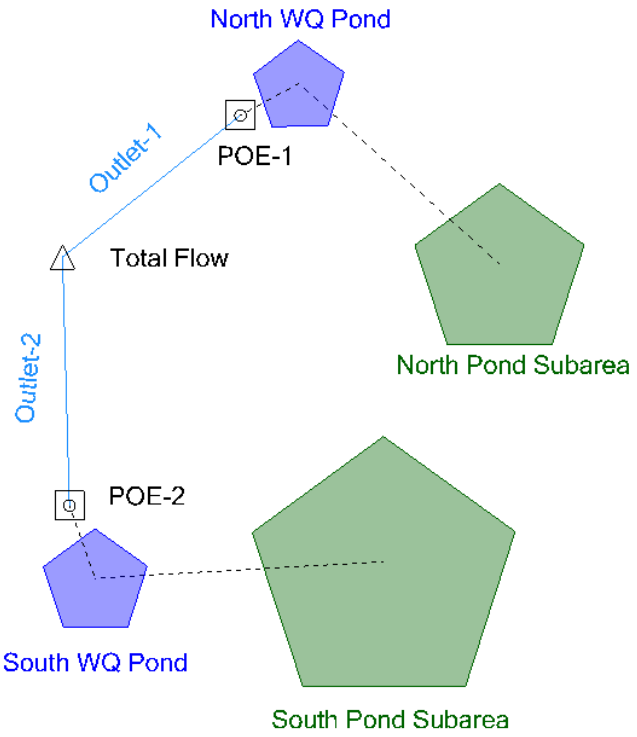
PROPOSED DESIGN

Attachment: SP 2021-24_Application 3412122 (25493 : Sp 2021-24)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

I POST-DEVELOPED CONDITIONS

A. Watershed Model



Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

B. Establish Sub-Basin Runoff Parameters

1. *Subarea P-1 (Onsite)*

Area = 1.47 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A B C D
Impervious Area- Paved & Roof	0.42 acres
Open Space; Lawn- Good	1.05 acres

Time of Concentration:

Sheet Flow
Length, L = 100 ft Slope, s = 0.010 ft/ft
Ground Cover = Grass, Dense
Manning's "n" = 0.240
T_t = **0.38 hr**

Shallow Concentrated Flow
Length, L = 266 ft Slope, s = 0.002 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 0.65 ft/s
T_t = **0.11 hr**

Shallow Concentrated Flow
Length, L = 145 ft Slope, s = 0.002 ft/ft
Surface Type = Pipe Flow
Velocity, V = 3.00 ft/s
T_t = **0.01 hr**

Total Time of Concentration T_c = 0.38 hr. + 0.11 hr.+ 0.01 hr. = 0.50 hours

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

2. *Subarea P-2 (Onsite)*

Area = 0.28 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A	B	C	D
Impervious Area- Paved & Roof				0.06 acres
Open Space; Lawn- Good				0.22 acres

Time of Concentration:

Sheet Flow
Length, L = 10 ft Slope, s = 0.002 ft/ft
Ground Cover = Grass, Dense
Manning's "n" = 0.240
T_t = **0.11 hr**

Shallow Concentrated Flow
Length, L = 215 ft Slope, s = 0.005 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 1.06 ft/s
T_t = **0.06 hr**

Total Time of Concentration T_c = 0.11 hr.+ 0.06 hr. = 0.17 hours

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

3. ***Subarea O-1 (Offsite)***

Area = 4.5 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A	B	C	D
Woods- Good				4.5 acres

Time of Concentration:

Sheet Flow
Length, L = 100 ft Slope, s = 0.008 ft/ft
Ground Cover = Woods, D. underbrush
Manning's "n" = 0.800
T_t = **1.11 hr**

Shallow Concentrated Flow
Length, L = 300 ft Slope, s = 0.007 ft/ft
Surface Type = Forest w/ Heavy Litter
Velocity, V = 0.20 ft/s
T_t = **0.41 hr**

Shallow Concentrated Flow
Length, L = 142 ft Slope, s = 0.002 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 0.67 ft/s
T_t = **0.06 hr**

Total Time of Concentration T_c = 1.11 hr. + 0.41 hr.+ 0.06 hr. = 1.58 hours

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

RUN HYDROLOGIC MODELS FOR DEVELOPED CONDITIONS

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds Updated 11/10/2021 - EJD

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Table of Contents

	Master Network Summary	2
North WQ Pond	Elevation-Area Volume Curve, 100 years (With WQ Ponds 100 Year 24 Hour)	4
Composite Outlet Structure - 1	Outlet Input Data, 100 years (With WQ Ponds 100 Year 24 Hour)	5

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	0.507	12.100	6.54
North Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	1.145	12.100	14.71
North Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	1.521	12.050	19.38
North Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	2.291	12.050	28.85
South Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	With WQ Ponds 1 Year 24 Hour	1	1.011	14.650	1.11
Total Flow	With WQ Ponds 10 Year 24 Hour	10	2.763	12.500	11.10
Total Flow	With WQ Ponds 25 Year 24 Hour	25	3.880	12.400	18.30
Total Flow	With WQ Ponds 100 Year 24 Hour	100	6.399	12.450	31.89

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	0.507	12.100	6.54	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.336	14.050	0.40	571.54	2.122
North WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	1.145	12.100	14.71	(N/A)	(N/A)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	0.726	14.000	0.81	572.27	2.529
North WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	1.521	12.050	19.38	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	0.973	13.150	1.61	572.61	2.734
North WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	2.291	12.050	28.85	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	1.649	12.600	5.27	573.13	3.061
South WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.675	15.450	0.71	571.90	2.516
South WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	2.037	12.500	10.35	572.74	3.060
South WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	2.907	12.400	17.40	573.17	3.358
South WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	4.750	12.400	26.88	574.08	4.036

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Subsection: Elevation-Area Volume Curve
Label: North WQ Pond
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
563.00	0.0	0.090	0.000	0.000	0.000
564.00	0.0	0.110	0.299	0.100	0.100
565.00	0.0	0.140	0.374	0.125	0.225
566.00	0.0	0.180	0.479	0.160	0.384
567.00	0.0	0.210	0.584	0.195	0.579
568.00	0.0	0.240	0.674	0.225	0.804
569.00	0.0	0.300	0.808	0.269	1.073
570.00	0.0	0.360	0.989	0.330	1.403
571.00	0.0	0.510	1.298	0.433	1.836
572.00	0.0	0.570	1.619	0.540	2.375
573.00	0.0	0.630	1.799	0.600	2.975
574.00	0.0	0.690	1.979	0.660	3.635

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Requested Pond Water Surface Elevations	
Minimum (Headwater)	563.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	574.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	571.00	574.00
Rectangular Weir	Weir - 1	Forward	Culvert - 1	572.50	574.00
Culvert-Circular	Culvert - 1	Forward	TW	571.00	574.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	18.0 in
Length	27.00 ft
Length (Computed Barrel)	27.00 ft
Slope (Computed)	0.007 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.500
Kb	0.018
Kr	0.500
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0078
M	2.0000
C	0.0379
Y	0.6900
T1 ratio (HW/D)	1.132
T2 ratio (HW/D)	1.293
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	572.70 ft	T1 Flow	7.58 ft³/s
T2 Elevation	572.94 ft	T2 Flow	8.66 ft³/s

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	571.00 ft
Orifice Diameter	6.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	572.50 ft
Weir Length	3.17 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

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C

Composite Outlet Structure - 1 (Outlet Input Data, 100 years (With WQ Ponds 100 Year 24 Hour))...5, 6, 7

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Master Network Summary...2, 3

N

North WQ Pond (Elevation-Area Volume Curve, 100 years (With WQ Ponds 100 Year 24 Hour))...4

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

STORM SEWER COMPUTATIONS AND DRAINAGE AREA MAP

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

DRAINAGE COMPUTATIONS

SEWER LOCATION			TRIBUTARY AREA		RUNOFF COEFFICIENT			TIME OF CONCENTRATION			REQUIRED CAPACITY		DESIGN n = 0.012						PROFILE				EXISTING CAPACITY	
STREET	FROM	TO	A (ac)	ΣA (ac)	C	CA	ΣCA	IN CHANNEL (sec)	IN CHANNEL (min)	Tc (min)	i (in/hr)	q (cfs)	D (in)	V (fps)	Q_{full} (cfs)	LENGTH (ft)	s (%)		Rim	INV		Q (cfs)	% REQ'D
	Offsite	Swale	4.50	4.50	0.20	0.90	0.90			94.80	1.22	1.10											
	Western Swale	Daylight	0.84	0.84	0.40	0.34	0.34			30.00	2.45	0.82											
	Eastern Swale	Daylight	0.63	0.63	0.40	0.25	0.25			25.00	2.51	0.63											
	Daylight	Ex Culvert		5.97			1.49	55.20	0.92	99.60	1.18	1.76	12	2.63	1.81	145	0.22%		0.32				
	Ex Culvert	Ditch		5.97			1.49	11.00	0.18	100.52	1.18	1.75	12	7.46	7.06	82	3.35%		2.75				

COMPUTED BY: EJD DATE: 11/09/21

CHECKED BY: DATE:

LOCATION: Muir Woods Subdivision Ph 4

SHEET 1 OF 1

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Worksheet for Trapezoidal Channel - 1

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.002
Normal Depth	6.0
Left Side Slope	4.000
Right Side Slope	4.000
Bottom Width	1.00

Results	
Discharge	1.47
Flow Area	1.5
Wetted Perimeter	5.1
Hydraulic Radius	3.5
Top Width	5.00
Critical Depth	3.4
Critical Slope	0.024
Velocity	0.98
Velocity Head	0.01
Specific Energy	0.51
Froude Number	0.314
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Downstream Velocity	(N/A)
Upstream Velocity	(N/A)
Normal Depth	6.0
Critical Depth	3.4
Channel Slope	0.002
Critical Slope	0.024

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Worksheet for Trapezoidal Channel - 2

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

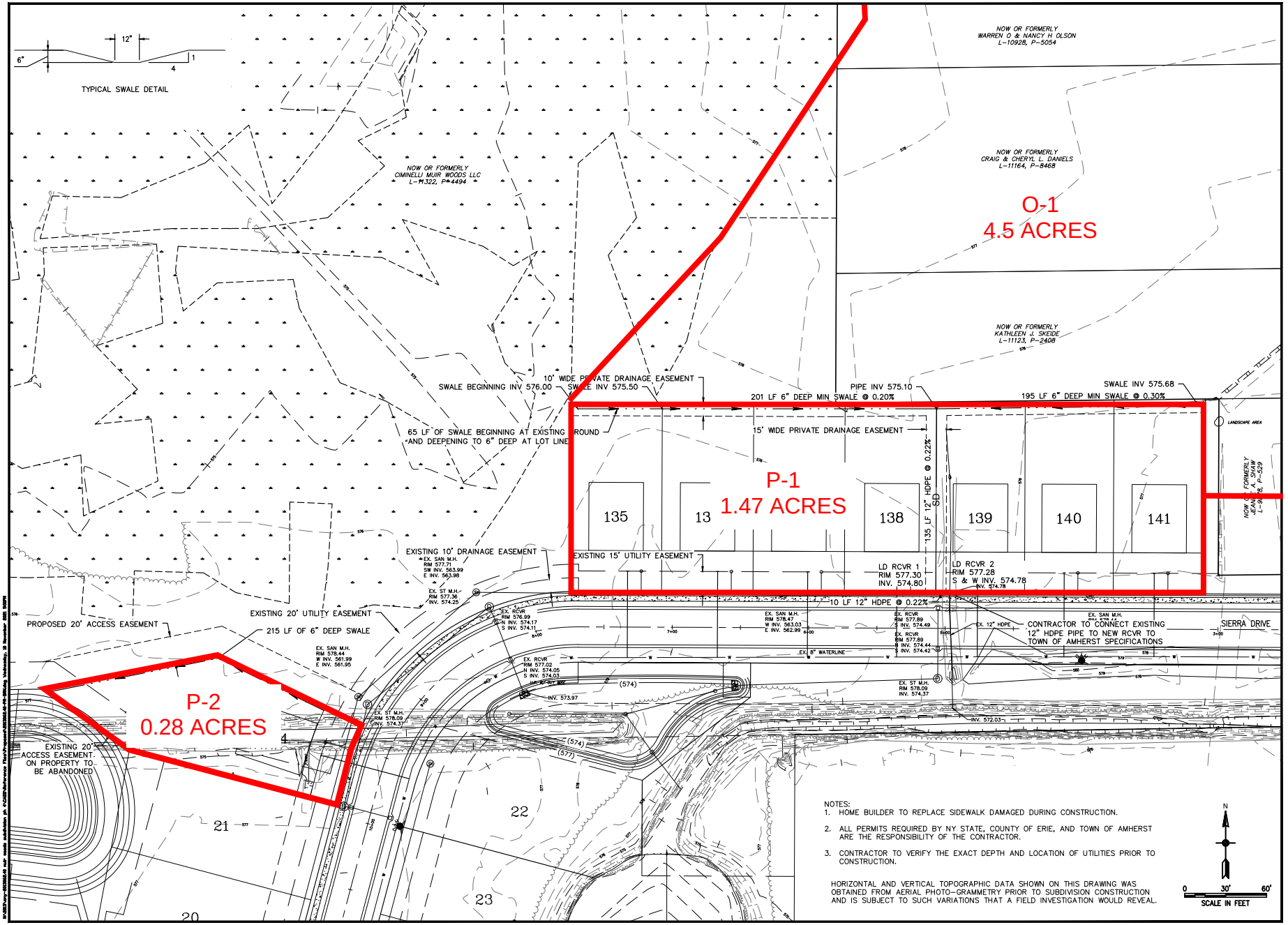
Input Data	
Roughness Coefficient	0.030
Channel Slope	0.003
Normal Depth	6.0
Left Side Slope	4.000
Right Side Slope	4.000
Bottom Width	1.00

Results	
Discharge	1.79
Flow Area	1.5
Wetted Perimeter	5.1
Hydraulic Radius	3.5
Top Width	5.00
Critical Depth	3.8
Critical Slope	0.023
Velocity	1.20
Velocity Head	0.02
Specific Energy	0.52
Froude Number	0.385
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Downstream Velocity	(N/A)
Upstream Velocity	(N/A)
Normal Depth	6.0
Critical Depth	3.8
Channel Slope	0.003
Critical Slope	0.023

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)



Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

APPENDIX C

Original NOI and SPDES

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form bei… coverage under this General Permit. Applica…s of the permit and prepare a Stormwater Po…g this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

FOR REFERENCE ONLY- TO BE SUBMITTED VIA NYSDEC eNOI SYSTEM

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR **MUST SIGN FORM**

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Ciminelli Muir Woods, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Packard

Owner/Operator Contact Person First Name
Brad

Owner/Operator Mailing Address
350 Essjay Road

City
Williamsville

State: NY

Zip: 14221-

Phone (Owner/Operator): 716-631-8000

Fax (Owner/Operator): 716-631-8034

Email (Owner/Operator)
bpackard@cimineli.com

FED TAX ID
82-1214709 (not required for individuals)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Project Site Information

Project/Site Name
Muir Woods Subdivision

Street Address (NOT P.O. BOX)
520 Campbell Blvd & 1121 N French Rd

Side of Street
○ North ● South ○ East ○ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Amherst

State: NY
Zip: 14228-
County: Erie
DEC Region: 9

Name of Nearest Cross Street
Lynette Ln

Distance to Nearest Cross Street (Feet)
0

Project In Relation to Cross Street
○ North ● South ○ East ○ West

Tax Map Numbers
Section-Block-Parcel
40.08-3-1.111

Tax Map Numbers
27.19-1-29

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting): 192411

Y Coordinates (Northing): 4770972

2. What is the nature of this construction project?

● **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
○ FOREST	○ SINGLE FAMILY HOME
● PASTURE/OPEN LAND	● SINGLE FAMILY SUBDIVISION — Number of Lots: 133
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
○ COMMERCIAL	○ RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
○ RECREATIONAL/SPORTS FIELD	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	○ PARKING LOT
○ LINEAR UTILITY	○ CLEARING/GRADING ONLY
○ PARKING LOT	○ DEMOLITION, NO REDEVELOPMENT
○ OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	○ OTHER

***Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
118.9	41.7	0.0	15.9

5. Do you plan to disturb more than 5 acres of soil at any one time? ● Yes ○ No

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	%	%	100 %

7. Is this a phased project? ● Yes ○ No

8. Enter the planned start and end dates of the disturbance activities.

Start Date	End Date
10/01/2017	10/01/2022

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9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Tributary To Ellicott Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ● Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ● Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002? ● **Yes** ○ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002? ○ **Yes** ● **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ● **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ● **No**
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ● **No**

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15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Town of Amherst

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ Yes ● No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ● Yes ○ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ● Yes ○ No

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Greenman-Pedersen, Inc.

Contact Name (Last, Space, First)
Boudreau, Jessica

Mailing Address
4950 Genesee Street, Suite 100

City
Buffalo

State NY Zip 14225-

Phone 716-633-4844

Fax 716-633-4940

Email
JBoudreaut@gpinet.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ● Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ● Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ● Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ● Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ● **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ● **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ● All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

1.69 **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

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Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)
RR Techniques (Area Reduction)			
● Conservation of Natural Areas (RR-1)	33.30	and/or	
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
● Tree Planting/Tree Pit (RR-3)	2.07	and/or	0.69
○ Disconnection of Rooftop Runoff (RR-4)		and/or	
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			
○ Rain Garden (RR-6)			
○ Stormwater Planter (RR-7)			
○ Rain Barrel/Cistern (RR-8)			
○ Porous Pavement (RR-9)			
○ Green Roof (RR-10)			
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			
○ Infiltration Basin (I-2)			
○ Dry Well (I-3)			
○ Underground Infiltration System (I-4)			
● Bioretention (F-5)			1.85
○ Dry Swale (O-1)			
Standard SMPs			
○ Micropool Extended Detention (P-1)			
● Wet Pond (P-2)			11.79
○ Wet Extended Detention (P-3)			
○ Multiple Pond System (P-4)			
○ Pocket Pond (P-5)			
○ Surface Sand Filter (F-1)			
○ Underground Sand Filter (F-2)			
○ Perimeter Sand Filter (F-3)			
○ Organic Filter (F-4)			
○ Shallow Wetland (W-1)			
○ Extended Detention Wetland (W-2)			
○ Pond/Wetland System (W-3)			
○ Pocket Wetland (W-4)			
○ Wet Swale (O-2)			

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area (acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other [ ]	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.286 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ● **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

0.252 **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

● **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

3.665 **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). 3.951

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ● **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

1.152 **acre-feet**

CPv Provided

1.188 **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development . **CFS**

Post-development . **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development . **CFS**

Post-development . **CFS**

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ● Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Homeowner's Association

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

100% of the Water Quality Volume was not reduced for this site due to the poor infiltration qualities of the site soils (Type 'D') and the limiting head available.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ● Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP N Y R
- ○ Other
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ● **Yes** ○ **No**
If Yes, Indicate Size of Impact. 2.5

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. N Y R

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

Brad

MI

Print Last Name

Packard

Owner/Operator Signature

Date

/ /

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Ciminelli Muir Woods, LLC
2. Contact Person:	~~Brad Packard~~ Paul Ciminelli
3. Street Address:	350 Essjay Rd
4. City/State/Zip:	Williamsville, NY 14221
II. Project Site Information	
5. Project/Site Name:	Muir Woods Subdivision
6. Street Address:	520 Campbell Blvd & 1121 N. French Rd
7. City/State/Zip:	Amherst, NY 14228
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	Vaishali Reberholt P.E., CPESC
9. Title/Position:	Stormwater Management Officer
10. Date Final SWPPP Reviewed and Accepted:	06/27/2018
IV. Regulated MS4 Information	
11. Name of MS4:	Town of Amherst
12. MS4 SPDES Permit Identification Number: NYR20A	122
13. Contact Person:	Vaishali Reberholt P.E., CPESC
14. Street Address:	1100 N. Forest Rd
15. City/State/Zip:	Williamsville, NY 14221
16. Telephone Number:	716-631-7154

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:	Vaishali Reberholt, P.E., CPESC
Title/Position:	Stormwater Management Officer
Signature:	
Date:	06/27/18

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 | F: (518) 402-9029
www.dec.ny.gov

7/5/2018

Ciminelli Muir Woods, LLC
Paul Ciminelli
350 Essjay Road
Williamsville, NY 14221

Re ACKNOWLEDGMENT of NOTICE of INTENT for Coverage Under SPDES General Permit for Storm Water Discharges from CONSTRUCTION ACTIVITY General Permit No. GP-0-15-002

Dear Prospective Permittee:

This is to acknowledge that the New York State Department of Environmental Conservation (Department) has received a complete Notice of Intent (NOI) for coverage under General Permit No. GP-0-15-002 for the construction activities located at:

Muir Woods Subdivision
1121 North French Road & 520 Campbell Blvd
Amherst, NY 14228 County: **ERIE**

Pursuant to Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, ECL Article 70, discharges in accordance with GP-0-15-002 from the above construction site will be authorized **5** business days from **06/28/2018**, which is the date we received your final NOI, unless notified differently by the Department.

The permit identification number for this site is: **NYR11D909**. Be sure to include this permit identification number on any forms or correspondence you send us. When coverage under the permit is no longer needed, you must submit a Notice of Termination to the Department.

This authorization is conditioned upon the following:

1. The information submitted in the NOI received by the Department on **06/28/2018** is accurate and complete.

2. You have developed a Stormwater Pollution Prevention Plan (SWPPP) that complies with GP-0-15-002 which must be implemented as the first element of construction at the above-noted construction site.

3. Activities related to the above construction site comply with all other requirements of GP-0-15-002.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

4. Payment of the annual $110 regulatory fee, which is billed separately by the Department in the late fall. The regulatory fee covers a period of one calendar year. In addition, since September 1, 2004, construction stormwater permittees have been assessed an initial authorization fee which is now $110 per acre of land disturbed and $675 per acre of future impervious area. The initial authorization fee covers the duration of the authorized disturbance.

5. Your SWPPP has been reviewed by the regulated, traditional land use control MS4 where your project is located and has been determined to be in substantive conformance with the requirements in the SPDES General Permit for Stormwater Discharges from MS4s.

6. Before disturbing greater than 5 acres of soil at any one time, you have obtained written authorization from the regulated, traditional land use control MS4 that has jurisdiction over the project.

7. When applicable, project review pursuant to the State Environmental Quality Review Act (SEQRA) has been satisfied.

8. You have obtained all necessary Department permits subject to the Uniform Procedures Act (UPA). You should check with your Regional Permit Administrator for further information.

***Note: Construction activities cannot commence until project review pursuant to SEQRA has been satisfied, when SEQRA is applicable; and, where required, all necessary Department permits subject to the UPA have been obtained.**

Please be advised that the Department may request a copy of your SWPPP for review.

Should you have any questions regarding any aspect of the requirements specified in GP-0-15-002, please contact Dave Gasper at (518) 402-8114 or the undersigned at (518) 402-8109.

Sincerely,

Toni Cioffi

Toni Cioffi
Environmental Program Specialist 1

PLEASE NOTE: EPA HAS FINALIZED THE eREPORTING RULE; AND, IN THE NEAR FUTURE, ALL NOIs WILL HAVE TO BE SUBMITTED ELECTRONICALLY.
BY FILING AN NOI ELECTRONICALLY, A PROJECT CAN TYPICALLY GAIN COVERAGE IN 5 BUSINESS DAYS COMPARED TO 10 BUSINESS DAYS FOR THE PAPER NOI.
INFORMATION ON THE eNOI CAN BE FOUND ON OUR WEBSITE AT:
http://www.dec.ny.gov/chemical/43133.html UNDER "FORMS."

cc RWE - 9
SWPPP Preparer
Greenman-Pedersen, Inc.
Plotar, Thomas
4950 Genesee Street, Suite 100
Buffalo, NY 14225

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

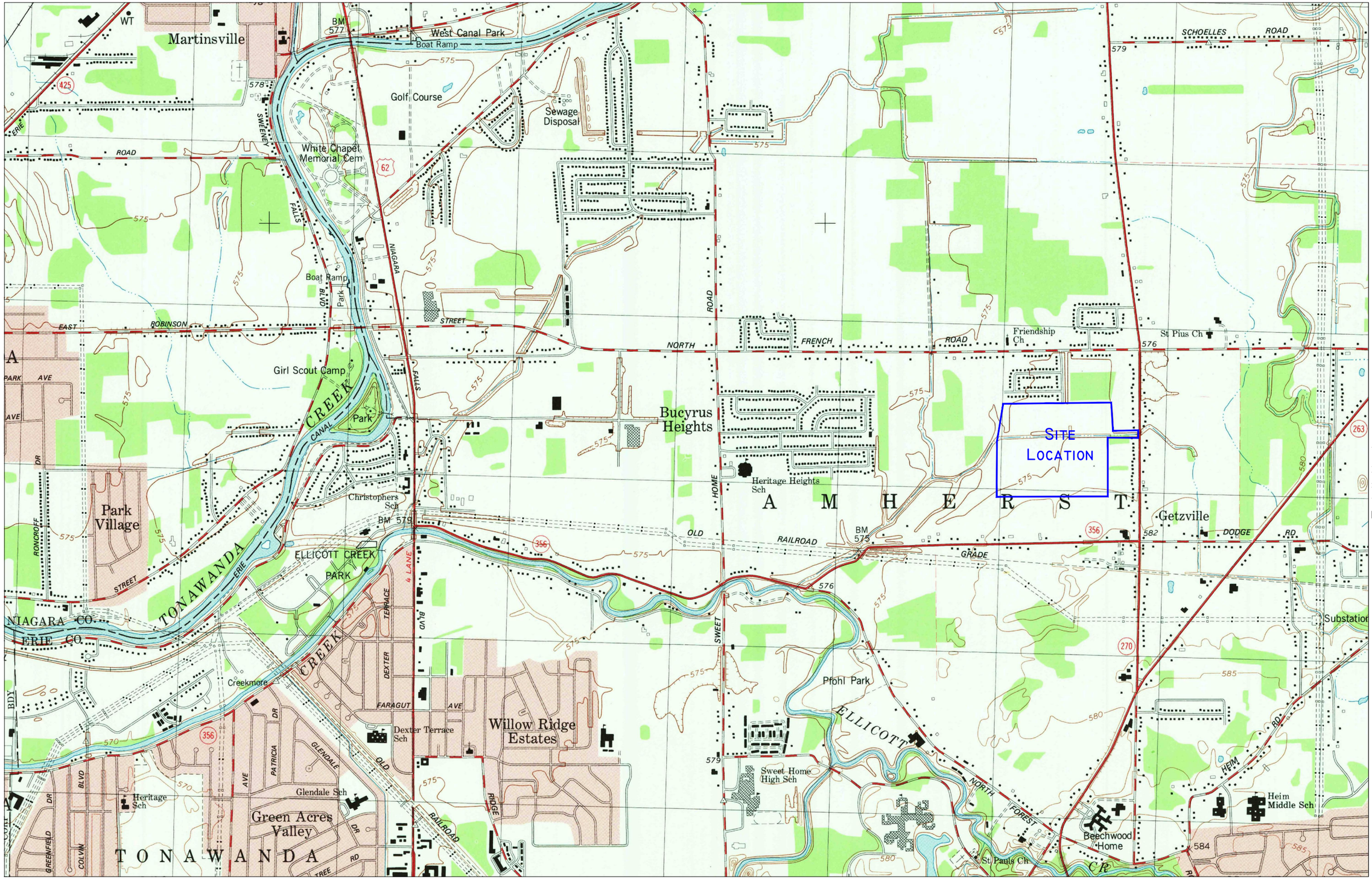
EXHIBITS

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

EXHIBIT 1

SITE LOCATION MAP

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)



GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
4950 GENESEE STREET, SUITE 165 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

GPI

JOB No.: BUF-2017014

DATE: MAY 201

Exhibit 1
Site Location Map
Muir Woods Subdivision
TOWN OF AMHERST, COUNTY OF ERIE, STATE OF NEW YORK

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

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EXHIBIT 2

PRE-DEVELOPED WATERSHED DELINEATION MAP

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

SUB 31
AREA = 234.88 ACRES

SUB 29
AREA = 229.32 ACRES

SUB 30
AREA = 190.46 ACRES

SUB 27
AREA = 112.31 ACRES

SUB 26B
AREA = 220.93 ACRES

SUB 28
AREA = 24.65 ACRES

SUB 26A
AREA = 118.92 ACRES

SUB D4DS
AREA = 280.91 ACRES

SUB R1
AREA = 14.58 ACRES

NOTE: TOPOGRAPHIC FEATURES TAKEN FROM TOWN OF AMHERST G.I.S. MAP

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CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, NY 14225
(716) 633-4444 FAX (716) 633-4460

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 2
Existing Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

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EXHIBIT 3

POST DEVELOPED WATERSHED DELINEATION MAP

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

SUB 30
AREA = 425.34 ACRES

SUB 29
AREA = 229.32 ACRES

SUB 27
AREA = 112.31 ACRES

SUB 26B
AREA = 220.93 ACRES

SUB 28
AREA = 24.65 ACRES

SEE EXHIBIT 3A

SUB D4DS
AREA = 280.91 ACRES

SUB R1
AREA = 14.58 ACRES

NOTE: TOPOGRAPHIC FEATURES TAKEN FROM TOWN OF AMHERST G.I.S. MAP

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
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PH (716) 633-4444 FAX (716) 633-4460

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 3
Post Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY NEW YORK

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

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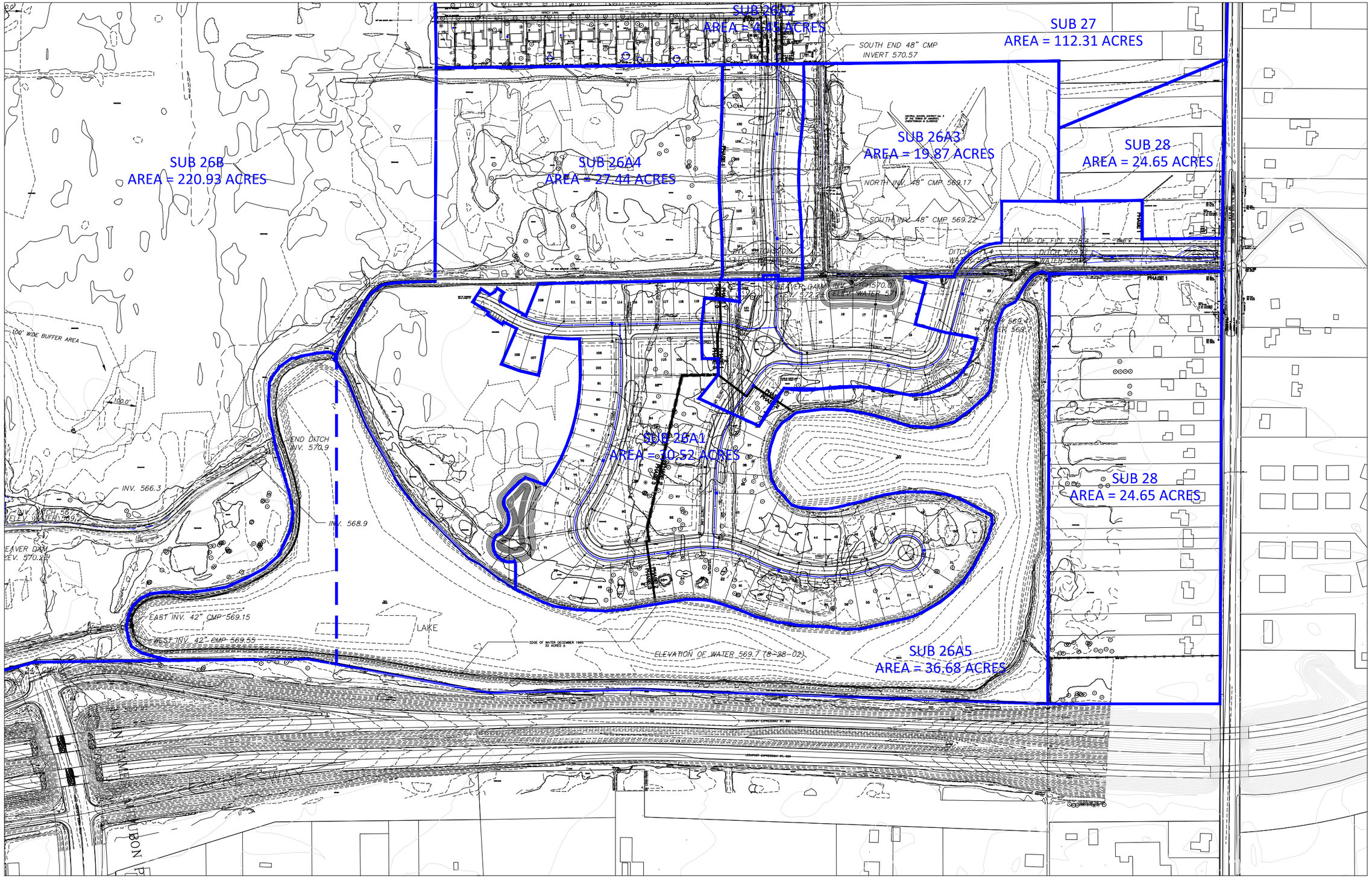

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ENGINEERING SURVEYING PLANNING
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(716) 633-4844 FAX (716) 633-4940

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JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 3A
Post Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

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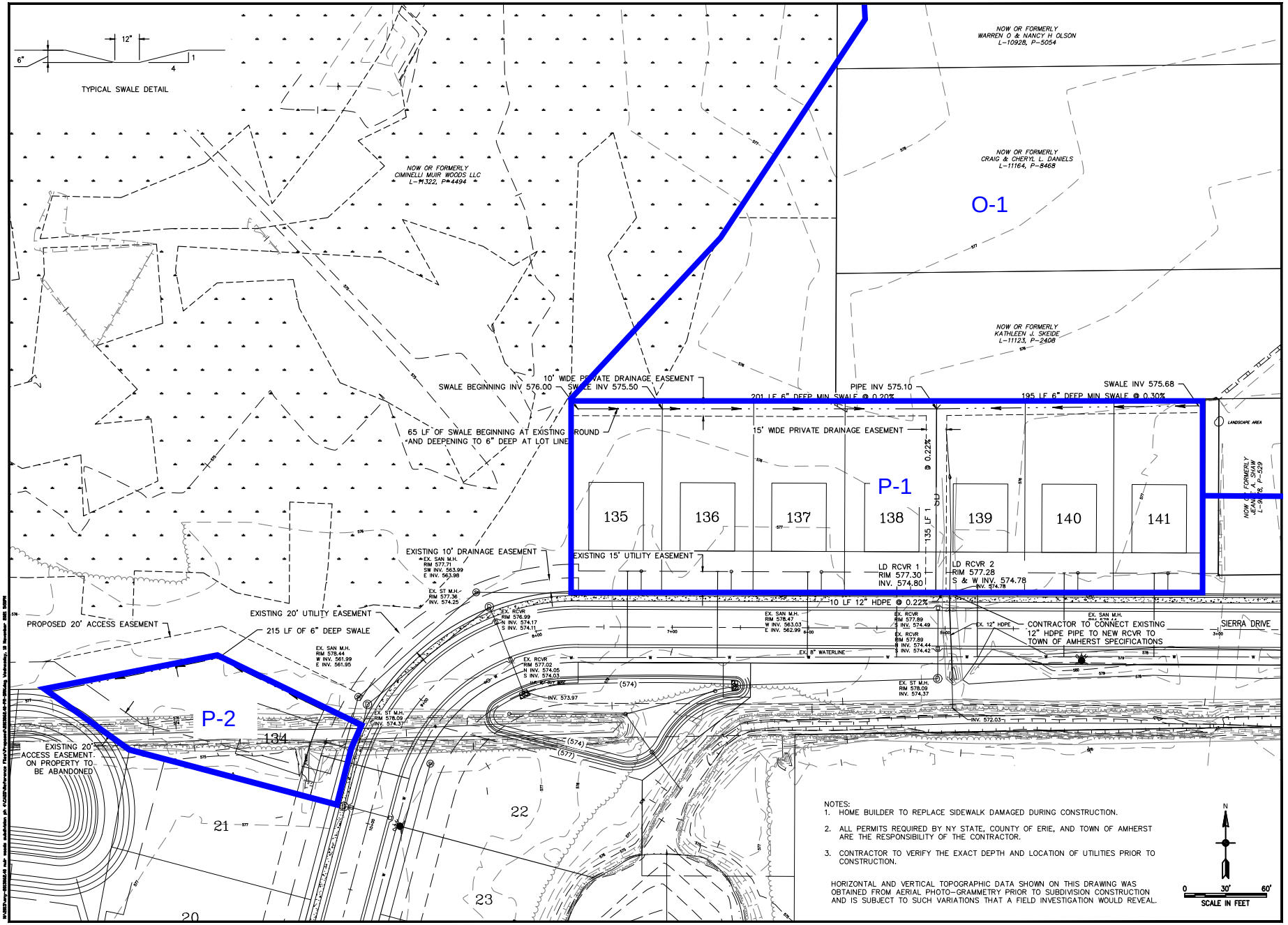


GPI Engineering Design Planning Construction
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 1
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Wood
50 Fountain Plaza, S
Buffalo, NY 142

Muir Woods Subdivision, Phase 4
520 Campbell Blvd

STATE OF NEW YORK GREENMAN PEDERSEN, INC. LICENSED PROFESSIONAL ENGINEER No. 091

REVISIONS

NO.	REVISION

November 12, 20

DRAWN/DESIGN BY THM | CHE

Drainage Pl

SCALE: 1" = 30'

WNY-2013062.4

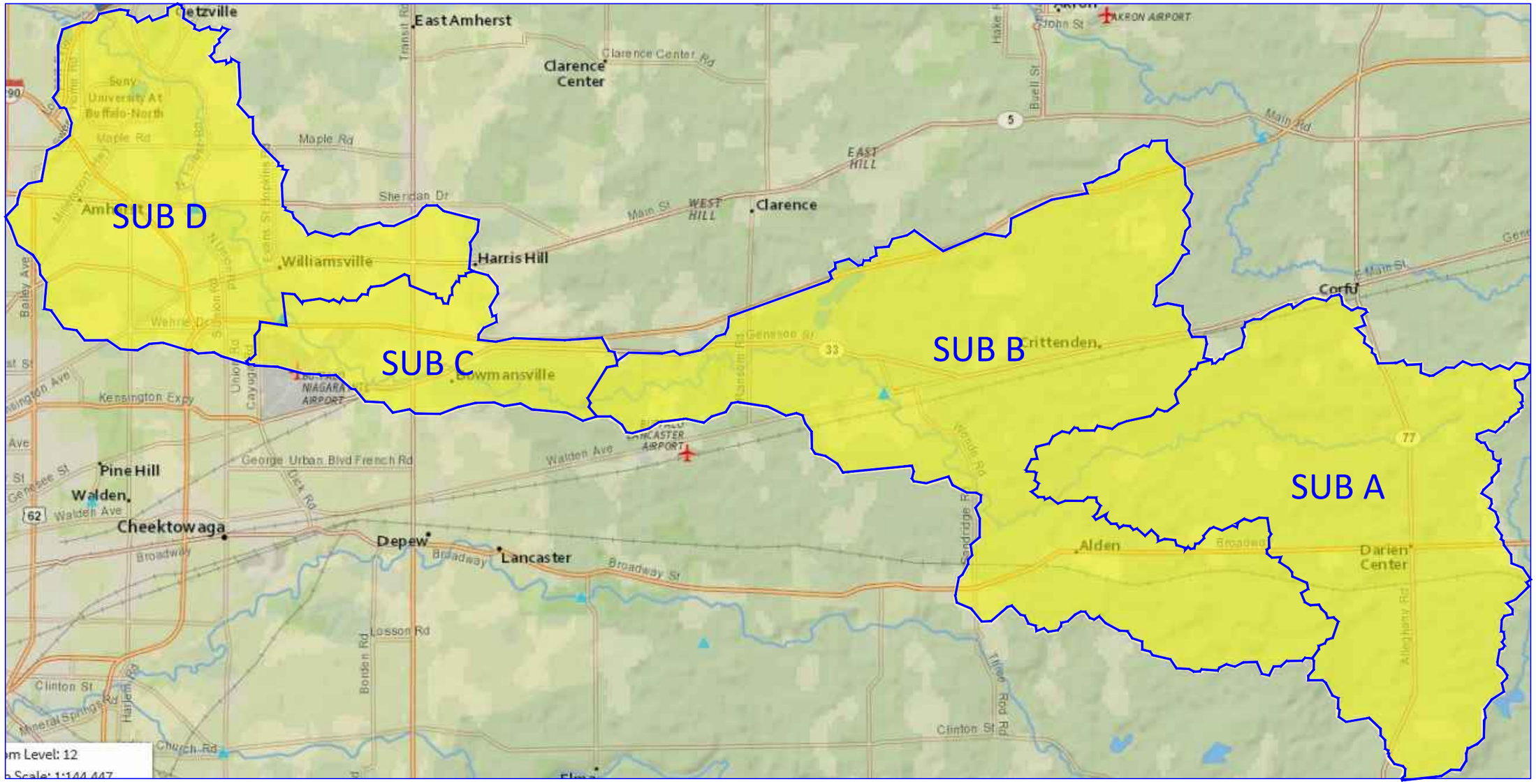
03 OF 0

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

EXHIBIT 4

ELLICOTT CREEK WATERSHED DELINEATION MAP

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)



GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
4950 GENESEE STREET, SUITE 165 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 4
Ellicott Creek Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

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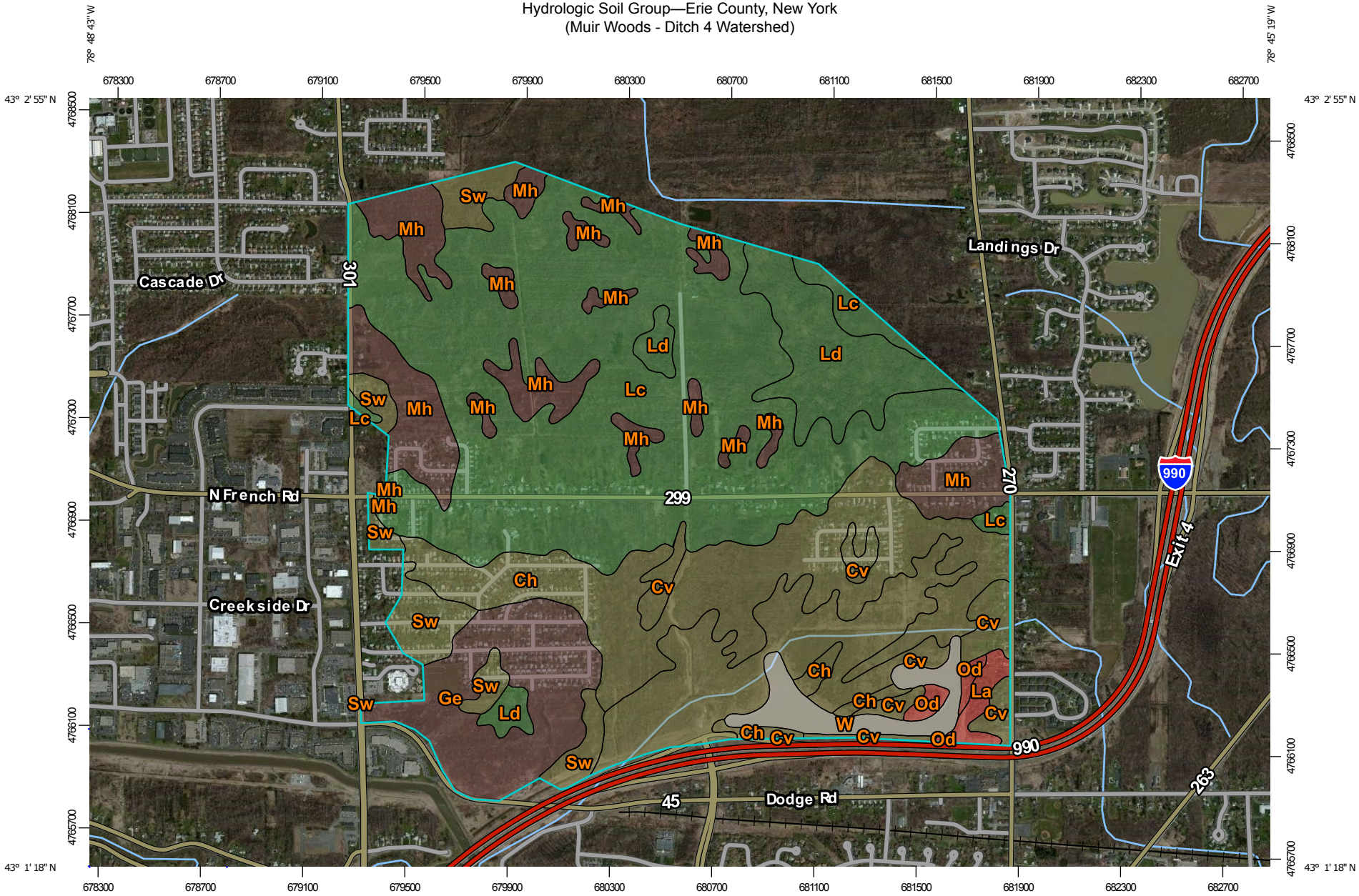
EXHIBIT 5

SITE SOIL MAP

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Hydrologic Soil Group—Erie County, New York
(Muir Woods - Ditch 4 Watershed)



Map Scale: 1:21,100 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Hydrologic Soil Group—Erie County, New York
(Muir Woods - Ditch 4 Watershed)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 15, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Erie County, New York (NY029)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ch	Cheektowaga fine sandy loam	C/D	188.2	15.4%
Cv	Cosad loamy fine sand	C/D	143.5	11.8%
Ge	Getzville silt loam	B/D	93.0	7.6%
La	Lakemont silt loam, 0 to 3 percent slopes	D	8.9	0.7%
Lc	Lamson very fine sandy loam	A/D	484.8	39.8%
Ld	Lamson mucky very fine sandy loam	A/D	77.0	6.3%
Mh	Minoa very fine sandy loam	B/D	129.7	10.6%
Od	Odessa silt loam, 0 to 3 percent slopes	D	6.5	0.5%
Sw	Swormville clay loam	C/D	56.6	4.6%
W	Water		30.9	2.5%
Totals for Area of Interest			**1,219.0**	**100.0%**

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

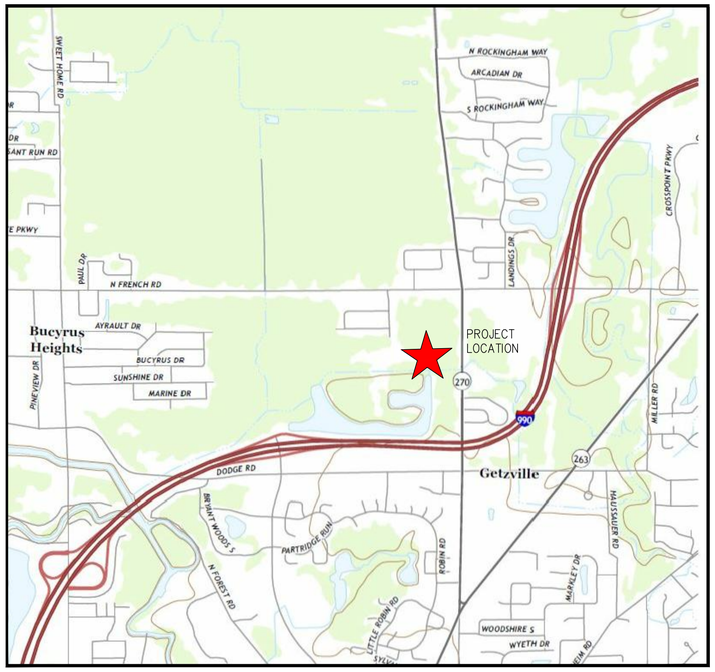
Tie-break Rule: Higher

Attachment: SP-2021-24_A application 042122 (25493 : Sp-2021-24A)

Muir Woods Subdivision, Phase 4

Ciminelli Muir Woods LLC

520 Campbell Blvd
Town of Amherst, NY 14068



PROJECT LOCATION MAP
N.T.S.

Sheet List Table	
Sheet Number	Sheet Title
00	Cover Sheet
--	Subdivision Map
01	Existing Conditions
02	Utility Plan
03	Drainage Plan
04	Site Details
05	Grading Plan
06	Erosion and Sediment Control Plan
07	Erosion and Sediment Control Details
08	Erosion and Sediment Control Notes
L-1	Landscape Plan
RT-1	Recreational Trail Paving Plan
RT-2	Recreational Trail Erosion and Sediment Control Plan

THOMAS WOLANSKI, P.E. DATE: January 26, 2022

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. 151

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GPI
Engineering
Design
Planning
Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

WNY-2013062.40	November 12, 2021

SHEET NO.
00

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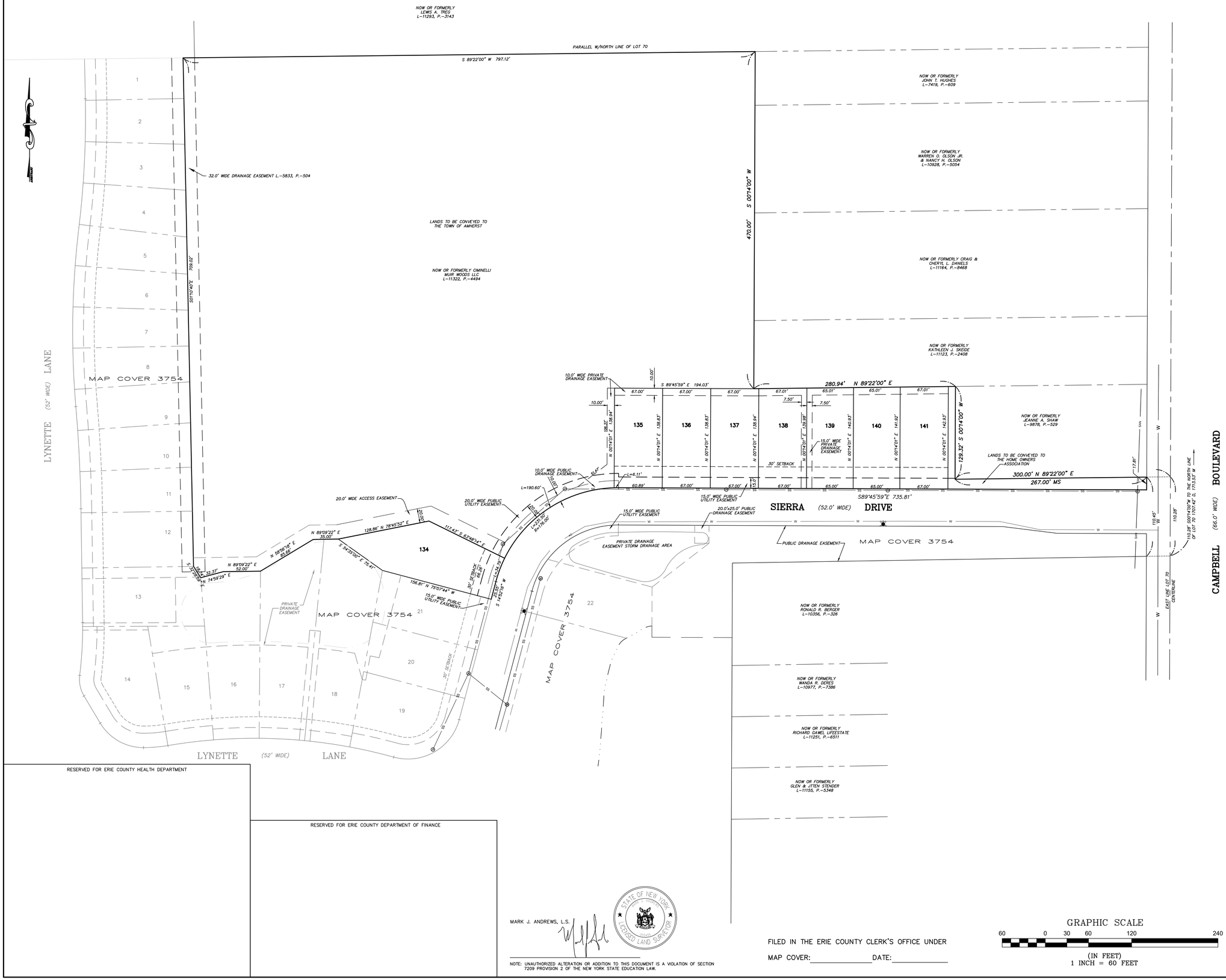
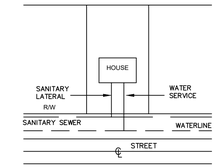
Attachment: SP-2021-24_A drawings 042122 (25493 : Sp-2021-24A)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.



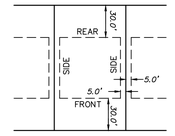
SANITARY SEWER FACILITIES, EXISTING AND PROPOSED, AND WATER SUPPLY FACILITIES, EXISTING AND PROPOSED, SHOWN ON THIS SUBDIVISION MAP ARE FOR THE PURPOSE OF COMPLIANCE WITH NEW YORK STATE REALTY SUBDIVISION LAW. GPI ENGINEERING, LANDSCAPE ARCHITECTURE AND SURVEYING, LLP ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF SANITARY SEWER AND WATER FACILITIES SHOWN ON THIS MAP OR FOR THE APPROVAL, CONSTRUCTION OR ACCEPTANCE BY APPROPRIATE GOVERNMENT AGENCIES OF SAID FACILITIES.



LOT AREAS

LOT 134	13,491 ± Sq. Ft.
LOT 135	9,302 ± Sq. Ft.
LOT 136	9,302 ± Sq. Ft.
LOT 137	9,305 ± Sq. Ft.
LOT 138	9,344 ± Sq. Ft.
LOT 139	9,130 ± Sq. Ft.
LOT 140	9,193 ± Sq. Ft.
LOT 141	9,542 ± Sq. Ft.

TYPICAL LOT SETBACK DEPICTION



STREET

NOTES:

ALL IMPROVEMENTS WILL BE INSTALLED UNDER TOWN PERMITS WITH ALL PLANS CONSISTENT WITH PRELIMINARY PLAT.

PUBLIC DRAINAGE EASEMENTS SHALL BE GRANTED TO THE TOWN OF AMHERST TO PROVIDE ACCESS TO STORM WATER FACILITIES. THESE EASEMENTS SHALL REMAIN FREE OF OBSTRUCTIONS.

PRIVATE DRAINAGE EASEMENTS SET FORTH ON THE SUBDIVISION MAP ARE FOR THE BENEFIT OF THE OWNERS OF PROPERTY WITHIN THE SUBDIVISION AND THE BENEFIT DERIVED FROM THESE EASEMENTS IS FOR THE PROPERTY ONLY AND THE TOWN OF AMHERST ASSUMES NO RESPONSIBILITY FOR THE MAINTENANCE THEREOF.

SEE SURVEY PREPARED BY GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP JOB NO. 2013062 DATED: DECEMBER 17, 2017

SUBDIVISION AREA: 13.18± Acres

OWNERS CONSENT FOR FILING :

_____ _____

OWNER DATE

APPROVED BY THE TOWN OF AMHERST PLANNING BOARD, ERIE COUNTY, NEW YORK :

_____ _____

CHAIRMAN DATE

RESERVED FOR ERIE COUNTY HEALTH DEPARTMENT

RESERVED FOR ERIE COUNTY DEPARTMENT OF FINANCE

MARK J. ANDREWS, L.S.

STATE OF NEW YORK — MARK J. ANDREWS — 050231 — LICENSED LAND SURVEYOR

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FILED IN THE ERIE COUNTY CLERK'S OFFICE UNDER

MAP COVER: _____ DATE: _____

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 INCH = 60 FEET

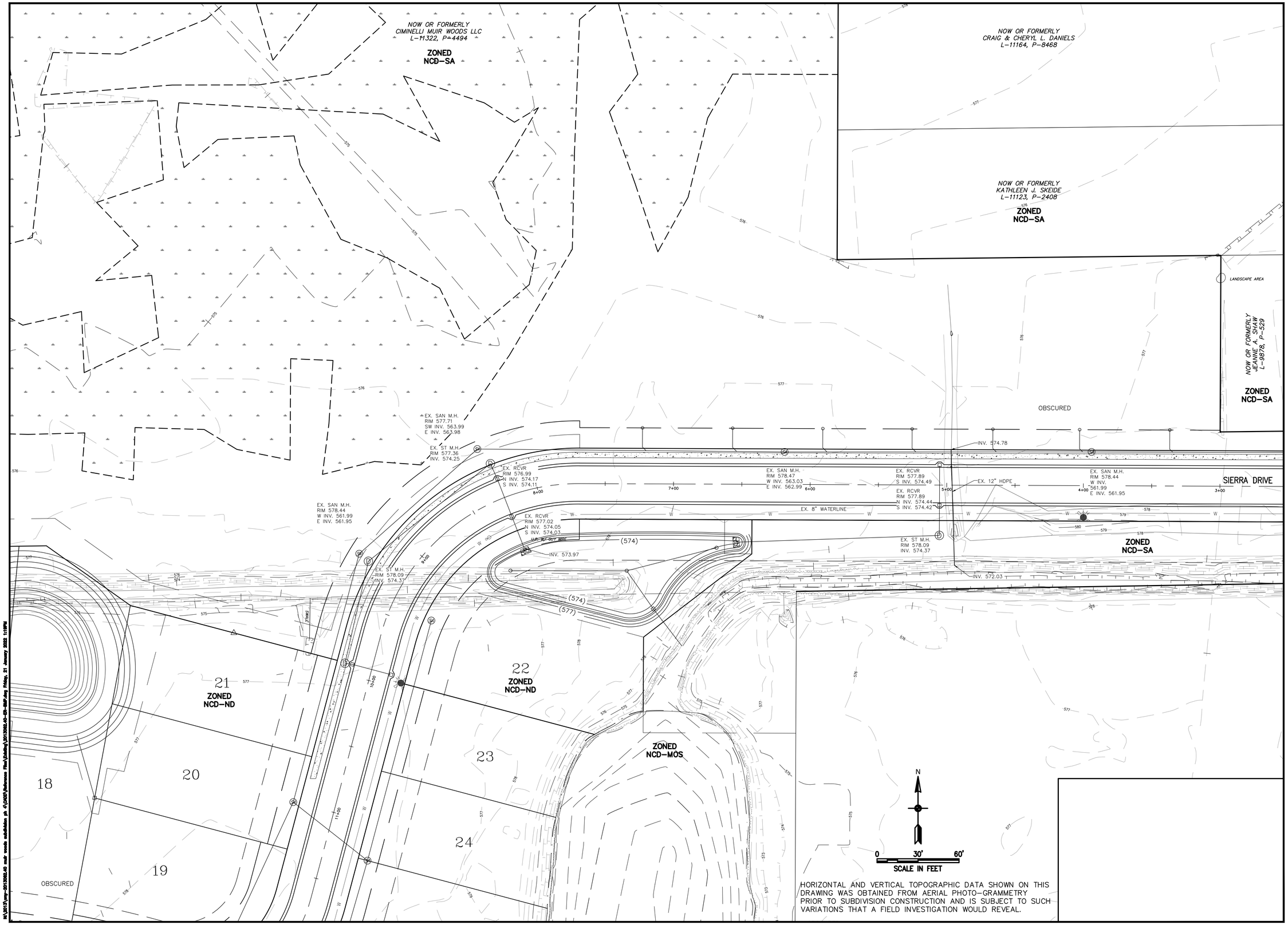
The Preserve at Muir Woods Phase 4

PART OF LOT 70, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062 Date: JANUARY 27, 2022

Attachment: SP-2021-24_A drawings 042122 (25493 : Sp-2021-24A)



HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
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LICENSED PROFESSIONAL ENGINEER
No. 181
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REVISIONS

NO.	REVISION	DATE
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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

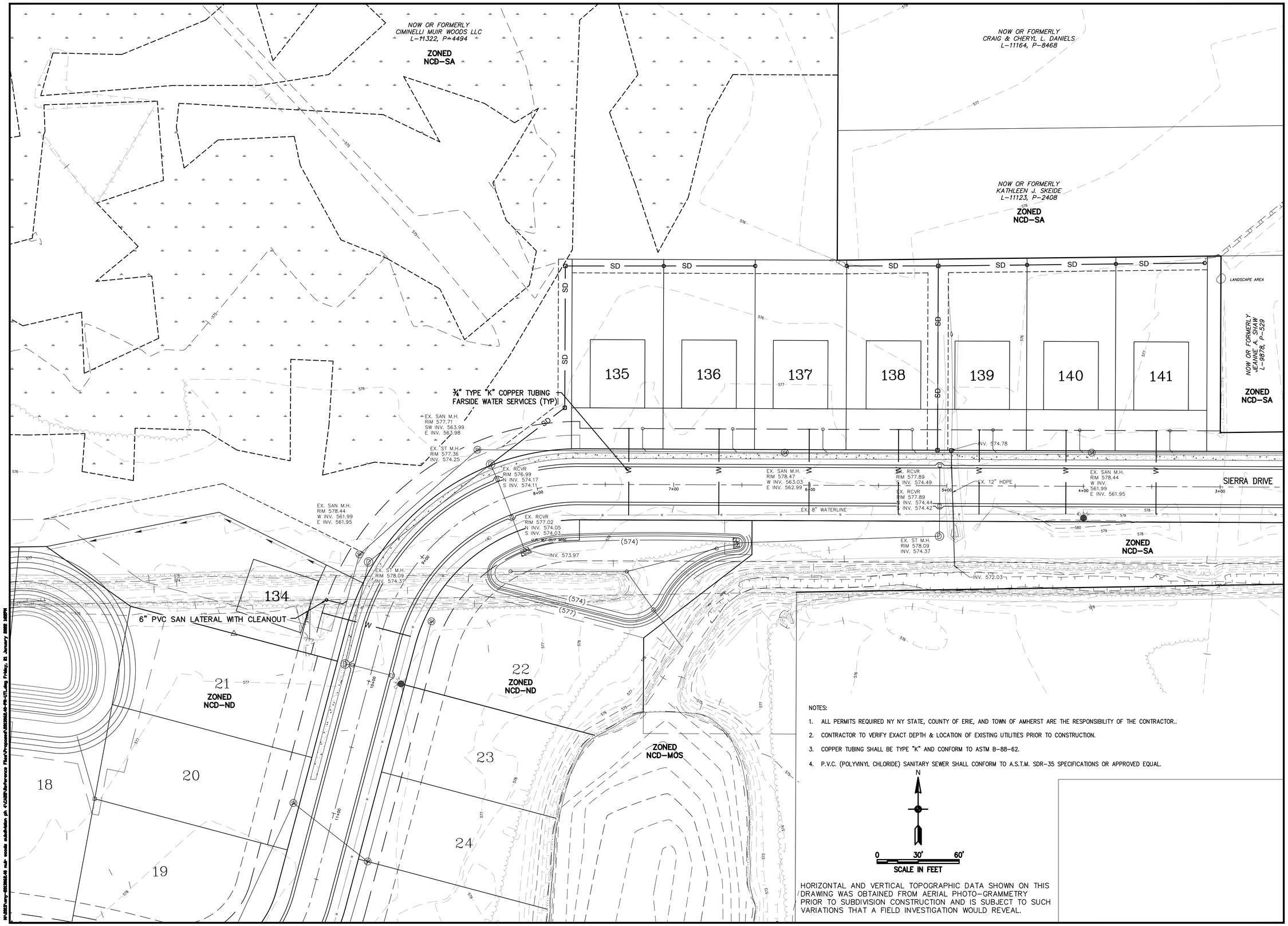
Existing Conditions

SCALE: 1" = 30'

WNY-2013062.40

01 OF 08

Attachment: SP-2021-24_A drawings 042122 (25493 : Sp-2021-24A)



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Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. [illegible]
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REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

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THM	TW

Utility Plan

SCALE: 1" = 30'

WNY-2013062.40

02 OF 08

Attachment: SP-2021-24, A drawings 042122 (25493 : Sp-2021-24A)

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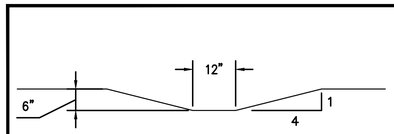

TYPICAL SWALE DETAIL

NOW OR FORMERLY
CIMINELLI MUIR WOODS LLC
L-M322, P-4494

ZONED
NCD-SA

NOW OR FORMERLY
CRAIG & CHERYL L. DANIELS
L-11164, P-8468

NOW OR FORMERLY
KATHLEEN J. SKEIDE
L-11123, P-2408

ZONED
NCD-SA

10' WIDE PRIVATE DRAINAGE EASEMENT

LD RCVR 2
RIM 576.00
INV. 574.60

BY RCVR 3
RIM 575.80
INV. 574.75

BY RCVR 4
RIM 575.90
INV. 574.88

BY RCVR 5
RIM 576.10
INV. 575.10

LD RCVR 6
RIM 576.00
INV. 575.00

BY RCVR 7
RIM 576.10
INV. 575.10

BY RCVR 8
RIM 576.20
INV. 575.20

BY RCVR 9
RIM 576.30
INV. 575.29

139 LF 6" HDPE @ 0.20%

67 LF 6" HDPE @ 0.15%

15' WIDE PRIVATE DRAINAGE EASEMENT

195 LF 6" HDPE @ 0.15%

LANDSCAPE AREA

104 LF 8" HDPE @ 0.20%

135 LF 6" HDPE @ 0.15%

10' WIDE PRIVATE DRAINAGE EASEMENT

135 136 137 138 139 140 141

NOW OR FORMERLY
JEANNE A. SHAW
L-9878, P-529

ZONED
NCD-SA

LD RCVR 1
RIM 577.30
INV. 574.39

68 LF 10" HDPE @ 0.20%

EX. SAN M.H.
RIM 577.71
SW INV. 563.99
E INV. 563.98

EXISTING 15' UTILITY EASEMENT

LD RCVR 10
RIM 577.30
INV. 574.80

LD RCVR 11
RIM 577.28
S & W INV. 574.78
INV. 574.78

EX. ST M.H.
RIM 577.36
INV. 574.25

10 LF 6" HDPE @ 0.15%

EXISTING 10' DRAINAGE EASEMENT

EXISTING 20' UTILITY EASEMENT

215 LF OF 6" DEEP SWALE

PROPOSED 20' ACCESS EASEMENT

EX. RCVR
RIM 576.99
N INV. 574.17
S INV. 574.11

PROPOSED NE INV. 574.25

EX. SAN M.H.
RIM 578.47
W INV. 563.03
E INV. 562.99

EX. RCVR
RIM 577.89
S INV. 574.49

EX. RCVR
RIM 577.89
N INV. 574.44
S INV. 574.42

EX. 12" HDPE

CONTRACTOR SHALL CONNECT EXISTING 12" HDPE PIPE TO NEW RECEIVER IN ACCORDANCE WITH TOWN OF AMHERST REQUIREMENTS

SIERRA DRIVE

EX. SAN M.H.
RIM 578.44
W INV. 561.99
E INV. 561.95

EX. 8" WATERLINE

EX. RCVR
RIM 577.02
N INV. 574.05
S INV. 574.03

UIE RG-6QT WIRE

INV. 573.97

EX. ST M.H.
RIM 578.09
INV. 574.37

EX. ST M.H.
RIM 578.09
INV. 574.37

INV. 572.03

ZONED
NCD-SA

EXISTING 20' ACCESS EASEMENT ON PROPERTY TO BE ABANDONED

134

21
ZONED
NCD-ND

22
ZONED
NCD-ND

23

24

ZONED
NCD-MOS

18

19

20

NOTES:
1. HOME BUILDER TO REPLACE SIDEWALK DAMAGED DURING CONSTRUCTION.
2. ALL PERMITS REQUIRED BY NY STATE, COUNTY OF ERIE, AND TOWN OF AMHERST ARE THE RESPONSIBILITY OF THE CONTRACTOR.
3. CONTRACTOR TO VERIFY THE EXACT DEPTH AND LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.

N

0 30' 60'
SCALE IN FEET

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

GPI
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PREPARED FOR
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50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. 101

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REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Drainage Plan

SCALE: 1" = 30'

WNY-2013062.40

03 OF 08

Attachment: SP-2021-24_A drawings 042122 (25493 : Sp-2021-24A)

W:\WNY-proj\2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062.40-PP-Phasing Friday, 21 January 2022 3:25PM

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority only shall operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

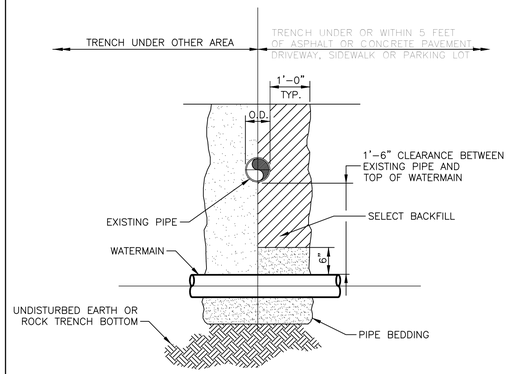
I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	SD29 DATE 3/05	REVISED 8/16

11. **All watermain piping shall be installed with a minimum of 5'-0" of cover.**
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of the 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict school bus access.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for approval.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30 DATE 3/05	REVISED 8/16



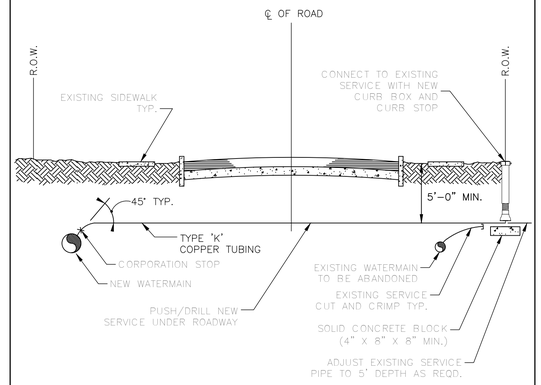
NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18. FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD2_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2 DATE 4/28/92	REVISED 7/16



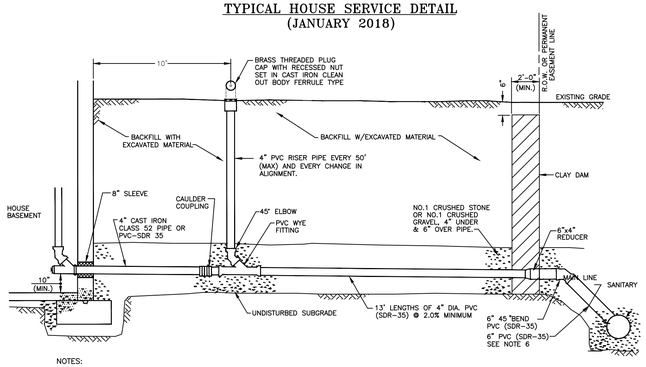
NOTES:

1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES AND PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD16_SERVICE_REPLACE SMO

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD16 DATE 4/92	REVISED 10/20

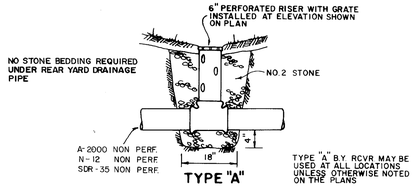
TYPICAL HOUSE SERVICE DETAIL (JANUARY 2018)



NOTES:

1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY ECWA PRIOR TO BACKFILL.
3. PVC JOINT MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST ASTM SPECIFICATION. PVC PIPE AND PVC JOINT MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74-42.
4. A MANUAL VALVE SHALL BE INSTALLED ON BASEMENT LAUNDRY DRAIN LINE.
5. CURB BOXES MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALKS OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT, AND THE SIDEWALK.
6. UNIONS ON COPPER TUBING REQUIRED UNDER PAVED AREAS.
7. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'-0" UNDER PAVED AREAS
8. FOR NEW CONSTRUCTION, AN 8x6 WYE WITH 6" PVC TO 8" 45° BEND, THEN 6" x 4" REDUCER IS USED.
9. A 6" CLEAN OUT IS REQUIRED AT THE END OF EACH SERVICE SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF PAVEMENT.
10. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
11. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE HOUSE LATERAL.
12. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

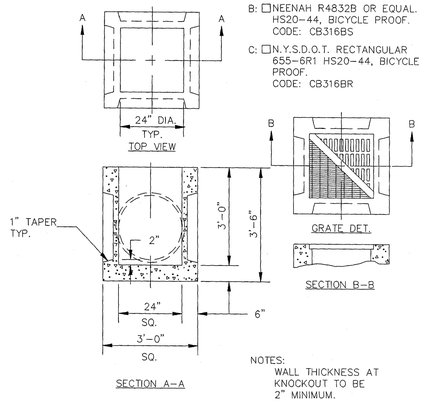
BACK YARD RECEIVER (B.Y. RCVR.) DETAIL



TYPE "A" B.Y. RCVR MAY BE USED AT ALL LOCATIONS UNLESS OTHERWISE NOTED ON THE PLANS

SPECIFICATIONS:
CONCRETE: 4,000 P.S.I. @ 28 DAYS.
ENTRAINED AIR: 5% - 9%
STEEL: A.S.T.M. A496-A615 GRADE 60-60 KSI.
DESIGN LOADING: A.A.S.H.T.O. HS-20-44 WITH 30% IMPACT AND EQUIVALENT SOIL PRESSURE OF 130 (PSF). FLOATATION FORCES NOT ACCOUNTED FOR.
WEIGHT 2,268 LBS.

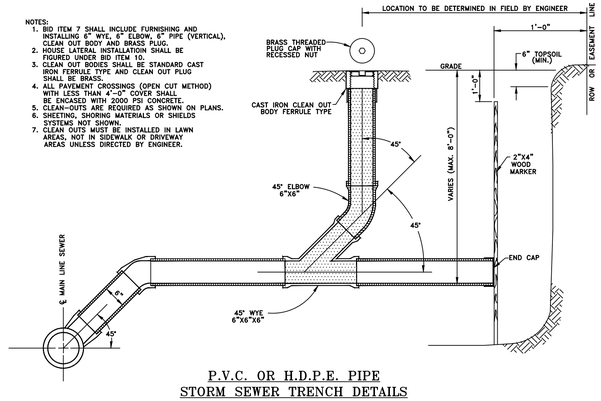
FRAME & GRATE:
A: ☐BY G.C., CODE: CB315BS
B: ☐NEENAH R4832B OR EQUAL. HS20-44, BICYCLE PROOF. CODE: CB316BS
C: ☐N.Y.S.D.O.T. RECTANGULAR 655-6R1 HS20-44, BICYCLE PROOF. CODE: CB316BR



NOTES:
WALL THICKNESS AT KNOCKOUT TO BE 2" MINIMUM.

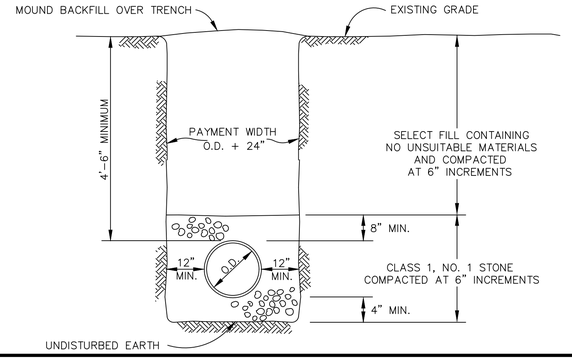
LIGHT DUTY RECEIVER (LD RCVR)

CLEAN-OUT DETAIL FOR SERVICE CONNECTION (JANUARY 2012)



NOTES:
1. BID ITEM 7 SHALL INCLUDE FURNISHING AND INSTALLING 6" WYE, 6" ELBOW, 6" PIPE (VERTICAL), CLEAN OUT BODY AND BRASS PLUG.
2. HOUSE LATERAL INSTALLATION SHALL BE FIGURED UNDER BID ITEM 10.
3. CLEAN OUT BODIES SHALL BE STANDARD CAST IRON FERRULE TYPE AND CLEAN OUT PLUG SHALL BE BRASS.
4. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'-0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
5. CLEAN-OUTS ARE REQUIRED AS SHOWN ON PLANS.
6. SHEETING, SHORING MATERIALS OR SHIELDS SYSTEMS NOT SHOWN.
7. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS UNLESS DIRECTED BY ENGINEER.

P.V.C. OR H.D.P.E. PIPE STORM SEWER TRENCH DETAILS



GPI Engineering Design Planning Construction Management
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Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. 101
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NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Site Details

SCALE: NONE

WNY-2013062.40

04 OF 08

Attachment: SP-2021-24 A drawings 042122 (25483 : Sp-2021-24A)
K:\2013\WNY-2013062.40 Muir Woods Subdivision Ph 4\CAD\Design Plans\04 Site Details.dwg Friday, 21 January 2022 1:35PM
Packet Pg. 1876

LEGEND	
60	LOT NUMBER
B	GRADING TYPE
580.5	APPROX. MINIMUM GROUND ELEVATION AT HOUSE
←	DIRECTIONAL FLOW
578.8	APPROX. ELEVATION AT LOT CORNER

NOW OR FORMERLY
CIMINELLI MUIR WOODS LLC
L–M322, P–4494
ZONED
NCD–SA

NOW OR FORMERLY
CRAIG & CHERYL L. DANIELS
L–11164, P–8468

NOW OR FORMERLY
KATHLEEN J. SKEIDE
L–11123, P–2408
ZONED
NCD–SA

NOW OR FORMERLY
JEANNE A. SHAW
L–9878, P–529
ZONED
NCD–SA

LANDSCAPE AREA

RIM 576.00 | RIM 575.90 | RIM 575.90 | RIM 576.10 | RIM 576.00 | RIM 576.10 | RIM 576.20 | RIM 576.30
SD

135	136	137	138	139	140	141
B	B	B	B	B	B	B
579.4	579.7	579.7	579.5	579.5	579.7	580.0
577.6	578.2	578.5	578.3	578.0	578.3	578.5	578.8

RIM 577.30

EX. SAN M.H.
RIM 577.71
SW INV. 563.99
E INV. 563.98

EX. ST M.H.
RIM 577.36
INV. 574.25

EX. RCVR
RIM 576.99
N INV. 574.17
S INV. 574.11

EX. SAN M.H.
RIM 578.44
W INV. 561.99
E INV. 561.95

EX. RCVR
RIM 577.02
N INV. 574.05
S INV. 574.03

EX. ST M.H.
RIM 578.09
INV. 574.37

EX. SAN M.H.
RIM 578.47
W INV. 563.03
E INV. 562.99

EX. RCVR
RIM 577.89
S INV. 574.49

EX. RCVR
RIM 577.89
N INV. 574.44
S INV. 574.42

EX. ST M.H.
RIM 578.09
INV. 574.37

EX. SAN M.H.
RIM 578.44
W INV.
561.99
E INV. 561.95

INV. 574.78

EX. 12" HDPE

EX. 8" WATERLINE

INV. 573.97

INV. 572.03

(574)

(577)

SIERRA DRIVE

7+00 | 6+00 | 5+00 | 4+00 | 3+00 | 8+00 | 9+00 | 10+00 | 11+00

134
B
579.0
578.0

21
ZONED
NCD–ND

22
ZONED
NCD–ND

23
ZONED
NCD–MOS

24

18

19

20

N

0 30' 60'
SCALE IN FEET

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO–GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

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GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
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Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. [illegible]

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1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Grading Plan

SCALE: 1" = 30'

WNY-2013062.40

05 OF 08

Attachment: SP-2021.24 A drawings 042122 (25493 : Sp-2021-24A)

LEGEND

- FILTER FABRIC DROP INLET PROTECTION
- LAND GRADING
- SILT FENCE
- ORANGE CONSTRUCTION FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- PERMANENT SEEDING (PS)
- DUST CONTROL (DC)
- CHECK DAM
- INLET/OUTLET PROTECTION

LEGEND

INDICATES AREA TO BE STRIPPED, GRADED & WHERE APPLICABLE, EITHER SEEDED OR PAVED (TYP.)

NOW OR FORMERLY
CIMINELLI MUIR WOODS LLC
L-M322, P-4494

ZONED
NCD-SA

NOW OR FORMERLY
CRAIG & CHERYL L. DANIELS
L-11164, P-8468

NOW OR FORMERLY
KATHLEEN J. SKEIDE
L-11123, P-2408

ZONED
NCD-SA

LANDSCAPE AREA

NOW OR FORMERLY
JEANNE A. SHAW
L-9878, P-529

ZONED
NCD-SA

135 136 137 138 139 140 141

CONCRETE WASHOUT AREA

SIERRA DRIVE

134

21
ZONED
NCD-ND

22
ZONED
NCD-ND

23

24

18

20

19

ZONED
NCD-MOS

(574)

(577)

U.S. ALT. ROUTE 20

0 30' 60'
SCALE IN FEET

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

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STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. [illegible]

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NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Erosion and Sediment Control Plan

SCALE: 1" = 30'

WNY-2013062.40

06 OF 08

W:\8000\wny-2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062.40-PH-PSEdwg Friday, 21 January 2022 2:25PM

Attachment: SP-2021-24_A drawings 042122 (25493 : Sp-2021-24A)

STANDARD AND SPECIFICATIONS FOR RECREATION AREA SEEDING



Definition & Scope

Establishing **permanent** grasses, legumes, vines, shrubs, trees, or other plants, or selectively reducing stand density and trimming woody plants, to improve an area for recreation. To increase the attractiveness and usefulness of recreation areas and to protect the soil and plant resources.

Conditions Where Practice Applies

On any area planned for recreation use, lawns, and areas that will be maintained in a closely mowed condition.

Specifications

ESTABLISHING GRASSES (Turfgrass)

The following applies for playgrounds, parks, athletic fields, camping areas, picnic areas, passive recreation areas such as lawns, and similar areas.

1. Time of Planting

Fall planting is preferred. Seed after August 15. In the spring, plant until May 15.

If seeding is done between May 15 and August 15, irrigation may be necessary to ensure a successful seeding.

2. Site Preparation

A. Install needed water and erosion control measures and bring area to be seeded to desired grades. A minimum of 4 in. topsoil is required.

B. Prepare seedbed by loosening soil to a depth of 4-6 inches and decompacting required areas per Soil Restoration Standard.

C. See Standard and Specification of Topsoiling.

D. Lime to a pH of 6.5. See Lime Application Standard.

E. **Fertilize as per soil test** or, if soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 850 pounds of 5-5-10 or equivalent per acre (20 lbs/1,000 sq. ft.). See Fertilizer Application Standard.

F. Incorporate lime and fertilizer in top 2-4 inches of topsoil.

G. Smooth. Remove sticks, foreign matter, and stones over 1 inch in diameter, from the surface. Firm the seedbed.

3. Planting

Use a cultipacker type seeder if possible. Seed to a depth of 1/8 to 1/4 inch. If seed is to be broadcast, cultipack or roll after seeding. If hydroseeded, lime and fertilizer may be applied through the seeder, and rolling is not practical.

4. Mulching

Mulch all seedings in accordance with Standard and Specifications for Mulching. Small grain straw is the best material.

5. Seed Mixtures

Select seed mixture for site conditions and intended use from Table 4.5.

6. Contact Cornell Cooperative Extension Turf Specialist for suitable varieties.

Turf-type tall fescues have replaced the old KY31 tall fescues. New varieties have finer leaves and are the most resistant grass to foot traffic. Do not mix it with fine textured grasses such as bluegrass and red fescue.

Common ryegrass and redtop, which are relatively short lived species, provide quick green cover. Improved lawn cultivars of perennial ryegrass provide excellent quality turf, but continue to lack winter hardiness.

Common white clover can be added to mixtures at the rate of 1-2 lbs/acre to help maintain green color during the dry summer period; however, they will not withstand heavy traffic. Avoid using around swimming areas as flowers attract bees which can be easily stepped on.

7. Fertilizing—First Year

Apply fertilizer as indicated by the soil test three to four weeks after germination (spring seedlings). If test results have not been obtained, apply 1 pound nitrogen/1,000 square feet using a complete fertilizer with a 2-1-1 or 4-1-3 ratio. Summer and early fall seedings, apply as above unless air temperatures are above 85°F for an extended period. Wait for cooler temperatures to fertilize. Late fall/ winter seedings, fertilize in spring.

8. Restrict Use

New seedlings should be protected from use for one full year or a spring and fall growth cycle where possible to allow development of a dense sod with good root structure.

MAINTAINING GRASSES

1. Maintain a pH of 6.0 - 7.0.

2. Fertilize in late May to early June as follows with 5-5-10 analysis fertilizer at the rate of 5 lbs./1,000 sq. ft. and repeat in late August if sod density is not adequate. Avoid fertilizing when heat is greater than 85°F. Top dress weak sod annually in the spring, but at least once every 2 to 3 years. **Fertilize in accordance with soil test analysis**, after determining adequate topsoil depth exists.

3. Aerate compacted or heavily used areas, like athletic fields, annually as soon as soil moisture conditions permit. Aerate area six to eight times using a spoon or hollow tine type aerator. Do not use solid spike equipment.

4. Reseed bare and thin areas annually with original seed mix.

Site - Use	Species (% by weight)	lbs/1,000 ft² (PLS)	lbs/acre (PLS)
Sunny Sites (well, moderately well, and somewhat poorly drained soils)	*Athletic fields and similar areas*		
	80% Hard fescue	2.4-3.2	105-138
	20% Perennial ryegrass	0.6-0.8	25-37
		3.0-4.0	130-175
	OR, for southern and eastern, NY 50% Hard fescue	1.5-2.0	65-88
	50% perennial ryegrass	1.5-2.0	65-87
		3.0-4.0	130-175
	OR, 100% Creeping Red Fescue	3.4-4.6	150-200
	General recreation areas and lawns (Medium to high maintenance)		
	65% Creeping red fescue	2.0-2.6	85-114
	20% Perennial ryegrass	0.6-0.8	26-35
	15% Fine fescue	0.4-0.6	19-26
		3.0-4.0	130-175
	OR, 100% Creeping red fescue	3.4-4.6	150-200
Sunny Droughty Sites (general recreation areas and lawns, low maintenance) (somewhat excessively to excessively drained soils, excluding Long Island)	65% Fine fescue	2.6-3.3	114-143
	15% Perennial ryegrass	0.6-0.7	26-33
	20% Creeping red fescue	0.8-1.0	35-44
		4.0-5.0	175-220
	OR, 100% Creeping red fescue	3.4-4.6	150-200
Shady Dry Sites (well to somewhat poorly drained soils)	65% fine fescue	2.6-3.3	114-143
	15% perennial ryegrass	0.6-0.7	26-33
	20% Creeping red fescue	0.8-1.0	35-44
	OR	4.0-5.0	174-220
	80% blend of shade-tolerant Cereal rye	2.4-3.2	105-138
	20% perennial ryegrass	0.6-0.8	25-37
	OR	3.0-4.0	130-175
	100% Creeping red fescue	3.4-4.6	150-200
Shady Wet Sites (somewhat poor to poorly drained soils)	70% Creeping red fescue	1.4-2.1	60-91
	30% blend of shade-tolerant Hard fescue	0.6-0.9	25-39
	OR	2.0-3.0	85-130
	100% Chewings fescue	3.4-4.6	150-200

For varieties suitable for specific locations, contact Cornell Cooperative Extension Turf Specialist.
Reference: Thurn, M.C., N.W. Hummel, and A.M. Petrovic. Cornell Extension Pub. Info. Bulletin 185 Revised. HomeLawns Establishment and Maintenance. 1994.

STANDARD AND SPECIFICATIONS FOR COMPOST FILTER SOCK



Definition & Scope

A **temporary** sediment control practice composed of a degradable geotextile mesh tube filled with compost filter media to filter sediment and other pollutants associated with construction activity to prevent their migration offsite.

Condition Where Practice Applies

Compost filter socks can be used in many construction site applications where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock. In areas with steep slopes and/or rocky terrain, soil conditions must be such that good continuous contact between the sock and the soil is maintained throughout its length. For use on impervious surfaces such as road pavement or parking areas, proper anchorage must be provided to prevent shifting of the sock or separation of the contact between the sock and the pavement. Compost filter socks are utilized both at the site perimeter as well as within the construction areas. These socks may be filled after placement by blowing compost into the tube pneumatically, or filled at a staging location and moved into its designed location.

Design Criteria

1. Compost filter socks will be placed on the contour with both terminal ends of the sock extended 8 feet upslope at a 45 degree angle to prevent bypass flow.

2. Diameters designed for use shall be 12" – 32" except that 8" diameter socks may be used for residential lots to control areas less than 0.25 acres.

3. The flat dimension of the sock shall be at least 1.5 times the nominal diameter.

4. The **Maximum Slope Length** (in feet) above a compost filter sock shall not exceed the following limits:

Dia. (in.)	Slope %							
	2	5	10	20	25	33	50
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50

* Length in feet



5. The compost infill shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content. When using compost filter socks adjacent to surface water, the compost should have a low nutrient value.**

6. The compost filter sock fabric material shall meet the

7. Compost filter socks shall be anchored in earth with 2" x 2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock.

8. All specific construction details and material specifications shall appear on the erosion and sediment control construcitons drawings when compost filter socks are included in the plan.

Maintenance

1. Traffic shall not be permitted to cross filter socks.

2. Accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

3. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired in the manner required by the manufacturer or replaced within 24 hours of inspection notification.

4. Biodegradable filter socks shall be replaced after 6 months; photodegradable filter socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.

5. Upon stabilization of the area contributory to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut and the compost spread as an additional mulch to act as a soil supplement.

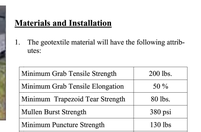
Table 5.1 - Compost Sock Fabric Minimum Specifications Table

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Sock Diameters	12" 18" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years

Table 5.2 - Compost Standards Table

Organic matter content	25% - 100% (dry weight)
Organic portion	Fibrous and elongated
pH	6.0 – 8.0
Moisture content	30% - 60%
Particle size	100% passing a 1" screen and 10 - 50% passing a 3/8" screen
Soluble salt concentration	5.0 dS/m (mmhos/cm) maximum

STANDARD AND SPECIFICATIONS FOR GEOTEXTILE FILTER BAG



Definition & Scope

A **temporary** portable device through which sediment laden water is pumped to trap and retain sediment prior to its discharge to drainageways or off-site.

Condition Where Practice Applies

On sites where space is limited such as urban construction or linear projects (e.g. roads and utility work) where rights-of-way are limited and larger de-silting practices are impractical.

Design Criteria

1. Location - The portable filter bag should be located to minimize interference with construction activities and pedestrian traffic. It should also be placed in a location that is vegetated, relatively level, and provides for ease of access by heavy equipment, cleanout, disposal of trapped sediment, and proper release of filtered water.

   The filter bag shall also be placed at least 50 feet from all wetlands, streams or other surface waters.

2. Size - Geotextile filter bag shall be sized in accordance with the manufacturers recommendations based on the pump discharge rate.

Materials and Installation

1. The geotextile material will have the following attributes:

Minimum Grab Tensile Strength	200 lbs.
Minimum Grab Tensile Elongation	50 %
Minimum Trapezoid Tear Strength	80 lbs.
Mullen Burst Strength	380 psi
Minimum Puncture Strength	130 lbs
Apparent Opening Size	40 - 80 US sieve
Minimum UV Resistance	70%
Minimum Flow Thru Rate	70 gpm/sq ft

2. The bag shall be sewn with a double needle machine using high strength thread, double stitched "loc" type capable of minimum roll strength of 100 lbs/inch (ASTM D4884).

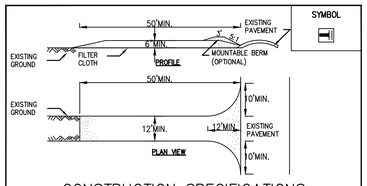
3. The geotextile filter bag shall have an opening large enough to accommodate a 4 inch diameter discharge hose with an attached strap to tie off the bag to the hose to prevent back flow.

4. The geotextile shall be placed on a gravel bed 2 inches thick, a straw mat 4 inches thick, or a vegetated filter strip to allow water to flow out of the bag in all directions.

Maintenance

1. The geotextile filter bag is considered full when remaining bag flow area has been reduced by 75%. At this point, it should be replaced with a new bag.

2. Disposal may be accomplished by removing the bag to an appropriate designated upland area, cut open, remove the geotextile for disposal, and spread sediment contents and seeded and mulched according to the vegetative plan.

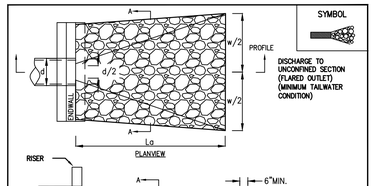


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 1–4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

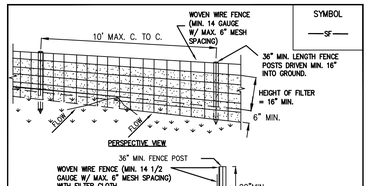
STABILIZED CONSTRUCTION ACCESS



NOTE:
SEE RIPRAP STANDARDS AND SPECIFICATIONS
MINIMUM TAILWATER CONDITIONS

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET PROTECTION EXAMPLE

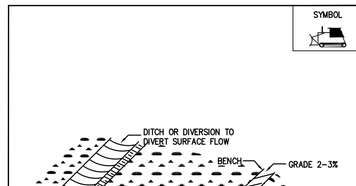


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABLINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

SILT FENCE



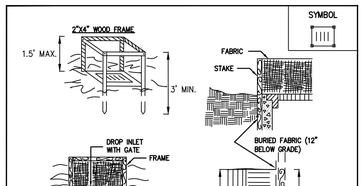
CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

LANDGRADING DETAIL

LANDGRADING SPECIFICATIONS



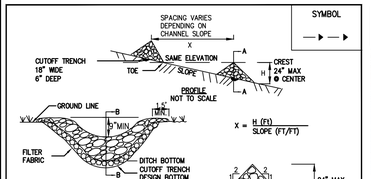
CONSTRUCTION SPECIFICATIONS

1. FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM OF 18 INCHES DEEP. STAKES SHALL BE DRIVEN FIRST AND PRIOR TO THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE PLACED A MINIMUM 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

FABRIC DROP INLET PROTECTION



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE CHECK DAM

STANDARD AND SPECIFICATIONS FOR CONCRETE TRUCK WASHOUT



Definition & Scope

A temporary excavated or above ground lined constructed pit where concrete truck mixers and equipment can be washed after their loads have been discharged, to prevent highly alkaline runoff from entering storm drainage systems or leaching into soil.

Conditions Where Practice Applies

Washout facilities shall be provided for every project where concrete will be poured or otherwise formed on the site. This facility will receive highly alkaline wash water from the cleaning of chutes, mixers, hoppers, vibrators, placing equipment, trowels, and screeds. Under no circumstances will wash water from these operations be allowed to infiltrate into the soil or enter surface waters.

Design Criteria

Capacity: The washout facility should be sized to contain solids, wash water, and rainfall and sized to allow for the evaporation of the wash water and rainfall. Wash water shall be estimated at 7 gallons per chute and 50 gallons per hopper of the concrete pump truck and/or discharging drum. The minimum size shall be 8 feet by 8 feet at the bottom and 2 feet deep. If excavated, the side slopes shall be 2 horizontal to 1 vertical.

Location: Locate the facility a minimum of 100 feet from drainage swales, storm drain inlets, wetlands, streams and other surface waters. Prevent surface water from entering the structure except for the access road. Provide appropriate access with a gravel access road sloped down to the structure. Signs shall be placed to direct drivers to the facility after their load is discharged.

Liner: All washout facilities will be lined to prevent leaching of liquids into the ground. The liner shall be plastic sheeting with a minimum thickness of 10 mils with no holes or tears, and anchored beyond the top of the pit with an earthen berm, sand bags, stone, or other structural appurtenance except at the access point.

If pre-fabricated washouts are used they must ensure the capture and containment of the concrete wash and be sized based on the expected frequency of concrete pours. They shall be sited as noted in the location criteria.

Maintenance

- All concrete washout facilities shall be inspected daily. Damaged or leaking facilities shall be deactivated and repaired or replaced immediately. Excess rainwater that has accumulated over hardened concrete should be pumped to a stabilized area, such as a grass filter strip.
- Accumulated hardened material shall be removed when 75% of the storage capacity of the structure is filled. Any excess wash water shall be pumped into a containment vessel and properly disposed of off site.
- Dispose of the hardened material off-site in a construction/demolition landfill. On-site disposal may be allowed if this has been approved and accepted as part of the projects SWPPP. In that case, the material should be recycled as specified, or buried and covered with a minimum of 2 feet of clean compacted earthfill that is permanently stabilized to prevent erosion.
- The plastic liner shall be replaced with each cleaning of the washout facility.
- Inspect the project site frequently to ensure that no concrete discharges are taking place in non-designated areas.

STANDARD AND SPECIFICATIONS FOR DUST CONTROL



Definition & Scope

The control of dust resulting from land-disturbing activities, to prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

Conditions Where Practice Applies

On construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing where off-site damage may occur if dust is not controlled.

Design Criteria

Construction operations should be scheduled to minimize the amount of area disturbed at one time. Buffer areas of vegetation should be left where practical. Temporary or permanent stabilization measures shall be installed. No specific design criteria is given; see construction specifications below for common methods of dust control.

Water quality must be considered when materials are selected for dust control. Where there is a potential for the material to wash off to a stream, ingredient information must be provided to the NYSDEC.

No polymer application shall take place without written approval from the NYSDEC.

Construction Specifications

A. **Non-driving Areas** – These areas use products and materials applied or placed on soil surfaces to prevent airborne migration of soil particles.

   Vegetative Cover – For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control (see Section 3).

   Mulch (including gravel mulch) – Mulch offers a fast effective means of controlling dust. This can also include rolled erosion control blankets.

   Spray adhesives – These are products generally composed of polymers in a liquid or solid form that are mixed with water to form an emulsion that is sprayed on the soil surface with typical hydroseeding equipment. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. In no case should the application of these adhesives be made on wet soils or if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators and others working with the material.

B. **Driving Areas** – These areas utilize water, polymer emulsions, and barriers to prevent dust movement from the traffic surface into the air.

   Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access route to provide short term limited dust control.

   Polymer Additives – These polymers are mixed with water and applied to the driving surface by a water truck with a gravity feed drip bar, spray bar or automated distributor truck. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations. Incorporation of the emulsion into the soil will be done to the appropriate depth based on expected traffic. Compaction after incorporation will be by vibratory roller to a minimum of 95%. The prepared surface shall be moist and no application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators working with the material.

   Barriers – Woven geo-textiles can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads. Stone can also be used for construction roads for effective dust control.

   Windbreak – A silt fence or similar barrier can control air currents at intervals equal to ten times the barrier height. Preserve existing wind barrier vegetation as much as practical.

Maintenance

Maintain dust control measures through dry weather periods until all disturbed areas are stabilized.

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2"	9 cu. yds.	405 cu. yds.	3"	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over fiber fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/ yd. 60-90 lbs./roll	48" x 50 yds. or 48" x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	4' x 112.5' or 8' x 112.5'.	—	—	Use without additional mulch. Excellent for seeding establishment. Anchor as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only - no change in grade	HSG A&B	HSG C&D	Protect area from any ongoing construction activities.
	Apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A&B	HSG C&D	
	Aerate* and apply 6 inches of topsoil	Apply full Soil Restoration**	
Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls)	Apply full Soil Restoration (decompaction and compost enhancement)		
Areas where Runoff Reduction and/or Infiltration practices are applied	Restoration not

POLLUTION PREVENTION

1. THE FOLLOWING GENERAL NOTES PROVIDE A DESCRIPTION OF POLLUTION PREVENTION MEASURES UTILIZED TO CONTROL LITTER, CONSTRUCTION CHEMICALS, CONSTRUCTION DEBRIS, AND STORAGE PRACTICES FROM BECOMING A POLLUTANT SOURCE TO STORMWATER DISCHARGES, AS WELL AS SPILL PREVENTION AND RESPONSE MEASURES.

2. MATERIAL DELIVERY AND STORAGE:

   A. LOCATE MATERIAL STORAGE AND DELIVERY AREAS AT A MINIMUM DISTANCE OF 100 FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   B. KEEP INVENTORY LOW.

   C. STORE DRY CHEMICALS AND BAGGED MATERIALS ON PALLETS.

   D. STORE ALL FLAMMABLE PRODUCTS AWAY FROM ANY HEAT AND/OR IGNITION SOURCE.

   E. PROVIDE SECONDARY CONTAINMENT FOR LIQUIDS.

   F. KEEP DESIGNATED STORAGE AREAS CLEAN AND WELL ORGANIZED. CONDUCT WEEKLY INSPECTIONS TO CHECK FOR DAMAGED CONTAINERS, LEAKS, ETC.

   G. COMPLY WITH STATE AND LOCAL REQUIREMENTS FOR STORAGE OF HAZARDOUS WASTE.

   H. DURING THE WET SEASON, COVER CHEMICALS, DRUMS, AND BAGGED MATERIALS TO PREVENT CONTACT WITH RAINWATER (E.G. TARPS, BINS, STRUCTURES).

   I. DURING THE WET SEASON, COVER SECONDARY CONTAINMENT AREAS TO PREVENT ACCUMULATION OF WATER.

   J. KEEP CHEMICALS LABELED AND IN ORIGINAL CONTAINERS.

   K. TRAIN EMPLOYEES AND CONTRACTORS ON THE PROPER USE OF STORAGE AREA.

3. SPILL PREVENTION AND CONTROL:

   A. NOTIFY ALL CONSTRUCTION WORKERS OF THE LOCATION OF MATERIALS UTILIZED FOR CLEANING UP SPILLS.

   B. STORE SPILL CLEANUP MATERIALS ON SITE AND NEAR POTENTIAL SPILL AREAS.

   C. KEEP COMMERCIALLY AVAILABLE SPILL KITS FOR CONSTRUCTION EQUIPMENT ON SITE.

   D. KEEP DRUMS, BARRELS, TEMPORARY STORAGE BAGS, OR EQUIVALENT MATERIALS FOR CONTAINMENT AND TRANSPORTATION ON SITE.

   E. KEEP ABSORBENT PADS, OIL BOOMS, MAT, OR EQUIVALENT MATERIALS ON SITE.

   F. KEEP WASHABLE, REUSABLE RAGS FOR CLEANING UP SMALL LUBRICANT LEAKS ON SITE.

   G. TRAIN EMPLOYEES AND SUBCONTRACTORS ON PROPER SPILL PREVENTION AND CONTROL METHODS.

   H. NEVER HOSE DOWN OR BURY DRY MATERIAL SPILLS. CLEANUP AS MUCH AS POSSIBLE AND DISPOSE OF PROPERLY.

   I. IN THE EVENT OF A SPILL OCCURRENCE, THE FOLLOWING ACTIONS ARE TO BE TAKEN:

      1. DOCUMENT THE SPILL AND REPORT TO THE PROJECT CONSTRUCTION MANAGER AND ENVIRONMENTAL MONITOR.

      2. FOR SPILLS LESS THAN 5 GALLONS ON AN IMPERVIOUS SURFACE, ATTEMPT TO CONFINE AND CLEAN THE SPILL.

      3. FOR SPILLS GREATER THAN 5 GALLONS, ATTEMPT TO CONFINE THE SPILL AND CALL A REMEDIATION CONTRACTOR IF ASSISTANCE IS REQUIRED WITH PRODUCT RECOVERY AND CONTAINMENT.

      4. FOR SPILLS GREATER THAN 5 GALLONS, REPORT TO NYSDEC REGION 9 SPILL PREVENTION AND RESPONSE (716-851-7220) WITHIN TWO HOURS OF DISCOVERY.

      5. PROVIDE WRITTEN DOCUMENTATION OF THE SPILL.

      6. DISPOSAL OF RECOVERED MATERIALS MUST BE CONDUCTED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.

4. SOLID WASTE MANAGEMENT:

   A. PROVIDE AS MANY WASTE BINS AS NEEDED TO KEEP SITE CLEAN OF LITTER AND WASTE.

   B. DURING THE WET SEASON, WASTE BINS MUST BE COVERED TO PREVENT RUNOFF FROM TRASH.

   C. COLLECT TRASH ON A DAILY BASIS.

   D. ARRANGE FOR REGULAR WASTE COLLECTION BY A LICENSED TRASH HAULER.

   E. SEGREGATE AND RECYCLE WASTE MATERIALS (E.G. PAINTS, SOLVENTS, OIL, ETC.)

   F. PROVIDE COVERED WASTE BINS FOR DISPOSAL OF ALL EMPTY PRODUCTS (E.G. PAINTS, SOLVENTS, GLUES, PESTICIDES, ETC.)

   G. LOCATE WASTE CONTAINER STORAGE AREA(S) AT A MINIMUM DISTANCE OF 100 FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   H. PROVIDE SECONDARY CONTAINMENT FOR HAZARDOUS WASTE CONTAINERS.

   9. COMPLY WITH ALL LOCAL AND STATE SOLID WASTE DISPOSAL AND NUISANCE REQUIREMENTS.

   I. DO NOT HOSE OUT WASTE CONTAINERS ON SITE.

   J. TRAIN EMPLOYEES AND SUBCONTRACTORS TO USE PROPER SOLID WASTE MANAGEMENT.

5. VEHICLE/EQUIPMENT MAINTENANCE:

   A. DO NOT DISCHARGE VEHICLE/MACHINERY WASH WATERS OR SOLVENTS TO STORM DRAINS OR TO SURFACE WATER BODIES.

   B. LOCATE AREAS FOR FUELING AND MAINTENANCE AT A MINIMUM DISTANCE OF 100-FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   C. ANY EQUIPMENT WHICH MUST BE REFUELED IN THE FIELD WILL BE REFUELED FROM TANKS CARRIED TO THE WORK SITE BY TRUCK.

   D. PREVENT SPILLS AND LEAKS DURING FUELING AND MAINTENANCE OPERATIONS.

   E. INSPECT AND MAINTAIN VEHICLES REGULARLY TO MINIMIZE LEAKS AND DRIPS; PLACE DRIP PANS OR ABSORBENT MATERIALS UNDER LEAK-PRONE MACHINERY WHEN IDLE.

   F. COMPLY WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS FOR FUEL STORAGE TANKS.

6. LANDSCAPING OPERATIONS:

   A. CAREFULLY FOLLOW RECOMMENDED USAGE INSTRUCTIONS FOR THE APPLICATION OF ALL FERTILIZER. DISPOSAL OF TREES, BRUSH, OR OTHER DEBRIS IN ANY STREAM CORRIDOR, WETLAND, OR SURFACE WATER IS PROHIBITED. AVOID APPLICATIONS OF FERTILIZERS PRIOR TO STORM EVENTS. APPLY FERTILIZERS IN MULTIPLE SMALLER APPLICATIONS, AS OPPOSED TO ONE LARGE APPLICATION. TRAIN EMPLOYEES AND SUBCONTRACTORS IN THE PROPER USE OF LANDSCAPE MATERIALS AND CHEMICALS.

7. CONCRETE WASTE MANAGEMENT:

   A. AVOID MIXING EXCESS AMOUNTS OF CONCRETE OR FRESH CEMENT ON SITE.

   B. STORE CONCRETE, GROUT, AND MORTAR UNDER COVER AND AWAY FROM DRAINAGE AREAS.

   C. DESIGNATE A WASH OUT AREA ON SITE AND INSURE THAT MATERIAL CAN NOT FLOW TO STORM DRAINS, OPEN DITCHES, STREETS, OR SURFACE WATER BODIES BY CONSTRUCTING A TEMPORARY PIT OR BERMED AREA.

   D. CONCRETE FROM WASHOUT AREA SHOULD BE ALLOWED TO SET. UPON COMPLETION OF THE CONCRETE WORK, THE CONTRACTOR SHALL BREAK UP, REMOVE, AND HAUL AWAY SOLID CONCRETE THAT HAS ACCUMULATED IN THE WASHOUT.

   E. TRAIN EMPLOYEES AND SUBCONTRACTORS IN PROPER CONCRETE WASTE MANAGEMENT.

8. SANITARY/SEPTIC WASTE MANAGEMENT:

   A. LOCATE SANITARY FACILITIES FOR CONVENIENT ACCESS AND AT A MINIMUM OF 100 FEET AWAY FROM DRAIN INLETS AND SURFACE WATER BODIES.

   B. UNTREATED RAW WASTEWATER MAY NOT BE DISCHARGED TO LAND, THE STORM DRAIN SYSTEM, OR TO SURFACE WATER BODIES.

   C. SANITARY/SEPTIC FACILITIES SHOULD BE MAINTAINED IN GOOD WORKING ORDER BY A LICENSED SERVICE.

   D. ARRANGE REGULAR WASTE COLLECTION BY A LICENSED HAULER BEFORE FACILITIES OVERFLOW.

   E. IF WASHING OUT OF INTERIOR OR PORTABLE TOILETS IS NEEDED, INSURE THAT WASH WATER IS DISCHARGED TO LAND AND DOES NOT FLOW INTO STREET, THE STORM DRAIN SYSTEM, OR SURFACE WATER BODIES.

GENERAL ENVIRONMENTAL NOTES AND RESTRICTIONS

GENERAL NOTES:

1. THE CONTRACTOR SHALL HAVE KNOWLEDGE OF, AND WORK IN COMPLIANCE WITH THE TERMS AND CONDITIONS STATED IN THE PERMITS ISSUED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC), AND IS SUBJECT TO THE SANCTIONS FOR VIOLATIONS OF SUCH PERMITS.

2. ALL ACTIVITIES AUTHORIZED UNDER THE PERMITS ISSUED BY THE NYSDEC MUST BE IN STRICT CONFORMANCE WITH THE DETAILS DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

3. NONE OF THE ISSUED PERMITS ALLOW FOR THE RIGHT TO TRESPASS UPON THE LANDS OR INTERFERE WITH THE PROPERTY AND/OR RIPARIAN RIGHTS OF LANDOWNERS THAT ARE NOT PARTICIPANTS OF THE PROJECT.

4. THE CONTRACTOR SHALL NOTE THE CONDITION OF ANY EXISTING FENCE THAT MAY BE IMPACTED BY PROJECT CONSTRUCTION. FENCES THAT MUST BE REMOVED AND/OR CUT WILL HAVE A TEMPORARY GATE INSTALLED. UPON COMPLETION OF CONSTRUCTION, THE TEMPORARY GATE WILL BE REMOVED AND THE FENCE WILL BE REBUILT TO LIKE-NEW CONDITION AS DIRECTED BY THE LANDOWNER.

5. LOCAL FIRE DEPARTMENTS AND EMERGENCY MANAGEMENT TEAMS SHALL BE MADE AWARE OF HAZARDOUS CHEMICALS AND WASTE ON-SITE.

6. REPRESENTATIVES FROM THE NYSDEC SHALL BE PERMITTED TO INSPECT THE SITE AT ANY TIME DEEMED NECESSARY, TO ENSURE THAT ALL ACTIVITIES ARE IN ACCORDANCE WITH THE TERMS AND CONDITIONS SPECIFIED IN THE ISSUED PERMITS.

7. CROSSING OF EXISTING GAS TRANSMISSION PIPELINES OR ANY OTHER EXISTING UNDERGROUND UTILITY BY HEAVY EQUIPMENT SHALL BE RESTRICTED TO IMPROVED GRAVEL ACCESS ROAD CROSSINGS.

8. ALL CONSTRUCTION ACTIVITY, INCLUDING OPERATION OF MACHINERY, EXCAVATION, FILLING, GRADING, CLEARING OF VEGETATION, DISPOSAL OF WASTE, AND STOCKPILING OF MATERIAL MUST TAKE PLACE WITHIN THE APPROVED WORK AREA AS DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

9. FUGITIVE DUST RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE MINIMIZED BY IMPLEMENTING APPROPRIATE CONTROL MEASURES. THESE MEASURES MAY INCLUDE THE APPLICATION OF MULCH, WATER, STONE, OR APPROVED CHEMICAL AGENTS ON ACCESS ROADS, EXPOSED SOILS, STOCKPILED SOILS, OR UNPAVED PUBLIC ROADS WHEN DRY AND WINDY CONDITIONS EXIST. A WATERING VEHICLE SHALL BE AVAILABLE FOR THE DURATION OF PROJECT ACTIVITIES, INCLUDING THROUGHOUT RESTORATION.

10. BLASTING IS NOT PERMITTED WITHOUT PRIOR TOWN APPROVAL AND ACQUISITION OF ALL REQUIRED PERMITS.

11. NOISE IMPACTS SHALL BE MINIMIZED AND MITIGATED TO THE EXTENT PRACTICABLE. CONTRACTOR SHALL MAINTAIN ALL EQUIPMENT IN GOOD OPERATING CONDITIONS AND ALL MOTORS AND ENGINES WILL BE MUFFLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND WILL COMPLY WITH STATE ENVIRONMENTAL LAW, SUBCHAPTER E, PART 450 (NOISE FROM HEAVY MOTOR VEHICLES). ANY FAULTY NOISE SUPPRESSOR WILL BE REPAIRED OR REPLACED. EQUIPMENT WILL NOT BE LEFT RUNNING UNNECESSARILY, AND EXISTING TALL GROWING VEGETATION WILL BE MAINTAINED, TO THE MAXIMUM EXTENT PRACTICABLE, TO SERVE AS A NOISE BUFFER.

12. CONSTRUCTION ACTIVITY WILL ONLY OCCUR BETWEEN THE HOURS OF 7:00 A.M. AND 6:00 P.M. MONDAY THROUGH SATURDAY. AT THE DISCRETION OF THE TOWN OF AMHERST, WORK HOURS MAY BE EXPANDED.

13. WITHIN 100 FEET OF STATE-REGULATED WETLANDS AND 50 FEET OF OTHER WATER BODIES, REMOVE ONLY THE MINIMUM VEGETATION NECESSARY TO ALLOW CONSTRUCTION AND OPERATION OF THE FACILITY.

14. THE DISPOSAL OF TREES, BRUSH, OR OTHER DEBRIS IN ANY STREAM CORRIDOR, WETLAND, OR SURFACE WATER IS PROHIBITED.

15. CULVERTS SHALL BE SUFFICIENT SIZE AND CAPACITY TO PREVENT ALTERATION OF THE NATURAL FLOW. REFER TO CONSTRUCTION DRAWINGS FOR CULVERT SIZES.

16. THE USE OF EQUIPMENT IN ANY STREAM OR WETLAND AREA, UNLESS PERMITTED, IS STRICTLY PROHIBITED.

17. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PRECLUDE CONTAMINATION OF ANY WETLAND OR WATERWAY BY SUSPENDED SOLIDS, SEDIMENTS, FUELS, SOLVENTS, LUBRICANTS, EPOXY COATINGS, PAINTS, CONCRETE, LEACHATE, OR ANY OTHER ENVIRONMENTALLY DELETERIOUS MATERIALS ASSOCIATED WITH THE PROJECT. THESE MATERIALS SHALL BE STORED A MINIMUM OF 100 FEET FROM ANY WETLAND, STREAM, DITCH, WATERCOURSE, OR DRAINAGE. NO EQUIPMENT RE-FUELING SHALL OCCUR WITHIN THE SAME 100-FOOT AREA.

18. STREAMS AND WETLANDS WILL BE PROTECTED FROM INDIRECT IMPACTS DURING CONSTRUCTION BY UTILIZING VARIOUS EROSION AND SEDIMENT CONTROL MEASURES INDICATED IN THE EROSION AND SEDIMENT CONTROL DETAILS, INCLUDING SILT FENCES PLACED BETWEEN WATER RESOURCE BOUNDARIES AND CONSTRUCTION AREAS. EXPOSED SOIL WILL BE SEEDED AND/OR MULCHED, AS SOON AS PRACTICABLE, TO ASSURE THAT EROSION AND SILTATION IS KEPT TO A MINIMUM ALONG STREAM AND WETLANDS BOUNDARIES.

19. TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AS SOON AS PRACTICABLE AND APPROPRIATE, AS INDICATED IN THE EROSION AND SEDIMENT CONTROL PLANS. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY GRADING OR FILLING OPERATIONS AND INSTALLATIONS OF PROPOSED STRUCTURES OR UTILITIES. THEY SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND THE AREA IS STABILIZED AND/OR RE-VEGETATED. ADDITIONALLY, NO SITE PREPARATION WORK SHALL BE UNDERTAKEN UNTIL ALL REQUIRED EROSION CONTROL MEASURE HAVE BEEN INSTALLED.

20. SILTATION PREVENTION MEASURES, SUCH AS SILT FENCING AND STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, TO PREVENT MOVEMENT OF SILT AND TURBID WATERS FROM THE PROJECT SITE AND INTO ANY WATERCOURSE, STREAM, WATER BODY, OR WETLAND. THESE MEASURES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND THE AREA IS STABILIZED AND/OR RE-VEGETATED.

21. ALL DISTURBED AREAS WHERE SOIL WILL BE TEMPORARILY EXPOSED OR STOCKPILED FOR LONGER THAN ONE WEEK SHALL BE CONTAINED BY A CONTINUOUS LINE OF SILT FENCE PLACED ON THE DOWN SLOPE SIDE BETWEEN THE FILL AND WETLAND OR STATE-REGULATED 100-FOOT ADJACENT AREA. TARPS ARE AUTHORIZED TO SUPPLEMENT THESE APPROVED METHODS.

22. ALL AREAS OF SOIL DISTURBANCE RESULTING FROM THIS PROJECT SHALL BE STABILIZED IMMEDIATELY FOLLOWING PROJECT COMPLETION OR PRIOR TO NYSDEC PERMIT EXPIRATION, WHICHEVER COMES FIRST. THE NYSDEC APPROVED METHODOLOGIES AREA AS FOLLOWS:

   A. STABILIZATION OF THE ENTIRE DISTURBED AREA WITH APPROPRIATE VEGETATION (GRASSES, ETC.)
   B. TEMPORARILY STABILIZATION WITH STRAW MULCH OR JUTE MATTING OR OTHER SIMILAR NATURAL FIBER MATTING WITHIN ONE WEEK OF FINAL GRADING. TEMPORARY STABILIZATION SHALL BE MAINTAINED UNTIL A MATURE VEGETATIVE COVER IS ESTABLISHED

23. VISIBLE TURBID DISCHARGES FROM LAND CLEARING, GRADING OR EXCAVATING ACTIVITIES, OR DE-WATERING OPERATIONS SHALL NOT ENTER A STREAM, NAVIGABLE WATER, OR WETLAND. PRIOR TO ENTRY IN A STREAM, NAVIGABLE WATER, OR WETLAND, ANY SUCH DISCHARGE SHALL BE:

   A. RETAINED IN AN APPROPRIATELY MAINTAINED UPLAND SETTLING BASIN
   B. FILTERED THROUGH CRUSHED STONE, SAND, STRAW BALES, SILT SCREENING (MAXIMUM OPENING SIZE OF U.S. SIEVE NUMBER 20), ETC, OR;
   C. DIRECTED TO A GRASSY UPLAND AREA SUFFICIENT DISTANCE FROM THE STREAM TO PREVENT CHANGE IN TURBIDITY OF THE RECEIVING WATER.

24. IN THE EVENT THAT ARCHAEOLOGICAL MATERIALS, HUMAN REMAINS, OR EVIDENCE OF HUMAN BURIALS ARE ENCOUNTERED DURING CONSTRUCTION, ALL WORK IN THE VICINITY OF THE FIND SHALL BE IMMEDIATELY HALTED, THE FIND PROTECTED FROM FURTHER DAMAGE, AND THE CONSTRUCTION MANAGER AND ENVIRONMENTAL MONITOR ADVISED. THE PERMITEE IS REQUIRED TO NOTIFY THE LOCAL POLICE AND THE STATE HISTORIC PRESERVATION OFFICE IMMEDIATELY FOLLOWING SUCH A DISCOVERY.

INSPECTIONS

THE OWNER AND SITE CONTRACTOR SHALL HAVE A QUALIFIED PROFESSIONAL CONDUCT AN ASSESSMENT OF THE SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND TO CERTIFY IN AN INSPECTION REPORT THAT THE APPROPRIATE EROSION AND SEDIMENT CONTROLS DESCRIBED IN THE SWPPP AND REQUIRED BY THE SPDES GENERAL PERMIT HAVE BEEN ADEQUATELY INSTALLED OR IMPLEMENTED TO ENSURE OVERALL PREPAREDNESS OF THE SITE FOR THE COMMENCEMENT OF CONSTRUCTION. AFTER COMMENCEMENT OF CONSTRUCTION, THE OWNER OR OPERATOR SHALL ENSURE THAT AT LEAST ONE TRAINED CONTRACTOR IS ON SITE ON A DAILY BASIS WHEN SOIL DISTURBANCE ACTIVITIES ARE BEING PERFORMED. FURTHER, THE OWNER SHALL HAVE A QUALIFIED PROFESSIONAL PERFORM SITE INSPECTIONS WEEKLY FOR SITES WITH DISTURBANCE AREAS OF LESS THAN FIVE (5) ACRES AND TWICE WEEKLY FOR SITES WITH DISTURBANCE AREAS OF GREATER THAN FIVE (5) ACRES. PRIOR TO FILING A NOTICE OF TERMINATION (NOT) FORM WITH NYSDEC FOR EACH PROJECT SITE OR AT THE END OF THE PERMIT TERM, THE OWNER SHALL HAVE THE QUALIFIED PROFESSIONAL PERFORM A FINAL SITE INSPECTION.

SPILL PREVENTION, CONTAINMENT, & COUNTER-MEASURES NOTES

1. GENERAL: PERSONNEL RESPONSIBLE FOR THE OVERSIGHT OF THE PETROLEUM PRODUCTS AND HAZARDOUS OR CONTROLLED SUBSTANCES INCLUDE:

   A. CONSTRUCTION MANAGER
   B. JOB-SITE COORDINATORS DESIGNATED BY THE CONSTRUCTION MANAGER

2. SPILLS SHALL BE IMMEDIATELY REPORTED TO THE OWNER BY THE CONTRACTOR. THE CONTRACTOR WILL KEEP AN UP-TO-DATE LIST OF QUALIFIED EMERGENCY RESPONSE CONTRACTORS WITH THE CAPABILITY OF REACHING THE PROJECT SITE QUICKLY. IN THE EVENT THAT A SPILL OCCURS ON THE SITE, THE FOLLOWING NOTIFICATION PROCEDURE WILL BE FOLLOWED.

   A. CONSTRUCTION TEAM LEADER NOTIFIES THE CONSTRUCTION MANAGER.
   B. CONSTRUCTION MANAGER NOTIFIES THE INSPECTOR DESIGNATED BY THE TOWN OF AMHERST.
   C. CONSTRUCTION MANAGER NOTIFIES THE OWNER AT (716-631-8000).
   D. THE OWNER NOTIFIES NYSDEC REGION 9 SPILL PREVENTION AND RESPONSE (716-851-7220).

PETROLEUM PRODUCTS & HAZARDOUS / CONTROLLED SUBSTANCES

1. PETROLEUM PRODUCTS AND HAZARDOUS OR CONTROLLED SUBSTANCES SHALL BE STORED AT THE TEMPORARY STORAGE AND STAGING AREA. IT IS ANTICIPATED THAT THE FOLLOWING HAZARDOUS OR CONTROLLED SUBSTANCES AND PETROLEUM PRODUCTS MAY BE STORED ON SITE IN REGULATORY APPROVED STORAGE CONTAINERS.

   A. GASOLINE
   B. DIESEL FUEL
   C. EQUIPMENT OILS AND LUBRICANTS
   D. COMMERCIAL FERTILIZER

EROSION AND SEDIMENT CONTROL PRACTICES

1. ALL SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES TO CONFORM TO THE LATEST EDITION OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL. SELECT THE APPROPRIATE SESC MEASURES TO BEST CONTROL SOIL EROSION AND SEDIMENTATION, SHOULD SITE CONDITIONS WARRANT.

2. PROVIDE AND MAINTAIN SESC MEASURES IN ACCORDANCE WITH THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND SESC DRAWINGS TO EFFECTIVELY CONTAIN ALL SOIL MATERIAL WITHIN THE SITE CONSTRUCTION AREA WHEN RAINFALL IS IMMINENT.

   A. THE PLAN AND DETAILS SHOWN ARE INTENDED TO BE USED AS A GUIDE. ANY REVISIONS DEEMED NECESSARY SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

3. THE CONTROL MEASURES THAT CAN BE UTILIZED UTILIZED DURING THE PROJECT ARE SUMMARIZED BELOW:

   A. SILT FENCE: FENCE SHALL BE INSTALLED AROUND SOIL STOCKPILES, WHERE ROADWAY CUT/FILL SLOPES ARE LOCATED WITHIN 100 FEET OF WATERCOURSES, AT THE LOCATION OF UTILITY LINE STREAM CROSSINGS, AND BETWEEN WETLAND BOUNDARIES AND CONSTRUCTION AREAS.

   B. STABILIZED CONSTRUCTION ENTRANCE: STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED WHERE ALL ACCESS ROADS INTERSECT LOCAL, COUNTY OR STATE ROADS.

   C. TEMPORARY SWALE: A TEMPORARY SWALE IS TO BE CONSTRUCTED TO PREVENT RUNOFF FROM ENTERING DISTURBED AREAS BY INTERCEPTING AND DIVERTING IT TO A STABILIZED OUTLET OR TO INTERCEPT SEDIMENT LADEN WATER AND DIVERT IT TO A SEDIMENT TRAPPING DEVICE.

   D. EARTH DIKE: EARTH DIKES CAN ALSO BE INSTALLED FOR DIVERTING CLEAN WATER AWAY FROM DISTURBED AREAS AND/OR INTERCEPT AND DIRECT SEDIMENT LADEN WATER TO A SEDIMENT TRAPPING DEVICE.

   E. SEDIMENT TRAP: SEDIMENT TRAPS ARE INSTALLED IN DRAINAGE WAYS, NATURAL OR TEMPORARY, BY EXCAVATION AND/OR EMBANKMENT TO INTERCEPT SEDIMENT LADEN RUNOFF AND RETAIN THE SEDIMENT.

   F. SEDIMENT FILTER BAG: SEDIMENT FILTER BAGS SHALL BE USED TO FILTER WATER PUMPED FROM OPEN EXCAVATIONS. SEDIMENT FILTER BAGS SHALL BE USED DURING CULVERT INSTALLATIONS AND AT INTERCONNECT STREAM CROSSINGS.

   G. WATERING VEHICLE: THE WATERING VEHICLE SHALL BE USED TO PREVENT SURFACE AND AIR MOVEMENT OF DUST FROM DISTURBED SOIL SURFACES THAT MAY CAUSE OFF-SITE DAMAGE, HEALTH HAZARDS, AND TRAFFIC SAFETY PROBLEMS. WATER WILL BE USED TO SPRAY THE SURFACE ON CONSTRUCTION ROADS, ACCESS POINTS, AND OTHER DISTURBED AREAS WHERE OFF-SITE DAMAGE MAY OCCUR IF DUST IS NOT CONTROLLED.

CONSTRUCTION SCHEDULE:

1. OBTAIN PLAN APPROVAL AND OTHER APPLICABLE PERMITS.
2. HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND SILT FENCE WHERE SHOWN ON EROSION AND SEDIMENT CONTROL PLAN.
4. INSTALL ALL TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES AS DESIGNED ON PLANS.
5. PLACE EXCAVATED MATERIAL IN AREAS REQUIRING FILL. TOPSOIL TO BE STOCKPILED IN AN AREA APPROVED BY ENGINEER. STOCKPILED MATERIAL TO BE ENCLOSED BY SILT FENCE. STOCKPILES SHALL UNDERGO TEMPORARY STABILIZATION METHODS WITHIN 14 DAYS OF INACTIVITY.
6. INSTALL SITE UTILITIES AND STORM SEWERS.
7. CONSTRUCT BUILDINGS.
8. GRADE, TOPSOIL AND SEED AS SOON AS PRACTICAL UPON COMPLETION OF UTILITIES INSTALLATION.
9. ONCE ALL DISTURBED AREAS ARE VEGETATED, ALL TEMPORARY SEDIMENT CONTROL MEASURES CAN BE REMOVED. SITE CONTRACTOR MUST HAVE THE ENTIRE SITE STABILIZED PRIOR TO WITHDRAWING FROM SITE.

CONSTRUCTION SPECIFICATIONS

GENERAL SPECIFICATIONS FOR THE INSTALLATION OF THE EROSION AND CONTROL PRACTICES ARE SUMMARIZED BELOW.

1. SILT FENCE: FILTER FABRIC SHOULD BE INSTALLED AT LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION SHOULD BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO ALLOW FOR POOLING OF WATER. A 6 INCH DEEP TRENCH SHOULD BE EXCAVATED, MINIMIZING THE DISTURBANCE ON THE DOWNSIDE SLOPE. THE BOTTOM OF THE TRENCH SHOULD BE AT LEVEL GRADE. MAXIMUM DEVIATION FROM LEVEL GRADE SHOULD BE 1% AND NOT EXTEND MORE THAN 25 FEET. THE BOTTOM OF THE FENCE SHOULD BE ANCHORED BY PLACING FABRIC IN THE BOTTOM OF THE TRENCH, AND BACKFILLING AND COMPACTING THE FILL MATERIAL IN THE TRENCH. SUPPORT STAKES SHOULD BE DRIVEN 18 INCHES BELOW THE EXISTING GROUND SURFACE AT 8 FEET (MAX) INTERVALS. FILTER FABRIC SHOULD BE STRETCHED AND FASTENED TO THE UPSLOPE SIDE OF THE SUPPORT STAKES. AT FABRIC ENDS, BOTH ENDS SHOULD BE WRAPPED AROUND THE SUPPORT STAKE AND STAPLED. IF THE FABRIC COMES ALREADY ATTACHED TO THE STAKES, THE END STAKES SHOULD BE HELD TOGETHER WHILE THE FABRIC IS WRAPPED AROUND THE STAKES AT LEAST ONE REVOLUTION PRIOR TO DRIVING THE STAKES.

2. STABILIZED CONSTRUCTION ENTRANCE: CLEAR THE ENTRANCE/EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. PLACE GEOTEXTILE FABRIC OVERLAYED WITH STONE TO THE DIMENSIONS, GRADES, AND ELEVATION SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS.

3. TEMPORARY SWALE:

   ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.

   DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.

   DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.

   ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE

   THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.

   FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.

   ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.

   STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC -10AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSIOR, SOD	LINED WITH 4-8" RIP-RAP OR RECYCLED CONCRETE EQUIVALENT
4	8.1-20.%	LINED WITH 4-8" RIP-RAP	ENGINEERED DESIGN

MAINTENANCE PLAN

ALL EROSION AND SEDIMENT POLLUTION CONTROL DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY. THE CONTROL DEVICES WILL BE INSPECTED AND MAINTAINED AS PRESCRIBED BELOW.

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY REPAIRS NEEDED WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT ACCUMULATIONS AT THE SILT FENCE SHALL BE REMOVED WHEN THE DEPTH OF THE SEDIMENT AT THE FENCE REACHES 0.5-FEET. REPAIRS WILL BE MADE TO THE FENCE TO MAINTAIN ITS BARRIER.
3. THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT THE TRACKING OF SEDIMENT ONTO PUBLIC AND PRIVATE RIGHT-OF-WAYS OR STREETS. PERIODICALLY, THE ENTRANCE WILL BE TOP DRESSED WITH ADDITIONAL AGGREGATE TO MAINTAIN THE 6-INCH THICKNESS. ANY SEDIMENT WHICH IS SPILLED, DROPPED OR WASHED ONTO PUBLIC AND PRIVATE RIGHT-OF-WAYS SHALL BE REMOVED IMMEDIATELY.
4. SEDIMENT FILTER BAGS SHALL BE INSPECTED DAILY DURING USE. IF A PROBLEM IS DETECTED, PUMPING SHOULD CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED. FILTER BAGS WILL BE REPLACED WHEN THEY BECOME ½ FULL. SPARE BAGS SHOULD BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR FILLED.
5. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
6. DUST CONTROL MEASURES SHALL BE MAINTAINED THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS ARE STABILIZED.

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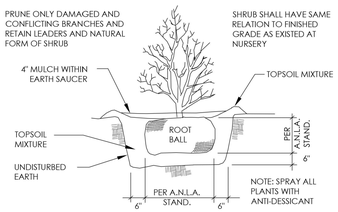
PREPARED



SHRUB PLANTING

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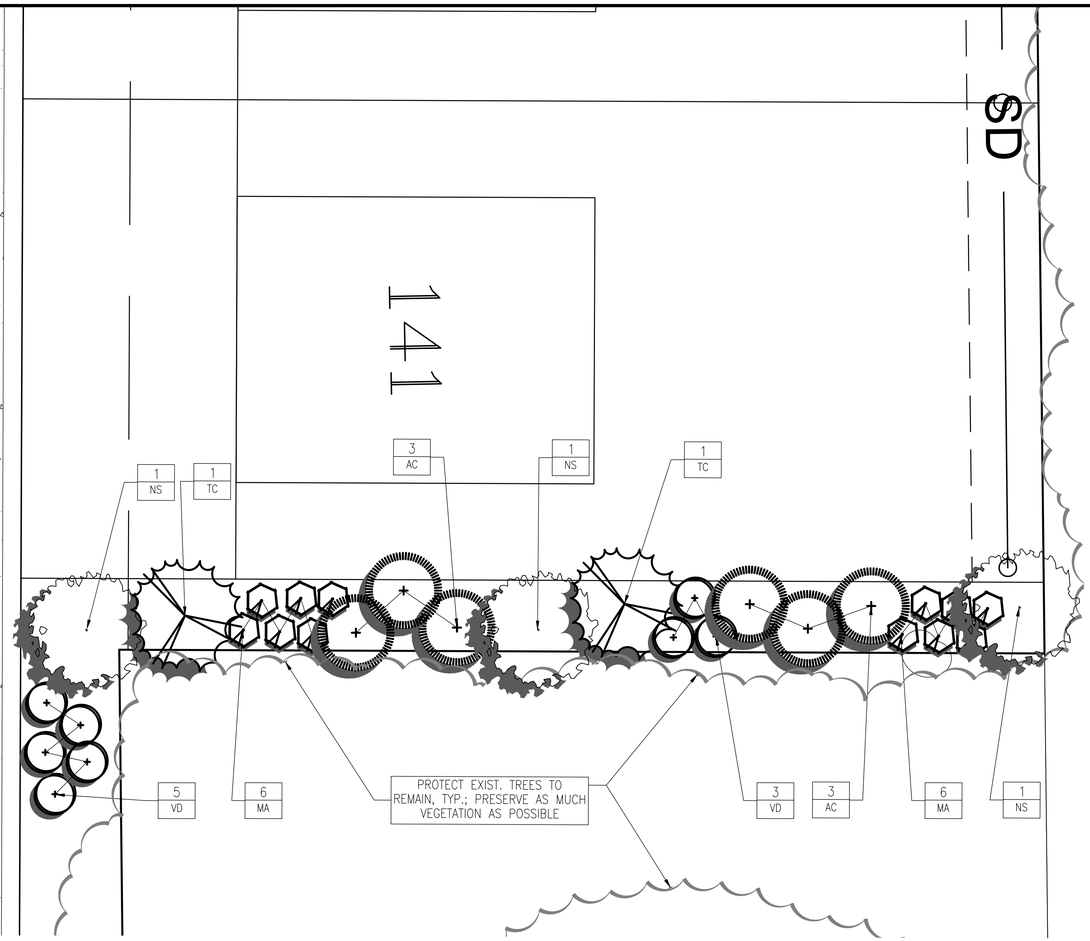

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SCALE IN FEET

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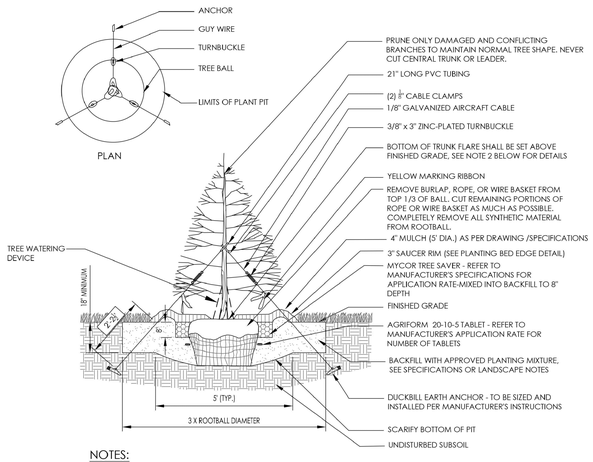
LANDSCAPE NOTES:

1. IT IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY TO VISIT THE SITE PRIOR TO BID MOBILIZATION, TO BECOME FAMILIAR WITH EXISTING CONDITIONS AT THE SITE.
2. STANDARDS SET FORTH IN THE "AMERICAN STANDARD FOR NURSERY STOCK", ANSI Z60.1 (LATEST EDITION) REPRESENT GUIDELINE SPECIFICATIONS ONLY AND SHALL CONSTITUTE THE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIALS DELIVERED AND INSTALLED ON THIS PROJECT.
3. ALL PLANTS MUST BE HEALTHY, VIGOROUS AND FREE OF PESTS AND DISEASE.
4. ALL PLANTS MUST BE HARDY UNDER CLIMATE CONDITIONS THAT EXIST AT THE PROJECT SITE AND GROWN AT A NURSERY IN THE SAME HARDINESS ZONE AS THE PROJECT LOCATION.
5. ALL PLANTS MUST BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED ON THE PLANT LIST.
6. ANY PROPOSED DEVIATION TO THE LANDSCAPE PLAN MUST FIRST BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO THE INSTALLATION OF THE PROPOSED LANDSCAPING CHANGES.
7. ALL TREES MUST BE STRAIGHT–TRUNKED, INJURY FREE, HAVE A FULL, SYMMETRICAL CROWN (HEAD) AND MEET ALL REQUIREMENTS SPECIFIED (E.G. SINGLE STEM, MULTI–STEM, HEAVY BRANCHED, ETC.).
8. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS.
9. ANY DISCREPANCIES IN THE QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR LANDSCAPE ARCHITECT (OWNER'S REPRESENTATIVE).
10. ANY CONCERNS RELATED TO SITE CONDITIONS AND/OR PLANT LOCATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR DESIGN LANDSCAPE ARCHITECT (OWNER'S REPRESENTATIVE) PRIOR TO INSTALLATION.
11. ALL GRADING AND UTILITY WORK SHALL BE COMPLETED PRIOR TO INSTALLATION OF PLANT MATERIAL AND LANDSCAPE MULCH.
12. THE FINAL LOCATION OF TREES AND OTHER LANDSCAPING SHALL BE DETERMINED IN THE FIELD BASED ON UTILITY STAKEOUT AND SHALL NOT CONFLICT WITH TRAFFIC SIGNS AND/OR UTILITIES. STAKE OUT SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
13. PLANTING BACKFILL MIXTURE: 20 PARTS ON–SITE SOIL, 10 PARTS SCREENED TOPSOIL, 5 PARTS PEAT MOSS, 5 PARTS ALL GROW, 2.5 PARTS WELL ROTTED MANURE AND 10 LBS. 5–10–5 PLANTING FERTILIZER, MIXED THOROUGHLY PER CUBIC YARD.
14. MULCH ALL PLANT BEDS, AND INDIVIDUAL TREES IN LAWN AREAS WITH COMPOSTED AND AGED SHREDDED HARDWOOD BARK MULCH TO A DEPTH OF FOUR (4") INCHES UNLESS OTHERWISE SPECIFIED ON PLANTING DETAILS, OR AS DIRECTED BY THE LANDSCAPE ARCHITECT DUE TO SITE CONDITIONS. MULCH SAMPLE TO BE SUBMITTED TO THE OWNER AND THE OWNER'S REPRESENTATIVE FOR FINAL APPROVAL.
15. ANY PLANT WHICH TURNS BROWN, DEFOLIATES OR DIES PRIOR TO FINAL ACCEPTANCE BY THE OWNER, OR LANDSCAPE ARCHITECT, SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH THE SAME PLANT (SPECIES, VARIETY AND SIZE) AS SPECIFIED ON THE PLANT SCHEDULE (LIST).
16. THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIALS UNTIL THE PROJECT HAS RECEIVED FINAL ACCEPTANCE BY THE OWNER OR OWNER'S REPRESENTATIVE. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO: WATERING, MULCHING, FERTILIZING, SPRAYING (FUNGICIDE, PESTICIDE, ANTI–DESICANT), AS WELL AS RAISING PLANTS THAT HAVE SETTLED TOO DEEP OR REQUIRE STRAIGHTENING.
17. ALL AREAS DISTURBED BY SITE GRADING AND/OR UTILITY INSTALLATION SHALL RECEIVE APPROVED TOPSOIL (BASED ON APPROVED SAMPLES SUBMITTED BY THE CONTRACTOR) AND SPREAD TO A DEPTH NOT LESS THAN SIX (6") INCHES AFTER COMPACTION. TOPSOIL PLACED FOR LAWNS SHALL BE FINE GRADED, SEEDED, MULCHED AND WATERED UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED (BY OTHERS). THIS IS EXCLUDING FOUNDATION PLANT BEDS, LANDSCAPE ISLANDS AND ENTRANCE AREAS. **TOPSOIL PLACEMENT IS NOT A PART OF THIS CONTRACT.**
18. LOCATIONS OF EXISTING BURIED UTILITIES SHOWN ON THE SITE PLAN ARE BASED UPON THE BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE TO CALL FOR A UTILITY STAKEOUT PRIOR TO COMMENCING PLANT INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, AND SITE APPURTENANCES WHICH OCCURS AS A RESULT OF LANDSCAPE INSTALLATION OPERATIONS.
19. EXISTING TREES INDICATED TO BE REMOVED SHALL OCCUR UNDER THE SITE CONTRACT FOR THIS PROJECT. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR NEW PLANTINGS OR RESTORATION OF THE DISTURBED AREA (LAWNS, PLANT BEDS).
20. EXISTING TREES TO REMAIN SHALL BE PROTECTED BY INSTALLING A TEMPORARY FENCE AT THE OUTER LIMITS OF THE TREE CANOPY.
21. ALL SHRUB BEDS ADJACENT TO LAWN AREAS SHALL HAVE A SPADED EDGE BORDER.



NOTES:

1. MAINTAIN A 2' MINIMUM RADIUS CLEAR OF MULCH AROUND THE TRUNK.
2. THE DISTANCE BETWEEN THE BOTTOM OF THE TRUNK FLARE AND THE FINISHED GRADE SHALL BE AS FOLLOWS:
   FOR SANDY OR LOAMY SOILS: 1"
   FOR CLAY OR POORLY DRAINED SOILS: 3"
   THE CONTRACTOR SHALL REVIEW THE APPROPRIATE PLANTING DEPTH WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. WHEN TAGGING TREES AT THE NURSERY, MARK THE NORTH SIDE OF THE TREE IN THE FIELD AND WHEN INSTALLING, ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE

EVERGREEN TREE PLANTING

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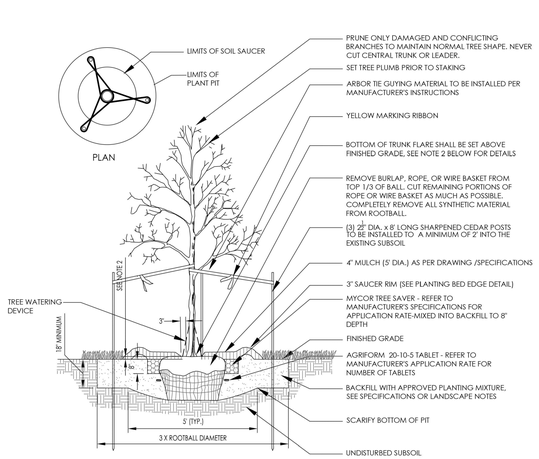

NOTES:

1. MAINTAIN A 3" MINIMUM RADIUS CLEAR OF MULCH AROUND THE TRUNK.
2. THE DISTANCE BETWEEN THE BOTTOM OF THE TRUNK FLARE AND THE FINISHED GRADE SHALL BE AS FOLLOWS:
   2.1. FOR SANDY OR LOAMY SOILS: 1"
   2.2. FOR CLAY OR POORLY DRAINED SOILS: 3"
   THE CONTRACTOR SHALL REVIEW THE APPROPRIATE PLANTING DEPTH WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. WHEN TAGGING TREES AT THE NURSERY, MARK THE NORTH SIDE OF THE TREE IN THE FIELD AND WHEN INSTALLING, ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE

DECIDUOUS TREE PLANTING

SCALE: N.T.S.

MUIR WOODS SUBDIVISION PHASE 4 - Plant List

(December 2021)

Key	No.	Botanical Name	Common Name	Min. Size	Remarks
TREES					
AC	6	*Abies Concolor*	White Fir	7-8' Hgt.	B&B Full to ground
NS	3	*Nyssa sylvatica*	Black Gum	2 1/2" Cal.	single leader
TC	2	*Tsuga Canadensis*	Canadian Hemlock	8-10' Hgt.	B&B; Full to ground
SHRUBS					
MA	12	*Mahonia aquifolium*	Oregon Hollygrape	4' hgt.	48" hgt. min.- Full
VD	8	*Viburnum dentatum*	Arrowwood Viburnum	4' hgt.	Balled & burlap
		(**) NOTE: Per Town of Amherst Zoning Ordinance Sect. 7-2-3 (A) (1) (g), all shrubs to be a minimum of 24-inches in height (at the time of planting)			

PLANTING LEGEND

PROP. LRG. EVERGREEN TREE

PROP. DECIDUOUS TREE

PROP. DECIDUOUS SHRUB

PROP. EVERGREEN SHRUB

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

REGISTERED LANDSCAPE ARCHITECT ★ JOHN D. REDDINGTON ★ 001930-1 ★ STATE OF NEW YORK

WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
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----	----	----
2	Rev. Per Town Comments	01-21-22
1	rev. per Town comments	12/16/2021
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Landscape Plan

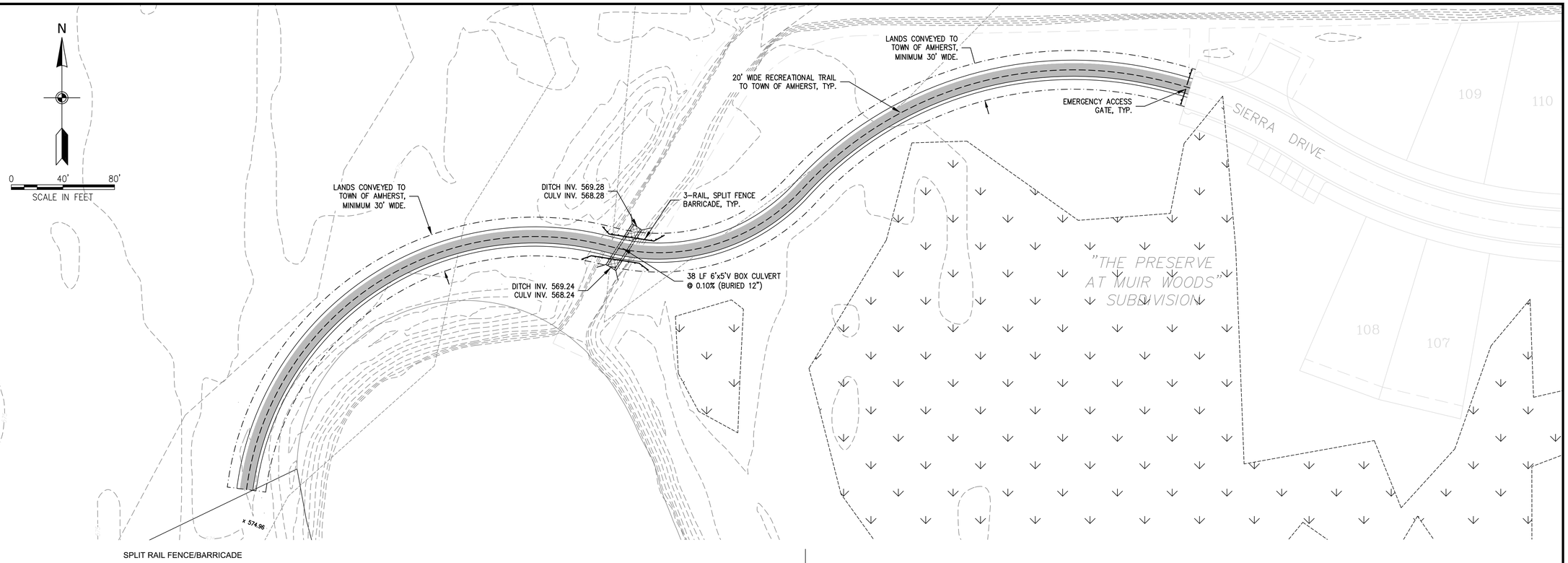
SCALE: 1" = 10'

WNY-2013062.40

L-1

Attachment: SP-2021-24_A drawings 042122 (25493 : Sp-2021-24A)

M:\MEP\wny-2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062.40-PH-LAYout Friday, 21 January 2022 08:07:04



Part 1 GENERAL 1

1.1 **GENERAL**

A. Unless otherwise required by Town ordinances, fences/Barricades shall be four; feet in height.
B. All wood materials shall be treated wood, or wood of a natural resistance to decay. Materials shall be free from loose knots, cracks, and other imperfections.
C. This specification is written around traditional split rail style fencing. However, post and rail or buck and rail style fences will be considered on a case-by-case basis. Designs and specifications for these styles should be submitted to the Town for review and approval.

2.1 **MATERIAL**

2.2 **RAILS**

A. 3-rail or 2-rail "American Style" split rail system shall be used.

2.3 **POSTS**

A. Posts shall be 18-inch girth (apprx. 25 square inches).
B. 2-rail posts shall be approximately 64-inches in height.
C. 3-rail posts shall be approximately 78-inches in height.
D. Posts shall be buried 30-inches into ground.

3.1 INSTALLATION

3.3 **INSTALLATION OF POSTS**

A. Posts shall be set true to line and grade.
B. Line posts do not require concrete footings.
C. Corner, or end posts do require 12-inch diameter concrete footings extending at least 24-inches into undisturbed natural ground or properly compacted fill.

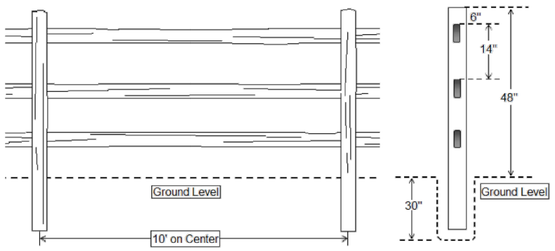
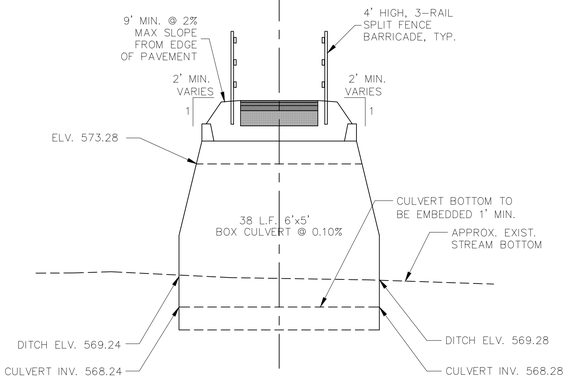
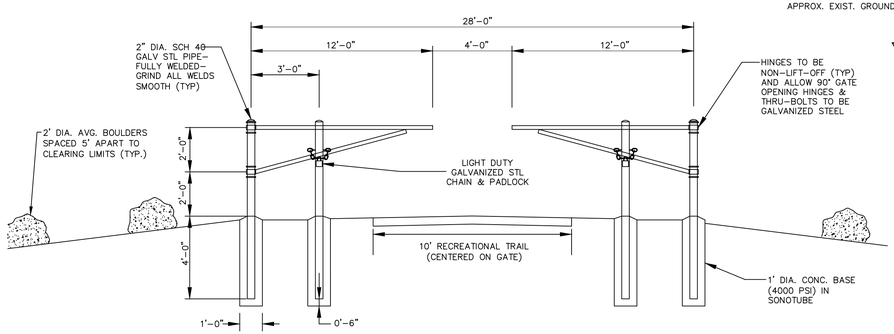


FIGURE 1 - 3-rail Split Rail Fence/Barricade Detail.

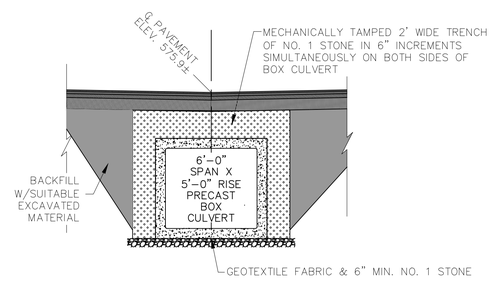
(Source: CFC Fences & Decks)



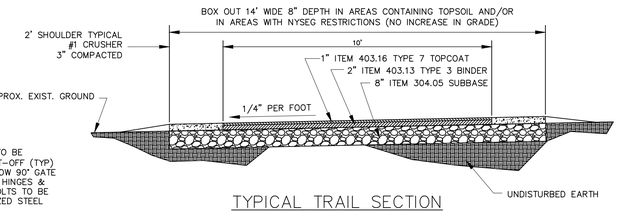
RECREATIONAL TRAIL BOX CULVERT ELEVATION
SCALE: N.T.S.



ACCESS GATE DETAIL
NOT TO SCALE



RECREATIONAL TRAIL BOX CULVERT SECTION
SCALE: N.T.S.



TYPICAL TRAIL SECTION

GPI Engineering Design Planning Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4
520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK GREENMAN PEDERSEN, INC. LICENSED PROFESSIONAL ENGINEER No. [illegible]
ADDITIONS OR ALTERATIONS TO THIS DOCUMENT ARE NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
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----	----	----
2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY:	CHECKED BY
THM	TW

Recreational Trail Paving Plan

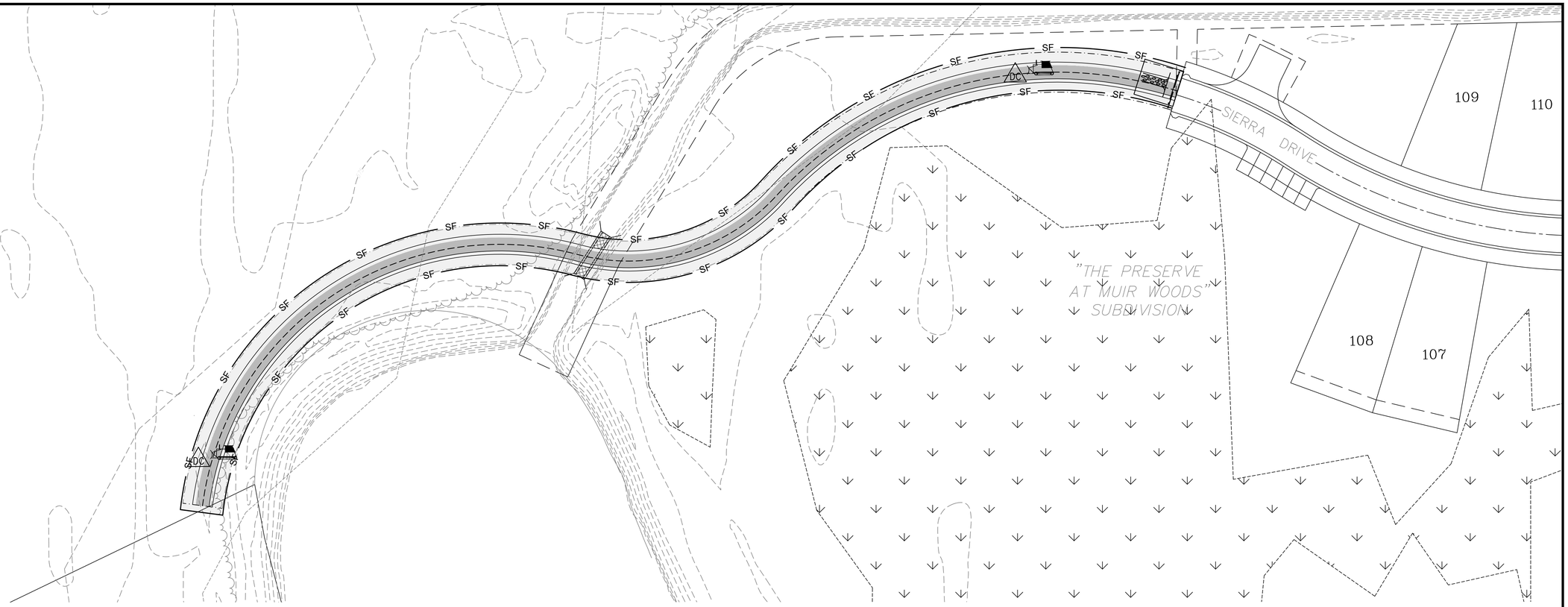
SCALE: 1" = 40'

WNY-2013062.40

RT-1

Attachment: SP-2021-24, A drawings 042122 (25483 : Sp-2021-24A)

N:\2013\2013062 - Muir Woods\Site B\2013062.10 Muir Woods Site B - Aspen Heights\CADD\Design Plans\RT-1 Recreational Trail Paving Plan.dwg Friday, 25 March 2022 12:39PM



EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

N

0 40' 80'
SCALE IN FEET

LEGEND

CHECK DAM	
FILTER FABRIC/ FILTER BAG DROP INLET PROTECTION	
LAND GRADING	
SILT FENCE	SF
TEMPORARY SEEDING	TS
STABILIZED CONSTRUCTION ENTRANCE	
PERMANENT SEEDING	PS
DUST CONTROL	DC
INLET/OUTLET PROTECTION	
TOPSOILING	

INDICATES MIN. AREA TO BE STRIPPED, GRADED, & WHERE APPLICABLE, EITHER SEEDED OR PAVED (TYP.)

GPI Engineering Design Planning Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

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520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. 1[illegible]
WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS

NO.	REVISION	DATE
1	Rev. Per Town Comments	12-21-21

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Recreational Trail Erosion and Sediment Control Plan

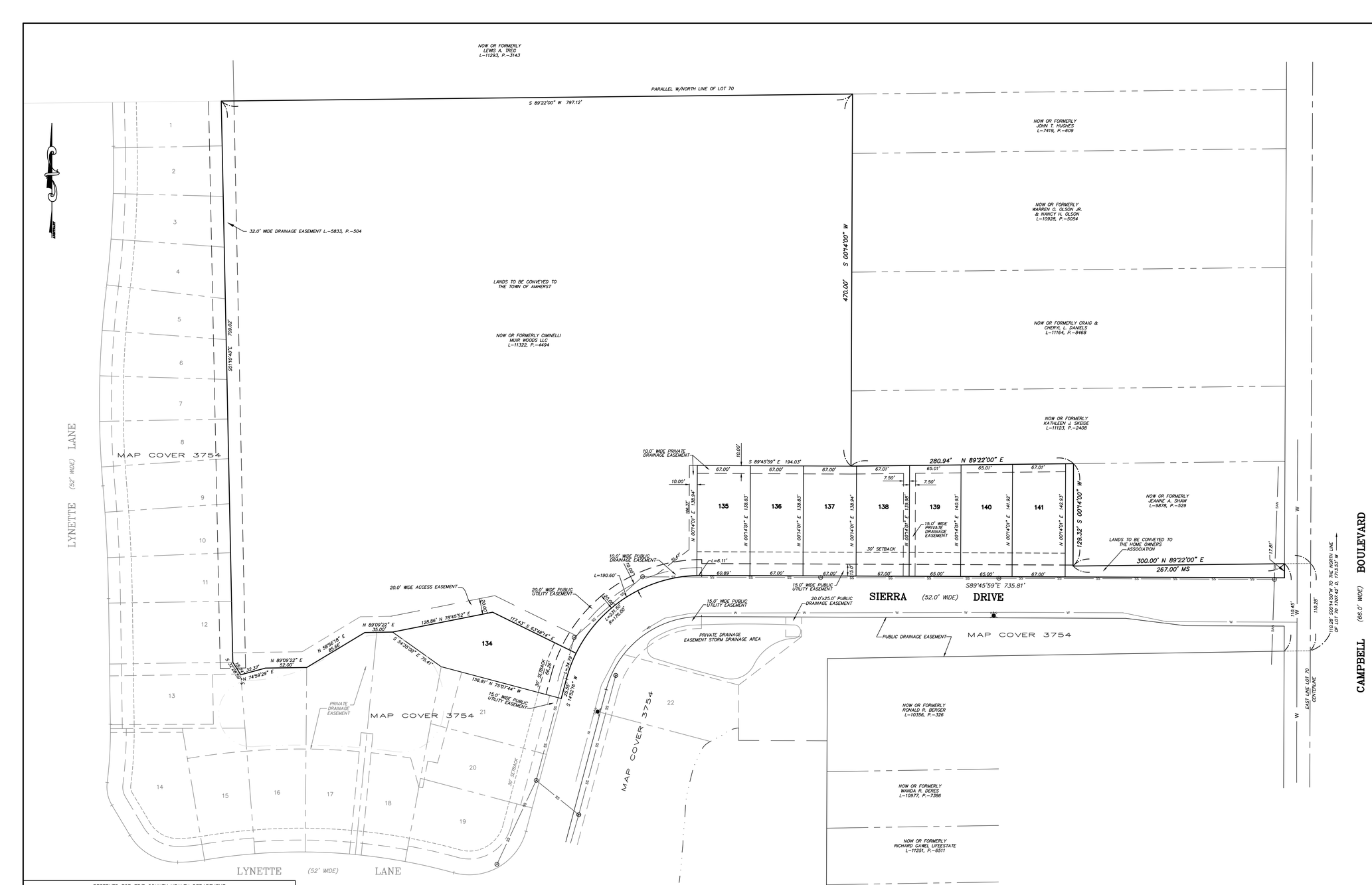
SCALE: 1" = 40'

WNY-2013062.40

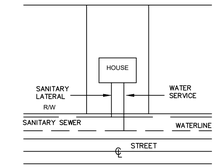
RT-2

Attachment: SP-2021-24_A drawings 042122 (25493 : Sp-2021-24A)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.



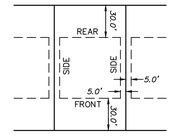
SANITARY SEWER FACILITIES, EXISTING AND PROPOSED, AND WATER SUPPLY FACILITIES, EXISTING AND PROPOSED, SHOWN ON THIS SUBDIVISION MAP ARE FOR THE PURPOSE OF COMPLIANCE WITH NEW YORK STATE REALTY SUBDIVISION LAW. GPI ENGINEERING, LANDSCAPE ARCHITECTURE AND SURVEYING, LLP ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF SANITARY SEWER AND WATER FACILITIES SHOWN ON THIS MAP OR FOR THE APPROVAL, CONSTRUCTION OR ACCEPTANCE BY APPROPRIATE GOVERNMENT AGENCIES OF SAID FACILITIES.



LOT AREAS

LOT 134	13,491 ± Sq. Ft.
LOT 135	9,302 ± Sq. Ft.
LOT 136	9,302 ± Sq. Ft.
LOT 137	9,305 ± Sq. Ft.
LOT 138	9,344 ± Sq. Ft.
LOT 139	9,130 ± Sq. Ft.
LOT 140	9,193 ± Sq. Ft.
LOT 141	9,542 ± Sq. Ft.

TYPICAL LOT SETBACK DEPICTION



NOTES:

ALL IMPROVEMENTS WILL BE INSTALLED UNDER TOWN PERMITS WITH ALL PLANS CONSISTENT WITH PRELIMINARY PLAT.

PUBLIC DRAINAGE EASEMENTS SHALL BE GRANTED TO THE TOWN OF AMHERST TO PROVIDE ACCESS TO STORM WATER FACILITIES. THESE EASEMENTS SHALL REMAIN FREE OF OBSTRUCTIONS.

PRIVATE DRAINAGE EASEMENTS SET FORTH ON THE SUBDIVISION MAP ARE FOR THE BENEFIT OF THE OWNERS OF PROPERTY WITHIN THE SUBDIVISION AND THE BENEFIT DERIVED FROM THESE EASEMENTS IS FOR THE PROPERTY ONLY AND THE TOWN OF AMHERST ASSUMES NO RESPONSIBILITY FOR THE MAINTENANCE THEREOF.

SEE SURVEY PREPARED BY GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP JOB NO. 2013062 DATED: DECEMBER 17, 2017

SUBDIVISION AREA: 13.18± Acres

OWNERS CONSENT FOR FILING :

_____ _____

OWNER DATE

APPROVED BY THE TOWN OF AMHERST PLANNING BOARD, ERIE COUNTY, NEW YORK :

_____ _____

CHAIRMAN DATE

RESERVED FOR ERIE COUNTY HEALTH DEPARTMENT

RESERVED FOR ERIE COUNTY DEPARTMENT OF FINANCE

MARK J. ANDREWS, L.S.

STATE OF NEW YORK — MARK J. ANDREWS — 050921 — LICENSED LAND SURVEYOR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

FILED IN THE ERIE COUNTY CLERK'S OFFICE UNDER

MAP COVER: _____ DATE: _____

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 INCH = 60 FEET

The Preserve at Muir Woods Phase 4

PART OF LOT 70, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062 Date: JANUARY 27, 2022

Attachment: SP-2021-24_A drawings 042122 (25493 : Sp-2021-24A)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

April 26, 2022

Ciminelli Muir Woods
c/o Sean W. Hopkins, Esq.
Hopkins Sorgi & McCarthy
5500 Main Street, Suite 343
Williamsville, New York 14221

SUBJECT: SKETCH PLAN REVIEW, **SP-2021-24A**, FOR A PROPOSED; 8-LOT SUBDIVISION, "THE PRESERVE AT MUIR WOODS PHASE IV"; PROPERTY LOCATED AT **520 CAMPBELL BOULEVARD (NCD)**.

Dear Mr. Hopkins:

At its meeting of April 21, 2022 the Planning Board voted to **adjourn** the subject site plan at your request.

This request will be placed on the Planning Board agenda for the May 19, 2022 meeting.

Please submit revised plans or required materials by May 6, 2022 so they may be reviewed prior to the meeting.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-24_A_(520_Campbell_Blvd_(NCD)_2022\SP-2021-24_A_Adjournment Letter_042122.doc
cc: Ken Zollitsch, Greenman-Pedersen, 4950 Genesee Street, Suite 100, Buffalo, NY 14225

Attachment: SP-2021-24A_adjournment_042122 (25493 : Sp-2021-24A)

Final Plat Plat Application - Proposed Eight Lot Subdivision - 520 Campbell Boulevard
Applicant: Ciminelli Muir Woods, LLC
Date: February 21, 2022

Prepared By: Sean W. Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 510-4338
E-mail: shopkins@hsmlegal.com

RECEIVE
FEB 22 2022
TOWN OF AMHERST
PLANNING DEPT.

TOWN OF AMHERST PLANNING DEPARTMENT

Application Subdivision Review

For Official Use

File # ~~SUB-~~ SP-2021-24 FP Acreage _____ Fee $ 450.00

Type of Subdivision Application (check one):

Sketch Plan	_____
Preliminary Plat	_____
Final Plat	X

Address Verified by Assessor's Office

_____ Verified By _____ Date

		Fill In Applicable Fees
Sketch Plan	$1,150.00	_____
Preliminary Plat		
1 acre of less	$1,250.00	_____
Each Additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Subdivisions	$1,150.00	_____
Request for Relief of / or Change to Conditions of Subdivision Approval	$1,150.00	_____
Request for Extension of Subdivision Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	_____
5-10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
Final Plat	$ 450.00	$450.00
	TOTAL FEE:	$ $450.00

Materials Received by Planning Department TJV (RECEIVED BY) 2/22/22 (DATE)

Materials Accepted by Town Clerk & Fee Paid _____ (RECEIVED BY) _____ (DATE)

To Be Completed By Applicant

Petitioner: Name: Ciminelli Muir Woods, LLC c/o Sean Hopkins, Esq.
Address: 5500 Main Street, Suite 343
Williamsville, New York 14221
city state zip code
Phone: 510-4338 Fax: _____ E Mail: shopkins@hsm-legal.com

Rev. 12/08
P/Corrplan/Application Forms Working Document/Subdivision App.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

SUBDIVISION REVIEW AND APPROVAL PROCEDURE con't.

Representative: (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Address: Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC

5500 Main Street, Suite 343

Williamsville, New York 14221

city state zip code

Phone: 510-4338 Fax: _____

E Mail: shopkins@hsm-legal.com

Subdivision Name: Phase IV of the Preserve at Muir Woods Subdivision

Subdivision Location & Address: 520 Campbell Boulevard

Town of Amherst, Erie County, New York

Number of Sublots: 8 Lots for Detached Single-Family Homes

Land is Presently Zoned New Community Ditrict - Neighborhood District ("NCD-ND)"

A full size copy of the Subdivision Map as prepared by Mark Andrews, PLC of GPI Engineering, Landscape Architecture & Surveying, LLP is attached and a reduced size copy is also attached as Exhibit "1". The Planning Board granted Site Plan Approval for the proposed residential subdivision during its meeting on February 17, 2022.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

TOWN OF AMHERST

ENGINEERING DEPARTMENT

ERIE COUNTY – NEW YORK

JEFFREY S. BURROUGHS, P.E. – TOWN ENGINEER

March 25, 2022

Ms. Rebecca A. Wightman, P.E.
Erie County Department of Health
503 Kensington Avenue, BB 173
Buffalo, NY 14214

Re: Downstream Sanitary Sewer Capacity
Proposed "Muir Woods Subdivision – Phase 4" – 8 Additional Lots
Town of Amherst Job No. 2005.008A

Dear Ms. Wightman;

We have reviewed the above referenced project for impact on the downstream sanitary sewer capacity. The proposed connections will service eight (8) additional lots within the existing subdivision.

The subject eight (8) additional lots will be serviced by direct lateral connections into the existing 8-inch gravity sewer along Sierra Drive flowing easterly to existing 30-inch gravity sewer flowing northerly along the west side of Campbell Blvd to the north side of North French Rd. Just west of that point, both downstream routings combine and continue westerly along North French Road by 36-inch, 48-inch trunk sewer to the 48-inch trunk sewer west of Sundridge Drive; thence northerly by 48-inch trunk sewer parallel with Sundridge Drive to the Town of Amherst WWTP #16 on Tonawanda Creek Road.

The daily average and peak sanitary sewer flows from these eight (8) additional lots of 0.0028 MGD and 0.0122 MGD respectively, will not adversely impact the downstream sewers. Our records do not indicate that there are any existing back-up or overflow problems in the downstream sewers that will service this project.

In addition and associated with the above project, please note that the subject developer has committed to making the required contribution into the Town's I/I Mitigation Trust-in-Agency Trust Account in an amount equal to $8,476.73, which will be utilized by the Town to continue our I/I mitigation efforts to reduce flows.

If you have any questions regarding these conclusions, please call.

Very truly yours,

Brian J. Armstrong, EIT
Assistant Municipal Engineer

enc.
cc: Jeffrey Konsella, P.E. - NYSDEC Region 9
Sean Hopkins, Esq., 5500 Main St., Suite 343, Williamsville, NY 14221
Ken Zollitsch, GPI, 4950 Genesee St., Suite 100, Buffalo, 14225
Asher S. Pontikos, GIS Analyst

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER
FRENCH/DODGE TRUNK SEWER

TRANSIT ROAD TO PLANT #16
Revised: April 2017

Muir Woods - Amherst, NY

AMHERST CONSOLIDATED SANITARY SEWER DISTRICT

Project Location

Sanitary Routing

January 2017

* INCLUDES KLEIN RD DIVERSION & WOODLAND HILLS DEVELOPMENT JANUARY 2010

48-Inch Trunk Sewer
Capacity: 16.1 mgd
2.75 mgd Avg. Daily Flow
3.10 mgd Daily Peak Flow
6.40 mgd 2 yr.-6 hr. Flow
6.70 mgd 5 yr.-6 hr. Flow
w/Klein Diversion

36-Inch French Trunk
Capacity: 9.66 mgd
2.00 mgd Avg. Daily Flow
2.35 mgd Daily Peak Flow
5.65 mgd 2 yr.-6 hr. Flow
5.95 mgd 5 yr.-6 hr. Flow
w/Klein Diversion

24-Inch Dodge Trunk
Capacity: 4.15 mgd
1.30 mgd Avg. Daily Flow
1.70 mgd Daily Peak Flow
2.25 mgd 2 yr.-6 hr. Flow
2.67 mgd 5 yr.-6 hr. Flow
w/Klein Diversion

36-Inch FrenchTrunk Sewer
Capacity: 9.66 mgd
2.50 mgd Avg. Daily Flow
2.85 mgd Daily Peak Flow
5.85 mgd 2 yr.-6 hr. Flow
6.15 mgd 5 yr.-6 hr. Flow
w/Klein Diversion

36-Inch Capacity 9.66 mgd
24-Inch Capacity 4.15 mgd

24-Inch French Trunk
Capacity: 4.15 mgd
1.65 mgd Avg. Daily Flow
2.05 mgd Daily Peak Flow
4.05 mgd 2 yr.-6 hr. Flow
4.35 mgd 5 yr.-6 hr. Flow
w/Klein Diversion

Paradise Road Sewer
15-Inch Capacity: 1.85 mgd
0.42 mgd Avg. Daily Flow
0.56 mgd Daily Peak Flow
1.55 mgd 2 yr.-6 hr. Flow
1.70 mgd 5 yr.-6 hr. Flow
w Diversion

Klein Road Sewer
12-Inch Capacity: 1.12 mgd
0.11 mgd Avg. Daily Flow
0.25 mgd Daily Peak Flow
1.01 mgd 2 yr.-6 hr. Flow
1.11 mgd 5 yr.-6 hr. Flow
w Diversion

Transit Rd N/O Klein Diversion
18-Inch Capacity: 3.19 mgd
0.44 mgd Avg. Daily Flow
0.83 mgd Daily Peak Flow
1.45 mgd 2 yr.-6 hr. Flow
1.75 mgd 5 yr.-6 hr. Flow
w Diversion

Plant 16
Compost Facility
Engineering Department
Highway Department - Plant 1
State University of New York at Buffalo
Village of Williamsville

1 0 1 Miles

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

ENGINEER'S REPORT

MUIR WOODS SUBDIVISION
PHASE 4
Town of Amherst, New York

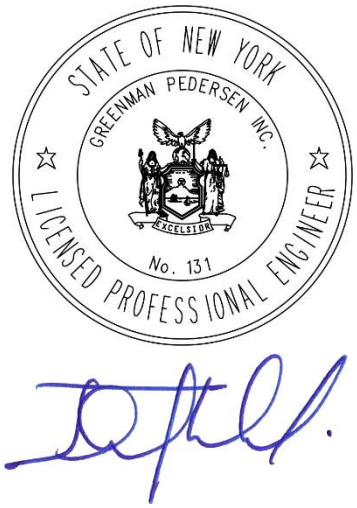
Prepared for:

Ciminelli Muir Woods, LLC
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Prepared by:

GPI

Greenman-Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, New York 14225



Job No. BUF-2013062.40

November 11, 2021
Revised March 2022

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

TABLE OF CONTENTS

I. INTRODUCTION .....PAGE 3

II. DISCUSSION .....PAGE 4
A. SANITARY SEWERS.....PAGE 4
B. WATERMAINS .....PAGE 5
C. STORMWATER MANAGEMENT.....PAGE 5

APPENDIX A **SANITARY SEWER CALCULATIONS**

- SANITARY SEWER FLOW CALCULATIONS
- I/I COMMITMENT LETTER [SP-2021-24]
- DOWNSTREAM SANITARY CAPACITY ANALYSIS

APPENDIX B **STORMWATER MANAGEMENT**

- STORMWATER CALCULATIONS
- ORIGINAL DESIGN PONDPACK RESULTS
- PROPOSED DESIGN PONDPACK RESULTS
- STORM SEWER COMPUTATIONS
- DRAINAGE AREA MAP

APPENDIX C **ORIGINAL NOI AND SPDES**

STORMWATER EXHIBITS:

1. Site Location Map
2. Pre-Developed Watershed Delineation Map
3. Post Developed Watershed Delineation Map
4. Ellicott Creek Watershed Delineation Map
5. Site Soil Map

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

I. Introduction

The proposed development, Muir Woods Subdivision Phase Four, is located along the northern side of Sierra Drive near Campbell Boulevard in the Town of Amherst. The 1.75± development is part of the larger 118± acre Muir Woods Subdivision and will be constructed on a portion of an existing vacant parcel of land at 520 Campbell Boulevard (SBL: 27.19-1-34). The project site is bounded on the north and east by single family residential lots fronting Campbell Boulevard; bounded on the south by Sierra Drive; and bounded on the west by vacant land owned and controlled by the developer and Muir Woods Subdivision.

Muir Woods Subdivision Phase Four will consist of a total of eight (8) single family homes and was accounted for during the design of Muir Woods Subdivision. It is estimated that the population for the proposed development will be 28 persons (8 single family residences x 3.5 people/residence). The project is scheduled for a construction start in 2022.

Sanitary sewage service will be provided to the new homes by gravity sewers that were installed during the development of the earlier phases of the subdivision. The sanitary sewer laterals for each home will connect to the existing line along the north side of Sierra Drive and flow to the east to the existing Campbell Boulevard gravity sanitary sewer (owned, operated, and maintained by the Town of Amherst) which ties into the N. French Road Trunk Sewer and is tributary to the Town of Amherst Water Pollution Control Facility.

Water service for domestic use and firefighting will be provided by the water main located on the south side of Sierra Drive which was constructed during the earlier phases of the subdivision. The main was constructed by a private contractor, turned over to the Town of Amherst, and is operated and maintained under a lease management agreement with the Erie County Water Authority.

Storm drainage will be provided on site by rear yard drainage swales and storm sewers discharging into an existing ditch or an onsite retention pond, with both the pond and ditch ultimately discharge to the existing Muir Lake. Water quality, channel protection, and runoff reduction requirements were met during the design of the Muir Woods Subdivision per NYSDEC and Town requirements. Runoff reduction criteria was achieved by conserving natural areas and planting trees throughout the entire development.

Stormwater design of the Muir Woods Subdivision includes 133 single family lots and the additional 8 lots of Phase 4. Stormwater calculations that represent the entire site are provided in more detail within the Stormwater Pollution Prevention Plan (SWPPP) for the Muir Woods Development. A NYSDEC SPDES permit was obtained for SWPPP on 6/28/2018 under permit number NYR 11D909 and remains active.

Stormwater retention and detention facilities on site were designed in accordance with the New York State Stormwater Design Manual and the requirements of SPDES General Permit for Stormwater Discharges from Construction Activities, GP-0-15-002 and Town of Amherst stormwater standards.

The main text of this report summarizes the development of design. Detailed calculations and supplemental information, forms, etc., are located in the appendices.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

II Discussion

A. Sanitary Sewers

1. System Description and Design Flows

Each lot and single family house will be serviced by a 6-inch lateral service line which will connect to the existing 8-inch PVC (SDR-35) sanitary sewer pipe located along the northern side of Sierra Drive.

The estimated domestic sanitary sewer flow of 0.0028 mgd is expected from the 8 single family units (8 homes x 3.5 persons x 100 gpcd). The max flow is 0.01117 mgd (0.0028 mgd x a peaking factor of 3.99) and the minimum flow rate is 0.00056 mgd (0.0028 mgd x 20%).

2. Down Stream Routing of Flow and Capacity

The sanitary sewer flows to the existing 8-inch line along Sierra Drive to the existing Campbell Boulevard gravity sanitary sewer (owned, operated, and maintained by the Town of Amherst). The Campbell Boulevard systems flow north into the 36-inch Trunk Sewer along N. French Road. From there, sewage will flow westerly through the 36-inch Trunk Sewer along N. French Road to Sweet Home Road, at which point the Trunk Sewer becomes 48-inch and continues westerly to Sundridge Drive; the 48-inch Trunk Sewer flows to the north along Sundridge Drive and westerly into the Town of Amherst Water Pollution Control Facility (a.k.a. Plant #16) which has an average daily flow rate of 25.4 mgd and is designed for 36 mgd for the year 2006.

The downstream routing was analyzed during the initial design of the Muir Woods Subdivision and updated for the additional eight lots and indicated that when adding the 0.1981 MGD peak design flows from the overall Muir Woods project to the measured flows the system appears to be operating at 67% of its full flow capacity at Node 1; 34% of its full flow capacity at Node 2; and 57% of its full flow capacity at Node 3 therefore, indicating that there is sufficient downstream capacity in the existing system to support the proposed development. There will be no negative impact on the downstream sewer. The full results of the monitoring and detailed analysis can be found within the Muir Woods Subdivision Engineers Report.

Furthermore, to compensate for the proposed sanitary sewer flows associated with this project, the project owner will be required to comply with the Town of Amherst and New York State Department of Environmental Conservation (NYSDEC) Infiltration/Inflow Mitigation program. In accordance with Town Code, Chapter 160 Local Sewer Use Law, the project owner is required to make a financial contribution to the Town of Amherst Sewer Remediation Trust Fund at the current rate of Two Hundred Fifty Dollars ($250.00) per gallon of Inflow and Infiltration (I/I) mitigated flow (i.e. required I/I removal for the project). The mitigated flow is calculated as follows:

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

I/I Mitigated Flow = Four (4) x Projects Peak Design Flow

Peak Design Flow for this project: 0.0122 mgd = 8.48 gpm
I/I Mitigated Flow: 4 x 8.48 gpm = 33.91 gpm

Req'd Financial Contribution: 33.91 gpm x $250.00 = $8,476.73

The required financial contribution would be provided on a per phase basis dependent on the number of lots and equivalent flow installed per phase. A letter from the developer committing to this contribution is included in Appendix A.

3. Observation of construction will be performed by consultant services agreement operating under the provisions of the Town of Amherst Public Improvement Permit process, overseen by the Town of Amherst Engineering Department.

B. Watermains

1. System Description

Individual water services will be installed from the existing 8-inch PVC line on the south side of Sierra Drive. There is an existing hydrant located on the south side of Sierra Drive near the eastern portion of Phase 4 and an additional hydrant located on the east side of Sierra Drive near the western portion of Phase 4.

2. Design Flow

Erie County Water Authority (ECWA) standards require that design of new watermains be based on the following:

a. Design Population = 8 lots at 3.5 persons per lot = 28 persons
b. Average Daily Demand at 150 gallons per capita per day (gpcd) (28 persons x 150 gpcd)/1440 = 2.92 gpm
c. Maximum Daily Demand at two times average = 5.83 gpm
d. Peak Hourly Demand at three times average = 8.76 gpm

The required water demand for firefighting purposes are based on the Insurance Services Offices (ISO) Guide for Determination of Needed Fire Flow, Edition 05-2008. For One and Two-Family Dwellings not exceeding two stories in height, with a separation distance between structures of 11-30 feet, the fire flow required is 1000 gallons per minute.

Per Erie County Health Department, the system must be capable of supplying 3 gpm per single family home (3 gpm x 8 homes = 24 gpm) plus fire demand (1,000 gpm) which results in a peak flow of 1024 gpm.

Watermain sizing for the Muir Woods Subdivision was completed via

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

hydraulic model utilizing the WaterCad program by Bentley. The full results and detailed analysis can be found within the Muir Woods Subdivision Engineers Report.

C. Stormwater Management

The 1.75± acre Muir Woods Subdivision Phase Four will be converted from a brushed and wooded area to an eight (8) lot development with attendant infrastructure. Stormwater quality and runoff reduction requirements were anticipated and accounted for during the design of the Muir Woods Subdivision. The anticipated construction is permitted under NYSDEC SPDES permit number NYR 11D909 obtained on 6/28/2018 and remains active. Runoff reduction for the site was achieved with conservation of natural areas and tree plantings throughout the development. A downstream analysis was preformed and showed a less than 1% increase in the flow in Ellicott Creek. In accordance with the NYS Stormwater Design Manual peak flow attenuation was determined to not be necessary. The retention ponds onsite provide water quality and channel protection volume only.

The 1.75± acre Muir Woods Subdivision Phase Four storm drainage will be provided on site by new rear yard drainage systems discharging either to an existing culvert under Sierra Drive and south into an existing ditch or will flow to retention pond 1. Both the ditch and retention pond discharge to Muir Lake. Specific Phase 4 design calculations for storm sewer sizing are provided herein. No changes to the overall SWPPP and stormwater pond and ditch analysis were required for the final design of the current Phase 4 due to runoff from this phase being accounted for within the permitted design of the Muir Woods Subdivision.

The storm sewers are designed to flow full or in a non-surcharged state under future condition for a 10 year storm event. The storm retention facilities (wet ponds) were designed to temporarily store run-off from the post developed site, provide water quality enhancement, stream channel protection, and peak flow attenuation. Runoff reduction is being achieved through the use of conserved areas. See Appendix B for the storm sewer sizing calculations.

No portion of the proposed development lies within a 100 year flood plain as mapped on the Flood Insurance Rate Maps (FIRM's) for the Town of Amherst.

1. *Existing Conditions*

The area proposed for the Muir Woods Subdivision Phase 4 is divided into two sections. The eastern section is wooded and currently drains to the south toward a 12-inch HDPE culvert pipe that crosses Sierra Drive and flows to an existing ditch. This ditch flow southwest and discharges into the northeastern inlet of Muir Lake. The western section of Phase 4 is wooded and currently drains to the north into the conservation/wetland area. This area discharges into an existing ditch which flows west to the northwestern inlet of Muir Lake.

The full analysis of Muir Lake as well as the total flows in Ellicott Creek can be found within the original design of Muir Woods Subdivision.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

2. Post Developed Conditions

The 1.75± acres of the site will be converted from a brushed and wooded area to eight (8) lots. During the initial design and development of the Muir Woods Subdivision all associated infrastructure, which includes one (1) bioretention area, two (2) wet ponds, and three (3) pretreatment chambers for stormwater quality and runoff reduction requirements in accordance with Town Drainage Policy and the New York State Stormwater Design Manual in compliance with GP-0-15-002 were previously designed, permitted, and constructed. Additional runoff reduction is achieved with conservation of natural areas and tree plantings throughout the development.

The eastern portion of Phase 4 will consist of seven (7) lots. A drainage swale will capture offsite run-on from the north as well as runoff from the lots. This swale will discharge to a 12-inch HDPE pipe that will connect to the existing 12-inch culvert crossing Sierra Drive and flow into an existing ditch and ultimately to Muir Lake.

The western portion of Phase 4 will consist of one (1) lot. A drainage swale is proposed along the northern boundary of this lot to prevent runoff from flowing into the conservation/wetland area. The swale will discharge to retention pond 1 which was designed and constructed during earlier phases of the Muir Woods Subdivision. This pond discharges to an existing ditch which flows to Muir Lake.

Retention Pond 1:

The original design of retention pond 1 did not include the runoff from the 0.28± acre lot. Below are the updated calculations for the pond:

Two Stage Outlet: 1st Stage- 6-inch Orifice flow @ 571.0 2nd Stage – Weir Flow @ 572.50 discharging into 18-inch HDPE @ 0.74%	
Water Quality Volume Required	0.25 ac-ft
Water Quality Volume Provided	1.8455 ac-ft
Stream Channel Protection Volume Required	0.31 ac-ft
Stream Channel Protection Elevation	571.59
Stream Channel Protection Volume Provided	0.834 ac-ft
Stream Channel Protection Elevation Provided	572.50
Water Surface Elevation	571.0 ft.
Minimum Allowable Top of Bank	574.00 ft.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Routing of design storms through the wet pond results in the following:

Retention Pond 1:

1 YEAR - 24 HOUR STORM	
Peak Inflow Rate	6.54 cfs @ 12.10 hrs.
Volume of Inflow	0.507 ac-ft
Peak Discharge Rate	0.40 cfs @ 14.05 hrs.
Peak Elevation	571.54 ft
Peak Volume of Storage	2.122 ac-ft*

10 YEAR - 24 HOUR STORM	
Peak Inflow Rate	14.71 cfs @ 12.10 hrs.
Volume of Inflow	1.145 ac-ft
Peak Discharge Rate	0.81 cfs @ 14.00 hrs.
Peak Elevation	572.27 ft
Peak Volume of Storage	2.529 ac-ft*

100 YEAR - 24 HOUR STORM	
Peak Inflow Rate	28.85 cfs @ 12.05 hrs.
Volume of Inflow	2.291 ac-ft
Peak Discharge Rate	5.27 cfs @ 12.60 hrs.
Peak Elevation	573.13 ft
Peak Volume of Storage	3.061 ac-ft*

*Storage Volume includes 1.8455 ac-ft below normal water elevation

1 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	6.30 cfs	0.41 cfs	0.40 cfs

10 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	14.15 cfs	0.81 cfs	0.81 cfs

25 Year–24 Hour Storm

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	18.64 cfs	1.38 cfs	1.61 cfs

100 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	27.75 cfs	4.79 cfs	5.27 cfs

The computer modeling results and full calculations for the downstream analysis and onsite water quality ponds are contained in Appendix B.

Due to the original design of Muir Woods Subdivision accounting for the development of Phase 4, no additional analysis was completed. The full analysis of Muir Lake as well as the total flows in Ellicott Creek can be found within the original design of Muir Woods Subdivision.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

APPENDIX A

Sanitary Sewer Application and Calculations

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Sanitary Sewer Flow Calculations

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

GPI

Engineering | Design | Planning | Construction Management

Greenman-Pedersen, Inc. 4950 Genesee Street, Suite 100 Buffalo, NY 14225 t (716) 633-4844 f (716) 633-4940

Western New York Branches: Buffalo | Jamestown | Rochester

Project:	Muir Woods Subdivision Ph 4	By:	EJD	Date:	11/11/2021
Location:	Town of Amherst, New York	Checked:		Date:	

Sanitary Sewer Flow Calculations

** REFERENCE: NYSDEC Design Standards for Wastewater Treatment Works, 1988

No. of New Lots = 8

Total No. = 8

Design Population, p = 28

assumed no. of people per unit = 3.5

assumed no. of people per patio home = 3

Design Average Flow

Hydraulic Loading = 100 gpcd x design population = 2800 gpd = **0.0028 mgd

1.94 gpm

0.00 cfs

Peaking Factor, PF = [(18+((p/1000)^0.5)) / (4+((p/1000)^0.5))] = 4.3595

Peak Design Flow = Design Average Flow x Peaking Factor = 12206 gpd = **0.0122 mgd**

8.48 gpm

0.02 cfs

NOTE: Per the "Recommended Standards for Wastewater Facilities, 2014 Edition - Section 11.243, b.
"The 100 gpcd figure shall be used in conjunction with a peaking factor from Figure 1(as calculated above), is intended to cover normal infiltration for systems built with modern construction techniques."

Infiltration and Inflow: **(Remove 4 gallons of I&I from the existing sanitary sewer system per every 1 gallon of Peak Design Flow)**

Required I&I removal = 4 x the Peak Design Flow = 33.91 gpm

Example of I&I Mitigation Based On Repair or Replacement of Defective Residential Laterals:

Determine the number of Defective Residential Laterals to be repaired or replaced

I&I Contribution per each Defective Residential Lateral = 30 **gpm**

No. of Defective Residential Laterals to be repaired or replaced = **2 laterals**

Example of I&I Mitigation Based On Financial Contribution To The Town of Amherst's I&I Mitigation Trust Fund:

Required Financial Contribution = $ 250.00 per gallon of mitigated flow (i.e., required I&I removal)

X 33.91 gpm

Required Financial Contribution = $ 8,476.73

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Technical Review of Plans and Specifications For Sewage and Waste Treatment Systems (BMW-65)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

TECHNICAL REVIEW OF PLANS AND SPECIFICATIONS
FOR SEWAGE AND WASTE TREATMENT SYSTEMS

PROJECT DATA

1. Type of Facility: Extension of an Existing Sanitary Sewer System
(Treatment Plant, Interceptor, Pumping Station, Additions, etc.)

2. Location: Muir Woods Subdivision Ph 4
Town of Amherst, New York

3. Type of Sewer System: Separate
(Separate or Combined)

4. Population to be Immediately Served: 28

Design Population: 28

5. Design Period: 2021

6. Hydraulic Loading

	Present Flow (mgd)	Design Flow (mgd)
Sanitary Sewage	0	0.0028
Institutional Waste	0	0
Industrial Waste	0	0
Infiltration	0	0
Total	0	0.0028
Minimum Flow	0	0.00056
Maximum Flow	0	0.0122

Engineer's Signature and Seal:



92-15-8 (5/77)
Formerly
BMW-65 (11/73)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Downstream Sanitary Sewer Routing Map and Sewer Capacity Analysis

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

January 18, 2022

Jeffrey S. Burroughs, P.E., Town Engineer
Town of Amherst Engineering Department
1100 North Forest Road
Williamsville, NY 14221

Re: I/I Commitment Letter [SP-2021-24]
520 Campbell Boulevard
Proposed 8 Lot Residential Subdivision
Applicant/Project Sponsor: Ciminelli Muir Woods, LLC

Dear Mr. Burroughs:

On behalf of Ciminelli Muir Woods, LLC, the project sponsor with respect to the development of 520 Campbell Boulevard as an 8 lot residential subdivision in accordance with the pending Site Plan, this letter has been prepared to serve as our commitment to make the required contribution to the Town's Sewer Remediation Trust Fund pursuant to Article XVI of the Town Code of the Town of Amherst ("Sanitary Sewer Law").

To determine the I/I payment contribution, the 2,800 gallons per day ("gpd") of average daily sanitary sewer flow from the 8 lot subdivision as calculated by GPI, the project engineering firm, will result in a peak flow of 8.48 gallons per minute ("gpm"). The I/I contribution requirement to the Town's Sewer Remediation Fund per the Sanitary Sewer Law adopted in 2017 requires a payment of $250/gpm at a 4:1 ratio (4 times peak flow) of the total proposed peak sanitary flow. This results in the required payment into the Sewer Remediation Fund being $ 8,476.73.

We understand that the fee is to be provided following acceptance of the PIP applications. Please contact me at 631-8000 with any questions regarding this letter.

Sincerely,

CIMINELLI MUIR WOODS, LLC

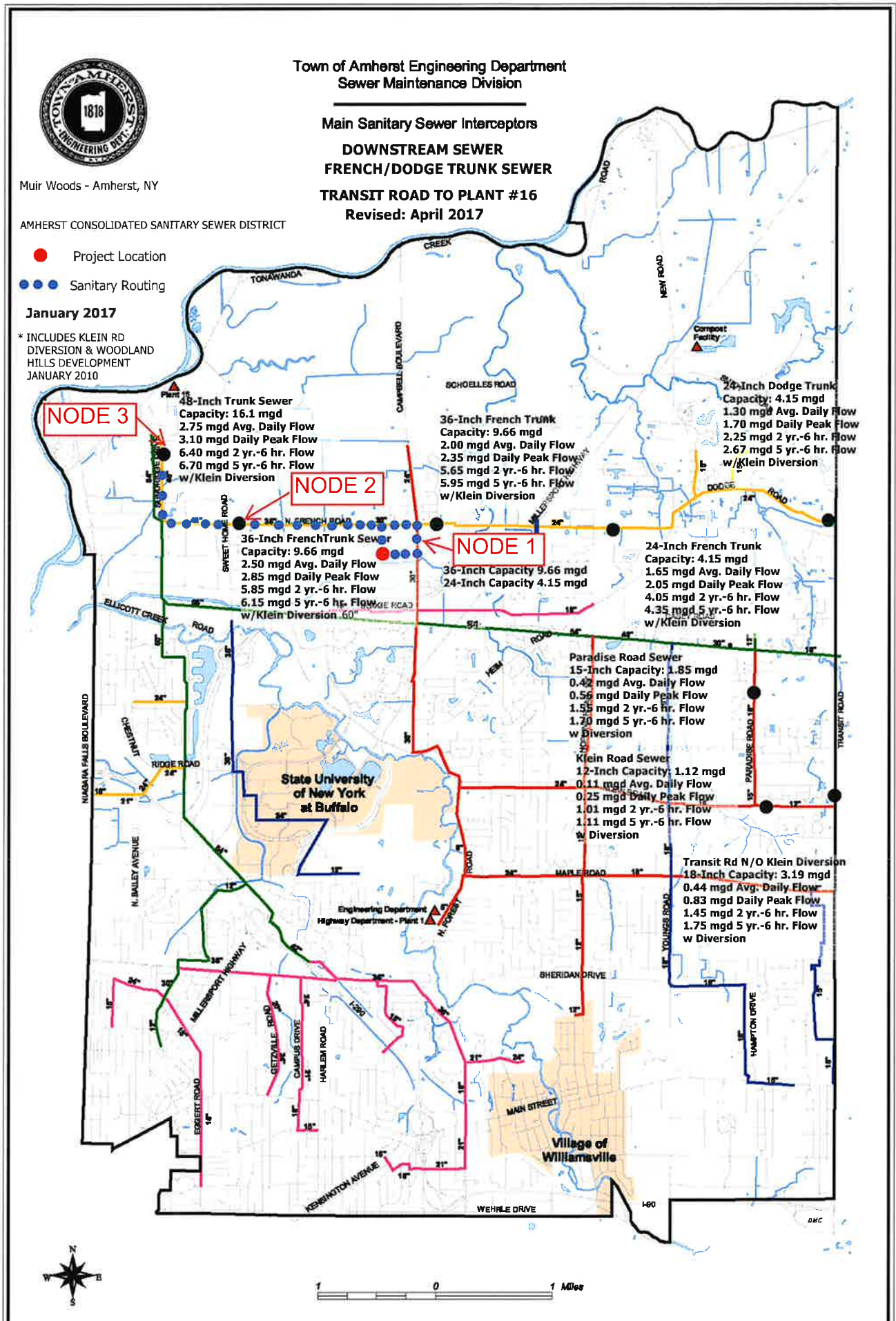
Signature: _____

Print Name: Paul F. Ciminelli

Title: Managing Member

cc: Scott Marshall, Assistant Planning Director
Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC
Ken Zollitsch, Project Manager, GPI

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)



Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

GREENMAN-PEDERSEN, INC.

PREPARED BY: K. Zollitsch
DATE: 3/21/2022
REVISED:

PROJECT NO.: BUF-2013062.40
PROJECT: MUIR WOODS SUBDIVISION, PHASE 4
COUNTY / TOWN: ERIE / AMHERST

SANITARY SEWER PIPE CAPACITY

STRUCT. NO.	STRUCT. TYPE	LINE TYPE	LINE LENGTH (FT)	DIA. (IN.)	SLOPE (%)	V (FPS)	CAPACITY (CFS)	CAPACITY (MGD)	NOTES & REMARKS n (conc) = 0.013 n (pvc) = 0.012
									Formulas used for calculations herein are based on Rational Method, Q=CiA; Q=VA; and Manning's Equation
									V=Q/(3.1416*d^2/4); R=d/4 V=1.486/n*R^.6667*S^.5 d=(Q*4/V/3.1416)^.5 S=(V*n/1.486/(d/4)^.6667)^2
NODE 1	Exist. San MH	RCP		30	0.058	2.0	9.9	6.38	Location: Btwn. 640 and 644 Campbell Blvd. = Pipe Capacity (MGD)
								1.966	= Peak Flow Measured (MGD) on 2/7/17
								0.1674	+ Project Design Peak Flow (MGD) to Campbell Blvd System
								2.13	= Anticipated Peak Flows (MGD)
								33%	Operating Capacity with Anticipated Peak Flows
								67%	Available Capacity with Anticipated Peak Flows
NODE 2				36					Location: 36-inch French Rd. Trunk Sewer Town of Amherst, Just East of Sweet Home Road (see map)
								9.66	= Pipe Capacity (MGD) From T. Amherst
								6.15	= 5yr.-6hr. Flow (MGD) From T. Amherst w/ Klein Diversion
								0.1981	+ Total Project Design Peak Flow (MGD)
								6.35	= Anticipated Peak Flows (MGD)
								66%	Operating Capacity with Anticipated Peak Flows
								34%	Available Capacity with Anticipated Peak Flows
NODE 3				48					Location: 48-inch Trunk Sewer Town of Amherst, Sundridge Drive (see Map)
								16.10	= Pipe Capacity (MGD) From T. Amherst
								6.70	= 5yr.-6hr. Flow (MGD) From T. Amherst w/ Klein Diversion
								0.1981	+ Total Project Design Peak Flow (MGD)
								6.90	= Anticipated Peak Flows (MGD)
								43%	Operating Capacity with Anticipated Peak Flows
								57%	Available Capacity with Anticipated Peak Flows

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-687-1418
Fax: 716-655-3369

Date: March 17, 2017

SANITARY SEWER FLOW CAPACITY STUDY – Summary Review

Prepared For: 520 Campbell

Ken Zollitsch
Greenman-Pedersen, Inc.
4950 Genesee Street
Suite 100
Buffalo, NY 14225

Project Name: 520 Campbell

Flow Monitoring Period: February 6, 2017 to March 16, 2017

Rain Events (> 0.5-inches) Monitored: February 7 (0.58"), February 25 (0.57") March 7 (0.60") March 14 (0.64")

Number of Monitoring Nodes: One

Node Locations and Descriptions:

- Node 1 520 Campbell Blvd (30")

Summary Conclusion:

Based on the data presented in this report, specifically the flow depth measurements recorded (see graphs below):

- At no time the flow depth exceed the pipe diameter at any of the downstream monitoring points during the rain events monitored.
- At no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

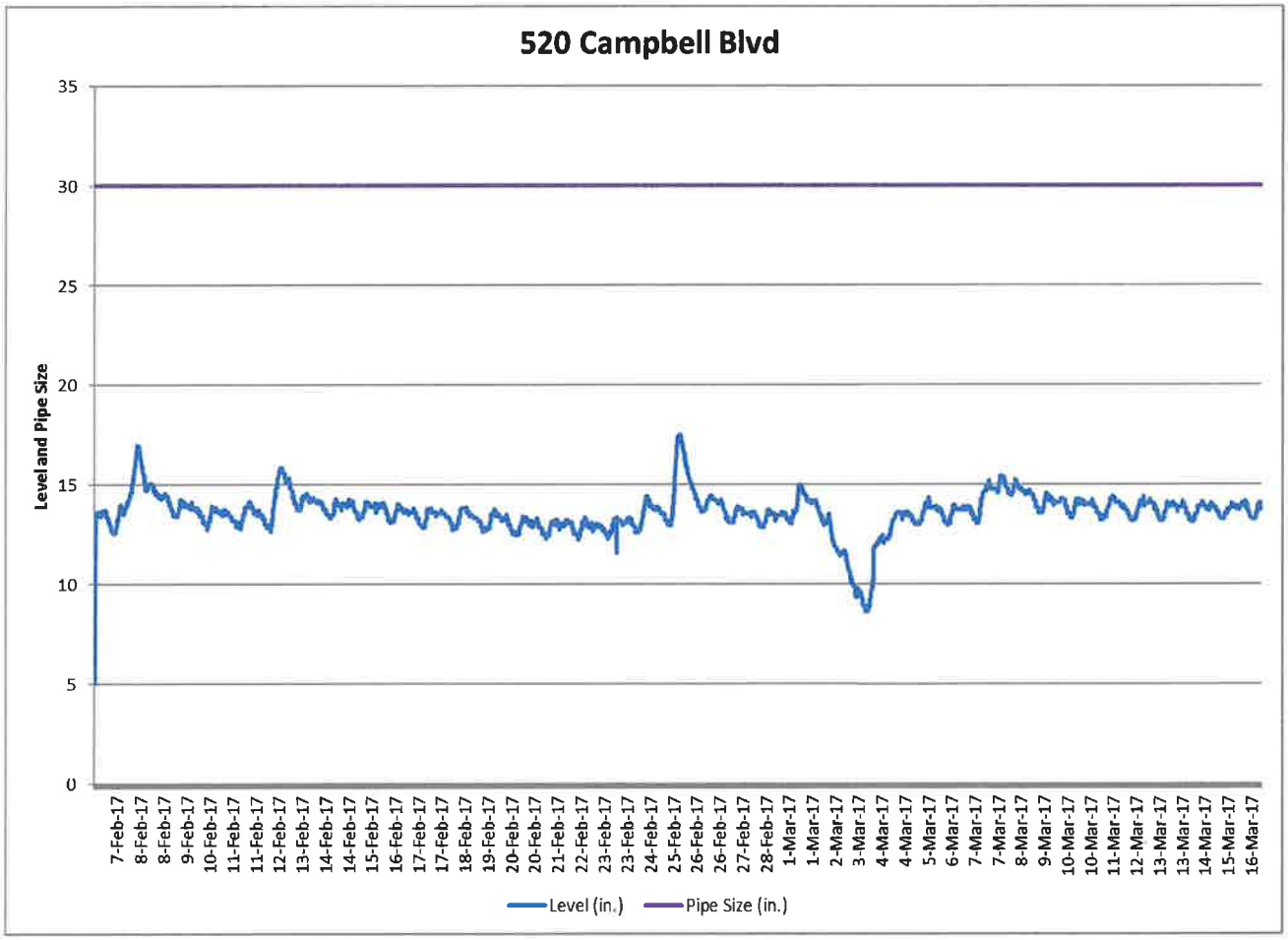
TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-687-1418
Fax: 716-655-3369

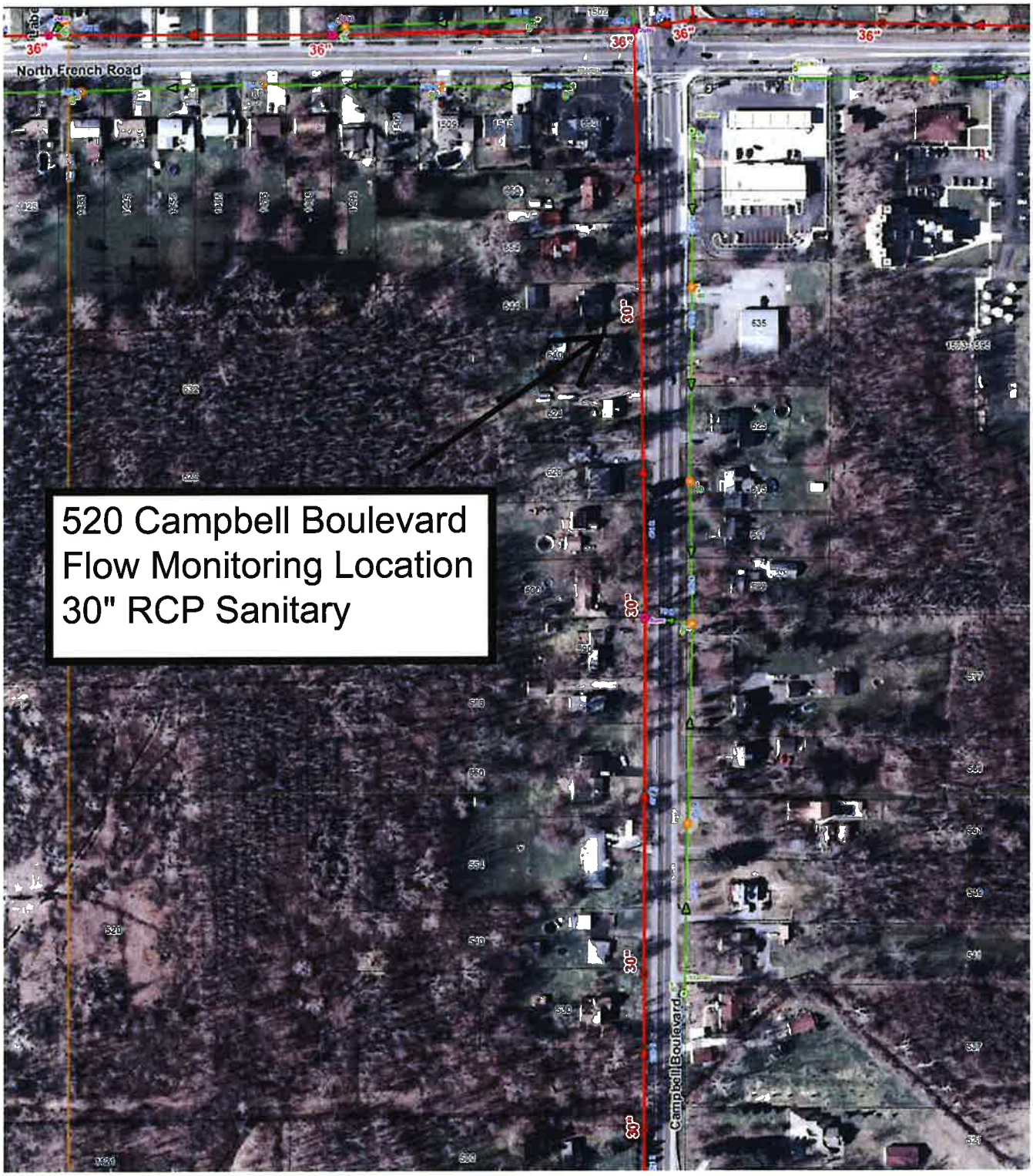
Depth of Flow Capacity Summary:

Depth of flow capacity is based on diameter of pipe. See graphs below.

- At no time during the monitoring period did the depth of flow exceed pipe diameter at Node 1



Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)



Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Project Name:	CIM002
Installation Date/Time:	2/6/17 2:25 PM
Crew Initials:	KK ES

Site Report

TECsmith Environmental

Site Name:	520 Cambell Blvd	Meter Type:	910	S/N:	JAN
Pipe Height:	30"	Pipe Width: 30"	Rim to Invert: 18' 7"	Sensor S/N: TEC 50	I.P.:
Address:				M.E.I:	I.D.:
Location:	520 Cambell Blvd			System Type	Sanitary sewer





Level(in):	Silt(in): 3"	Hydraulic conditions	Good
Velocity(fps):	Sensor location	upstream	
Flow(mgd):	Pipe Condition:	good	Pipe type: Concrete pipe





Additional information/Comments

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Date	NODE 1			Rain₂
	520 Campbell Blvd (30")			
	FLOW (GAL x 1000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	(inches)
02/06/17	259.734	1.452	13.706	0
02/07/17	850.030	1.966	16.987	0.58
02/08/17	1093.266	1.579	16.915	0.03
02/09/17	883.972	1.189	14.270	0
02/10/17	808.701	1.099	13.959	0.1
02/11/17	868.541	1.397	14.158	0
02/12/17	1103.868	1.519	15.843	0.49
02/13/17	922.729	1.292	14.592	0
02/14/17	790.949	1.557	14.296	0.01
02/15/17	728.390	1.162	14.180	0.07
02/16/17	206.873	1.661	14.014	0
02/17/17	0.000	0.000	13.795	0
02/18/17	0.543	0.052	13.837	0
02/19/17	0.000	0.000	13.758	0
02/20/17	4.176	0.401	13.420	0
02/21/17	0.000	0.000	13.251	0.08
02/22/17	0.000	0.000	13.363	0
02/23/17	367.608	1.183	13.352	0
02/24/17	847.120	1.272	14.389	0.25
02/25/17	1220.647	1.929	17.504	0.57
02/26/17	895.658	1.209	14.543	0
02/27/17	798.699	1.249	13.888	0
02/28/17	780.929	1.212	13.731	0
03/01/17	926.952	1.388	14.970	0.32
03/02/17	726.641	1.269	13.844	0
03/03/17	561.408	1.076	12.133	0
03/04/17	885.159	1.333	13.652	0.02
03/05/17	958.049	1.544	14.356	0
03/06/17	962.689	1.534	13.984	0
03/07/17	1087.078	1.421	15.440	0.6
03/08/17	1143.956	1.437	15.397	0
03/09/17	1105.607	1.450	14.592	0
03/10/17	1106.790	1.518	14.277	0.02
03/11/17	1119.847	1.537	14.415	0.07
03/12/17	900.630	2.181	14.374	0.04
03/13/17	746.621	1.322	14.178	0.1
03/14/17	656.258	1.052	14.131	0.64
03/15/17	332.524	1.170	14.152	0.27
03/16/17	80.287	0.730	14.070	0
---	---	---	---	4.26

Note: Rain data from: http://www.nws.noaa.gov/climate/index.php?wfo=buf

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

INSTALLATION SHEET

SITE DATA

SITE	520 Cambell Blvd	I.D.	1	JOB NO.	CIM002
METER MODEL	910	SERIAL NO	JAN	SENSOR SN.	TEC 50
DATE	02/06/17	TIME	2:35 PM	CREW	KK ES
RIM TO INVERT	18'7"	PIPE SIZE	30 In	LOCATION	Downstream

INITIAL READINGS

LEVEL	13.694	INCHES
FLOW	2.12	MGD
TOTAL	10	GAL x 1000
VEL	1.48	FPS
SIGNAL	12	%
BATTERY	6.0	VDC

ACTUAL MEASURMENTS

Level 1		Measured		Velocity	
Level 2		Measured		Measured	

WORK COMPLETED:			
INSTALL	☑	CHANGE BATTERIES	☐
DOWNLOAD	☐	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☑	CLEAN PROBE	☐
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☑
CHANGE DESICCANT	☐	SET TIME AND DATE	☑
		MANHOLE ENTERY	☑

NOTES:

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

DOWNLOAD SHEET

TECsmith Environmental

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	02/13/17	Time	2:09 PM	CREW	KK

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	14.265	INCHES	14.25	INCHES	14.192	INCHES
FLOW	1.38	MGD			1.11	MGD
TOTAL	6391	X1000			6394	GAL x 1000
VEL	0.87	FPS		FPS	0.74	FPS
SIGNAL	66	%			77	%
BATTERY	5.8	VDC			5.7	VDC

DATA DOWNLOAD

WORK COMPLETED:

INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☐
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

DOWNLOAD SHEET

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	02/23/17	Time	11:49 AM	CREW	KK

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	13.323	INCHES	13.25	INCHES	13.238	INCHES
FLOW	0	MGD			0.76	MGD
TOTAL	8521	X1000			8522	GAL x 1000
VEL	0.00	FPS		FPS	0.57	FPS
SIGNAL	0	%			83	%
BATTERY	5.7	VDC			5.8	VDC

DATA DOWNLOAD

WORK COMPLETED:			
INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☑
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

DOWNLOAD SHEET

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	03/02/17	Time	11:49 AM	CREW	KK

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	12.101	INCHES	13.25	INCHES	12.105	INCHES
FLOW	0.8	MGD			0.76	MGD
TOTAL	14738	X1000			14738	GAL x 1000
VEL	0.64	FPS		FPS	0.61	FPS
SIGNAL	83	%			85	%
BATTERY	5.7	VDC			5.5	VDC

DATA DOWNLOAD

WORK COMPLETED:			
INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☐
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

DOWNLOAD SHEET

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	03/16/17	Time	11:48 AM	CREW	ES

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	13.677	INCHES		INCHES		INCHES
FLOW	0.83	MGD				MGD
TOTAL	26732	X1000				GAL x 1000
VEL	0.59	FPS		FPS		FPS
SIGNAL	40	%				%
BATTERY	4.6	VDC				VDC

DATA DOWNLOAD

WORK COMPLETED:			
INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☐	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☐
REMOVE	☑	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

APPENDIX B

Stormwater Management

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

STORMWATER CALCULATIONS

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

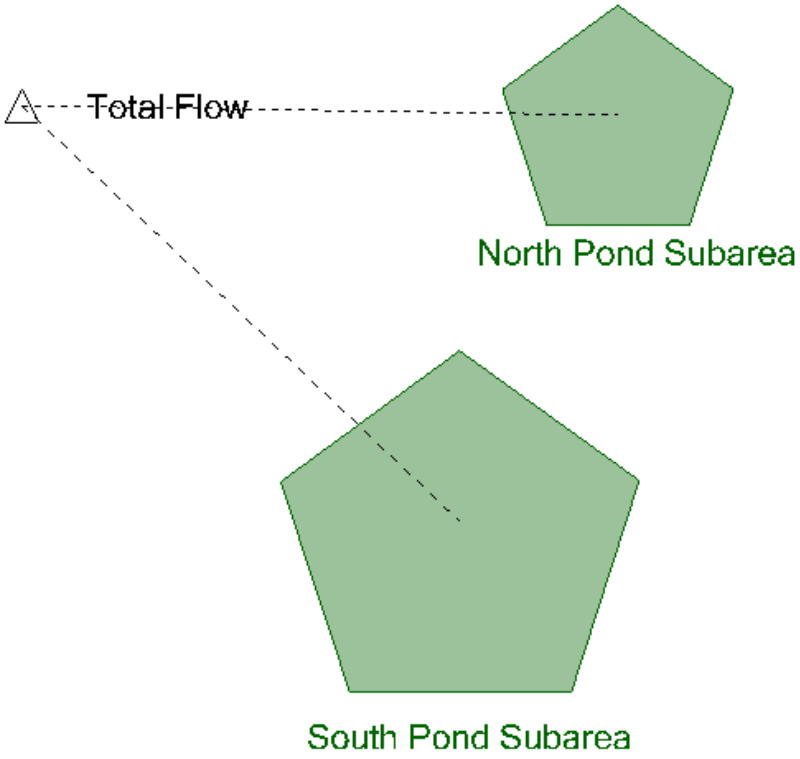
PRE-DEVELOPED CONDITIONS

Attachment: SP_2021-24_A application 351023 (25193 : Sp 2021-24)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds



Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	Without WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30
North Pond Subarea	Without WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15
North Pond Subarea	Without WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64
North Pond Subarea	Without WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75
South Pond Subarea	Without WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	Without WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	Without WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	Without WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	Without WQ Ponds 1 Year 24 Hour	1	1.786	12.100	21.94
Total Flow	Without WQ Ponds 10 Year 24 Hour	10	3.959	12.100	48.65
Total Flow	Without WQ Ponds 25 Year 24 Hour	25	5.233	12.100	63.82
Total Flow	Without WQ Ponds 100 Year 24 Hour	100	7.836	12.100	94.04

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

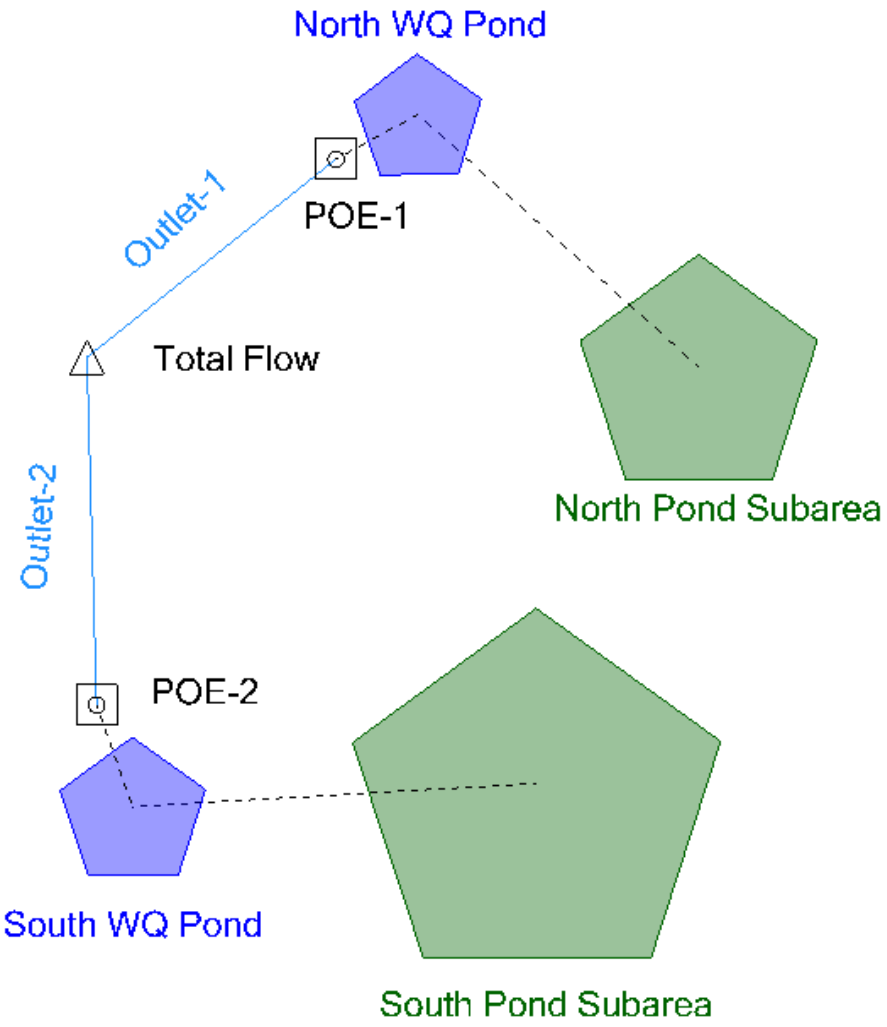
ORIGINAL DESIGN

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds



Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30
North Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15
North Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64
North Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75
South Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	With WQ Ponds 1 Year 24 Hour	1	0.999	14.650	1.10
Total Flow	With WQ Ponds 10 Year 24 Hour	10	2.739	12.500	11.08
Total Flow	With WQ Ponds 25 Year 24 Hour	25	3.833	12.400	18.27
Total Flow	With WQ Ponds 100 Year 24 Hour	100	6.323	12.450	31.37

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.324	14.000	0.39	571.52	2.111
North WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15	(N/A)	(N/A)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	0.702	14.000	0.79	572.22	2.502
North WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	0.926	13.350	1.39	572.57	2.713
North WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	1.572	12.600	4.79	573.08	3.026
South WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.675	15.450	0.71	571.90	2.516
South WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	2.037	12.500	10.35	572.74	3.060
South WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	2.907	12.400	17.40	573.17	3.358
South WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	4.750	12.400	26.88	574.08	4.036

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

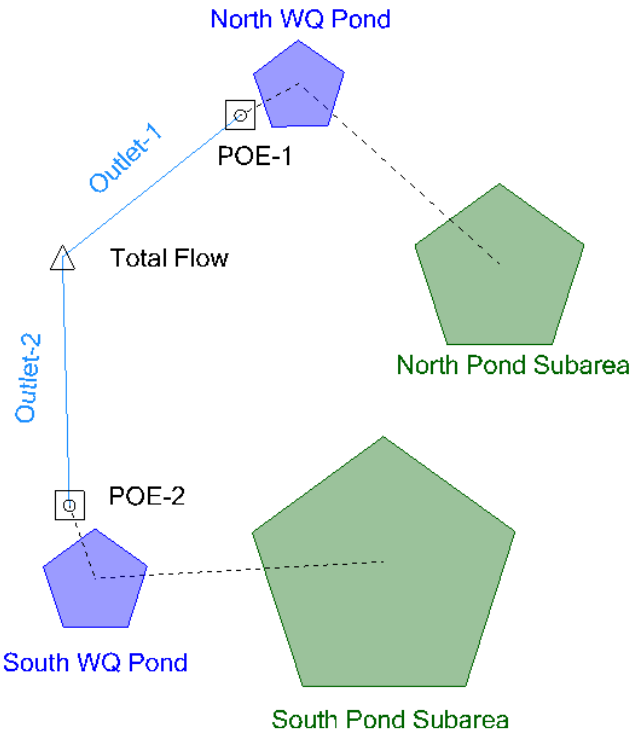
PROPOSED DESIGN

Attachment: SP 2021-24_Application 351022 (25193 : Sp 2021-24)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

I POST-DEVELOPED CONDITIONS

A. Watershed Model



Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

B. Establish Sub-Basin Runoff Parameters

1. *Subarea P-1 (Onsite)*

Area = 1.47 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A B C D
Impervious Area- Paved & Roof	0.42 acres
Open Space; Lawn- Good	1.05 acres

Time of Concentration:

Sheet Flow
Length, L = 100 ft Slope, s = 0.010 ft/ft
Ground Cover = Grass, Dense
Manning's "n" = 0.240
T_t = **0.38 hr**

Shallow Concentrated Flow
Length, L = 266 ft Slope, s = 0.002 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 0.65 ft/s
T_t = **0.11 hr**

Shallow Concentrated Flow
Length, L = 145 ft Slope, s = 0.002 ft/ft
Surface Type = Pipe Flow
Velocity, V = 3.00 ft/s
T_t = **0.01 hr**

Total Time of Concentration T_c = 0.38 hr. + 0.11 hr.+ 0.01 hr. = 0.50 hours

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

2. ***Subarea P-2 (Onsite)***

Area = 0.28 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A	B	C	D
Impervious Area- Paved & Roof				0.06 acres
Open Space; Lawn- Good				0.22 acres

Time of Concentration:

Sheet Flow
Length, L = 10 ft Slope, s = 0.002 ft/ft
Ground Cover = Grass, Dense
Manning's "n" = 0.240
T_t = **0.11 hr**

Shallow Concentrated Flow
Length, L = 215 ft Slope, s = 0.005 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 1.06 ft/s
T_t = **0.06 hr**

Total Time of Concentration T_c = 0.11 hr.+ 0.06 hr. = 0.17 hours

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

3. ***Subarea O-1 (Offsite)***

Area = 4.5 acres

Soil Type: Type "D" 100 %

Land Use: Hydrologic Soil Group
A B C D

Woods- Good 4.5 acres

Time of Concentration:

Sheet Flow
Length, L = 100 ft Slope, s = 0.008 ft/ft
Ground Cover = Woods, D. underbrush
Manning's "n" = 0.800
T_t = **1.11 hr**

Shallow Concentrated Flow
Length, L = 300 ft Slope, s = 0.007 ft/ft
Surface Type = Forest w/ Heavy Litter
Velocity, V = 0.20 ft/s
T_t = **0.41 hr**

Shallow Concentrated Flow
Length, L = 142 ft Slope, s = 0.002 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 0.67 ft/s
T_t = **0.06 hr**

Total Time of Concentration T_c = 1.11 hr. + 0.41 hr.+ 0.06 hr. = 1.58 hours

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

RUN HYDROLOGIC MODELS FOR DEVELOPED CONDITIONS

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds Updated 11/10/2021 - EJD

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

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Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	0.507	12.100	6.54
North Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	1.145	12.100	14.71
North Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	1.521	12.050	19.38
North Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	2.291	12.050	28.85
South Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	With WQ Ponds 1 Year 24 Hour	1	1.011	14.650	1.11
Total Flow	With WQ Ponds 10 Year 24 Hour	10	2.763	12.500	11.10
Total Flow	With WQ Ponds 25 Year 24 Hour	25	3.880	12.400	18.30
Total Flow	With WQ Ponds 100 Year 24 Hour	100	6.399	12.450	31.89

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	0.507	12.100	6.54	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.336	14.050	0.40	571.54	2.122
North WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	1.145	12.100	14.71	(N/A)	(N/A)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	0.726	14.000	0.81	572.27	2.529
North WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	1.521	12.050	19.38	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	0.973	13.150	1.61	572.61	2.734
North WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	2.291	12.050	28.85	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	1.649	12.600	5.27	573.13	3.061
South WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.675	15.450	0.71	571.90	2.516
South WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	2.037	12.500	10.35	572.74	3.060
South WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	2.907	12.400	17.40	573.17	3.358
South WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	4.750	12.400	26.88	574.08	4.036

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Subsection: Elevation-Area Volume Curve
Label: North WQ Pond
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
563.00	0.0	0.090	0.000	0.000	0.000
564.00	0.0	0.110	0.299	0.100	0.100
565.00	0.0	0.140	0.374	0.125	0.225
566.00	0.0	0.180	0.479	0.160	0.384
567.00	0.0	0.210	0.584	0.195	0.579
568.00	0.0	0.240	0.674	0.225	0.804
569.00	0.0	0.300	0.808	0.269	1.073
570.00	0.0	0.360	0.989	0.330	1.403
571.00	0.0	0.510	1.298	0.433	1.836
572.00	0.0	0.570	1.619	0.540	2.375
573.00	0.0	0.630	1.799	0.600	2.975
574.00	0.0	0.690	1.979	0.660	3.635

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Requested Pond Water Surface Elevations	
Minimum (Headwater)	563.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	574.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	571.00	574.00
Rectangular Weir	Weir - 1	Forward	Culvert - 1	572.50	574.00
Culvert-Circular	Culvert - 1	Forward	TW	571.00	574.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	18.0 in
Length	27.00 ft
Length (Computed Barrel)	27.00 ft
Slope (Computed)	0.007 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.500
Kb	0.018
Kr	0.500
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0078
M	2.0000
C	0.0379
Y	0.6900
T1 ratio (HW/D)	1.132
T2 ratio (HW/D)	1.293
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	572.70 ft	T1 Flow	7.58 ft³/s
T2 Elevation	572.94 ft	T2 Flow	8.66 ft³/s

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	571.00 ft
Orifice Diameter	6.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	572.50 ft
Weir Length	3.17 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Index

C

Composite Outlet Structure - 1 (Outlet Input Data, 100 years (With WQ Ponds 100 Year 24 Hour))...5, 6, 7

M

Master Network Summary...2, 3

N

North WQ Pond (Elevation-Area Volume Curve, 100 years (With WQ Ponds 100 Year 24 Hour))...4

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

STORM SEWER COMPUTATIONS AND DRAINAGE AREA MAP

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

DRAINAGE COMPUTATIONS

SEWER LOCATION			TRIBUTARY AREA		RUNOFF COEFFICIENT			TIME OF CONCENTRATION			REQUIRED CAPACITY		DESIGN n = 0.012						PROFILE				EXISTING CAPACITY	
STREET	FROM	TO	A (ac)	ΣA (ac)	C	CA	ΣCA	IN CHANNEL (sec)	IN CHANNEL (min)	Tc (min)	i (in/hr)	q (cfs)	D (in)	V (fps)	Q_{full} (cfs)	LENGTH (ft)	s (%)		Rim	INV		Q (cfs)	% REQ'D
	Offsite	Swale	4.50	4.50	0.20	0.90	0.90			94.80	1.22	1.10											
	Western Swale	Daylight	0.84	0.84	0.40	0.34	0.34			30.00	2.45	0.82											
	Eastern Swale	Daylight	0.63	0.63	0.40	0.25	0.25			25.00	2.51	0.63											
	Daylight	Ex Culvert		5.97			1.49	55.20	0.92	99.60	1.18	1.76	12	2.63	1.81	145	0.22%		0.32				
	Ex Culvert	Ditch		5.97			1.49	11.00	0.18	100.52	1.18	1.75	12	7.46	7.06	82	3.35%		2.75				

COMPUTED BY: EJD DATE: 11/09/21

CHECKED BY: DATE:

LOCATION: Muir Woods Subdivision Ph 4

SHEET 1 OF 1

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Worksheet for Trapezoidal Channel - 1

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.002
Normal Depth	6.0
Left Side Slope	4.000
Right Side Slope	4.000
Bottom Width	1.00

Results	
Discharge	1.47
Flow Area	1.5
Wetted Perimeter	5.1
Hydraulic Radius	3.5
Top Width	5.00
Critical Depth	3.4
Critical Slope	0.024
Velocity	0.98
Velocity Head	0.01
Specific Energy	0.51
Froude Number	0.314
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Downstream Velocity	(N/A)
Upstream Velocity	(N/A)
Normal Depth	6.0
Critical Depth	3.4
Channel Slope	0.002
Critical Slope	0.024

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Worksheet for Trapezoidal Channel - 2

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

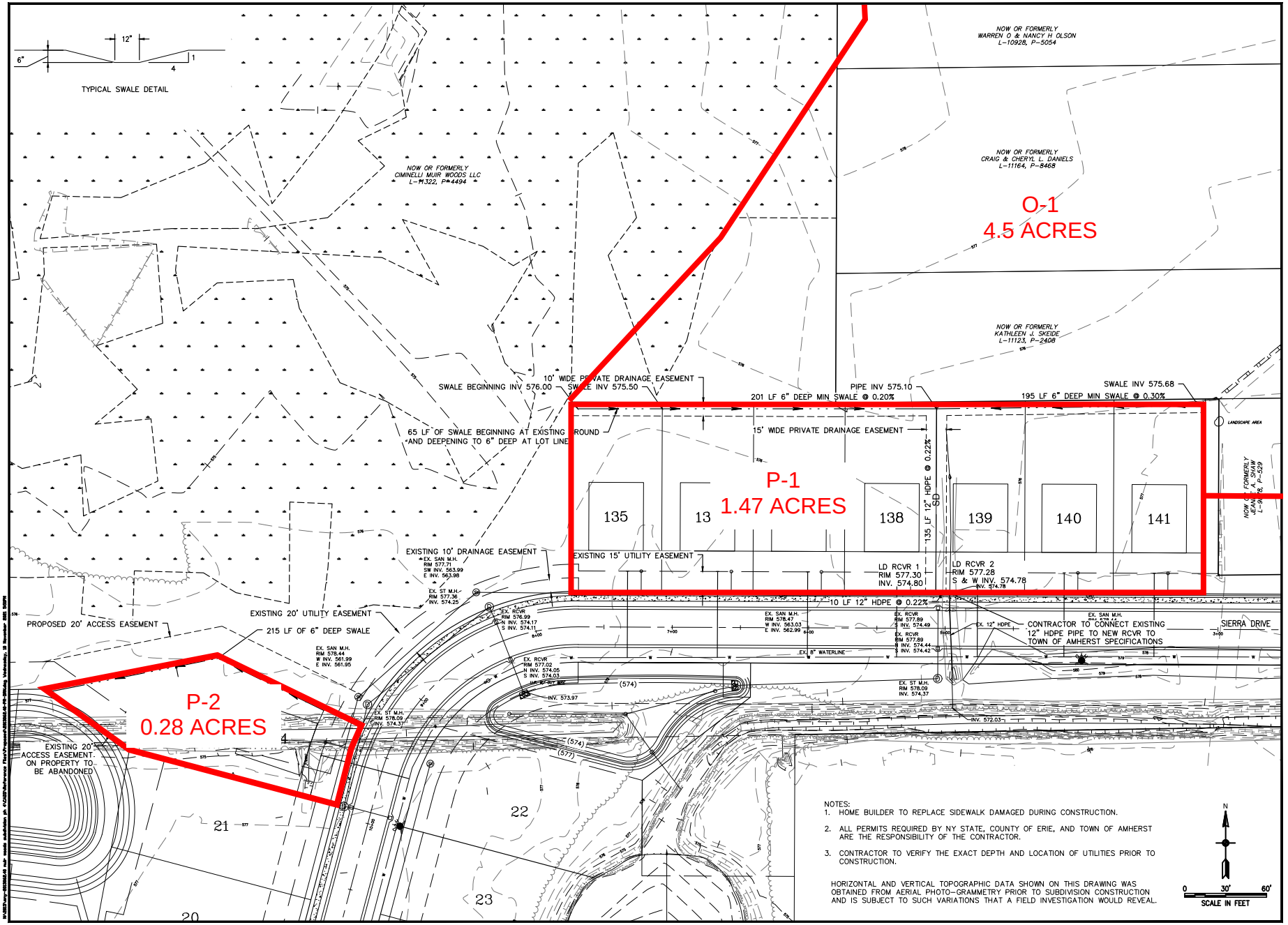
Input Data	
Roughness Coefficient	0.030
Channel Slope	0.003
Normal Depth	6.0
Left Side Slope	4.000
Right Side Slope	4.000
Bottom Width	1.00

Results	
Discharge	1.79
Flow Area	1.5
Wetted Perimeter	5.1
Hydraulic Radius	3.5
Top Width	5.00
Critical Depth	3.8
Critical Slope	0.023
Velocity	1.20
Velocity Head	0.02
Specific Energy	0.52
Froude Number	0.385
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Downstream Velocity	(N/A)
Upstream Velocity	(N/A)
Normal Depth	6.0
Critical Depth	3.8
Channel Slope	0.003
Critical Slope	0.023

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)



GPI
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 1
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Wood
50 Fountain Plaza, S
Buffalo, NY 142

Muir Woods Subdivision, Phase 4
520 Campbell Blvd

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. 081

REVISIONS

NO.	REVISION

November 12, 20

DRAWN/DESIGN BY: THM
CHE

Drainage Pl

SCALE: 1" = 30'

WNY-2013062.4

03 OF 0

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

APPENDIX C

Original NOI and SPDES

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form bei coverage under this General Permit. Applica s of the permit and prepare a Stormwater Pol g this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

FOR REFERENCE ONLY- TO BE SUBMITTED VIA NYSDEC eNOI SYSTEM

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR **MUST SIGN FORM**

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Ciminelli Muir Woods, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Packard

Owner/Operator Contact Person First Name
Brad

Owner/Operator Mailing Address
350 Essjay Road

City
Williamsville

State
NY

Zip
14221-

Phone (Owner/Operator)
716-631-8000

Fax (Owner/Operator)
716-631-8034

Email (Owner/Operator)
bpackard@cimineli.com

FED TAX ID
82-1214709 (not required for individuals)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Project Site Information

Project/Site Name

Muir Woods Subdivision

Street Address (NOT P.O. BOX)

520 Campbell Blvd & 1121 N French Rd

Side of Street

○ North ● South ○ East ○ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)

Amherst

State: NY

Zip: 14228-

County: Erie

DEC Region: 9

Name of Nearest Cross Street

Lynette Ln

Distance to Nearest Cross Street (Feet)

0

Project In Relation to Cross Street

○ North ● South ○ East ○ West

Tax Map Numbers
Section-Block-Parcel

40.08-3-1.111

Tax Map Numbers

27.19-1-29

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting): 192411

Y Coordinates (Northing): 4770972

2. What is the nature of this construction project?

● **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

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3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
○ FOREST	○ SINGLE FAMILY HOME
● PASTURE/OPEN LAND	● SINGLE FAMILY SUBDIVISION — Number of Lots: 133
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
○ COMMERCIAL	○ RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
○ RECREATIONAL/SPORTS FIELD	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	○ PARKING LOT
○ LINEAR UTILITY	○ CLEARING/GRADING ONLY
○ PARKING LOT	○ DEMOLITION, NO REDEVELOPMENT
○ OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	○ OTHER

***Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
118.9	41.7	0.0	15.9

5. Do you plan to disturb more than 5 acres of soil at any one time? ● Yes ○ No

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	%	%	100 %

7. Is this a phased project? ● Yes ○ No

8. Enter the planned start and end dates of the disturbance activities.

Start Date	End Date
10/01/2017	10/01/2022

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9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Tributary To Ellicott Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ● Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ● Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002? ● **Yes** ○ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002? ○ **Yes** ● **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ● **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ● **No**
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ● **No**

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15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Town of Amherst

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ Yes ● No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ● Yes ○ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ● Yes ○ No

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Greenman-Pedersen, Inc.

Contact Name (Last, Space, First)
Boudreau, Jessica

Mailing Address
4950 Genesee Street, Suite 100

City
Buffalo

State Zip
NY 14225-

Phone
716-633-4844

Fax
716-633-4940

Email
JBoudreaut@gpinet.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ● Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ● Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ● Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ● Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ● **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ● **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ● All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

1.69 **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

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Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)
RR Techniques (Area Reduction)			
● Conservation of Natural Areas (RR-1)	33.30	and/or	
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
● Tree Planting/Tree Pit (RR-3)	2.07	and/or	0.69
○ Disconnection of Rooftop Runoff (RR-4)		and/or	
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			
○ Rain Garden (RR-6)			
○ Stormwater Planter (RR-7)			
○ Rain Barrel/Cistern (RR-8)			
○ Porous Pavement (RR-9)			
○ Green Roof (RR-10)			
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			
○ Infiltration Basin (I-2)			
○ Dry Well (I-3)			
○ Underground Infiltration System (I-4)			
● Bioretention (F-5)			1.85
○ Dry Swale (O-1)			
Standard SMPs			
○ Micropool Extended Detention (P-1)			
● Wet Pond (P-2)			11.79
○ Wet Extended Detention (P-3)			
○ Multiple Pond System (P-4)			
○ Pocket Pond (P-5)			
○ Surface Sand Filter (F-1)			
○ Underground Sand Filter (F-2)			
○ Perimeter Sand Filter (F-3)			
○ Organic Filter (F-4)			
○ Shallow Wetland (W-1)			
○ Extended Detention Wetland (W-2)			
○ Pond/Wetland System (W-3)			
○ Pocket Wetland (W-4)			
○ Wet Swale (O-2)			

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Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area (acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other [ ]	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.286 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ● **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

0.252 **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

● **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

3.665 **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).

3.951

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ● **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

1.152 **acre-feet**

CPv Provided

1.188 **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development . **CFS**

Post-development . **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development . **CFS**

Post-development . **CFS**

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ● Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Homeowner's Association

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

100% of the Water Quality Volume was not reduced for this site due to the poor infiltration qualities of the site soils (Type 'D') and the limiting head available.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ● Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP N Y R
- ○ Other
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ● **Yes** ○ **No**
If Yes, Indicate Size of Impact. 2.5

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. N Y R

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

Brad

MI

Print Last Name

Packard

Owner/Operator Signature

Date

/ /

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Ciminelli Muir Woods, LLC
2. Contact Person:	~~Brad Packard~~ Paul Ciminelli
3. Street Address:	350 Essjay Rd
4. City/State/Zip:	Williamsville, NY 14221
II. Project Site Information	
5. Project/Site Name:	Muir Woods Subdivision
6. Street Address:	520 Campbell Blvd & 1121 N. French Rd
7. City/State/Zip:	Amherst, NY 14228
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	Vaishali Reberholt P.E., CPESC
9. Title/Position:	Stormwater Management Officer
10. Date Final SWPPP Reviewed and Accepted:	06/27/2018
IV. Regulated MS4 Information	
11. Name of MS4:	Town of Amherst
12. MS4 SPDES Permit Identification Number: NYR20A	122
13. Contact Person:	Vaishali Reberholt P.E., CPESC
14. Street Address:	1100 N. Forest Rd
15. City/State/Zip:	Williamsville, NY 14221
16. Telephone Number:	716-631-7154

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:	Vaishali Reberholt, P.E., CPESC
Title/Position:	Stormwater Management Officer
Signature:	
Date:	06/27/18

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 | F: (518) 402-9029
www.dec.ny.gov

7/5/2018

Ciminelli Muir Woods, LLC
Paul Ciminelli
350 Essjay Road
Williamsville, NY 14221

Re ACKNOWLEDGMENT of NOTICE of INTENT for Coverage Under SPDES General Permit for Storm Water Discharges from CONSTRUCTION ACTIVITY General Permit No. GP-0-15-002

Dear Prospective Permittee:

This is to acknowledge that the New York State Department of Environmental Conservation (Department) has received a complete Notice of Intent (NOI) for coverage under General Permit No. GP-0-15-002 for the construction activities located at:

Muir Woods Subdivision
1121 North French Road & 520 Campbell Blvd
Amherst, NY 14228 County: **ERIE**

Pursuant to Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, ECL Article 70, discharges in accordance with GP-0-15-002 from the above construction site will be authorized **5** business days from **06/28/2018**, which is the date we received your final NOI, unless notified differently by the Department.

The permit identification number for this site is: **NYR11D909**. Be sure to include this permit identification number on any forms or correspondence you send us. When coverage under the permit is no longer needed, you must submit a Notice of Termination to the Department.

This authorization is conditioned upon the following:

1. The information submitted in the NOI received by the Department on **06/28/2018** is accurate and complete.

2. You have developed a Stormwater Pollution Prevention Plan (SWPPP) that complies with GP-0-15-002 which must be implemented as the first element of construction at the above-noted construction site.

3. Activities related to the above construction site comply with all other requirements of GP-0-15-002.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

4. Payment of the annual $110 regulatory fee, which is billed separately by the Department in the late fall. The regulatory fee covers a period of one calendar year. In addition, since September 1, 2004, construction stormwater permittees have been assessed an initial authorization fee which is now $110 per acre of land disturbed and $675 per acre of future impervious area. The initial authorization fee covers the duration of the authorized disturbance.

5. Your SWPPP has been reviewed by the regulated, traditional land use control MS4 where your project is located and has been determined to be in substantive conformance with the requirements in the SPDES General Permit for Stormwater Discharges from MS4s.

6. Before disturbing greater than 5 acres of soil at any one time, you have obtained written authorization from the regulated, traditional land use control MS4 that has jurisdiction over the project.

7. When applicable, project review pursuant to the State Environmental Quality Review Act (SEQRA) has been satisfied.

8. You have obtained all necessary Department permits subject to the Uniform Procedures Act (UPA). You should check with your Regional Permit Administrator for further information.

***Note: Construction activities cannot commence until project review pursuant to SEQRA has been satisfied, when SEQRA is applicable; and, where required, all necessary Department permits subject to the UPA have been obtained.**

Please be advised that the Department may request a copy of your SWPPP for review.

Should you have any questions regarding any aspect of the requirements specified in GP-0-15-002, please contact Dave Gasper at (518) 402-8114 or the undersigned at (518) 402-8109.

Sincerely,

Toni Cioffi

Toni Cioffi
Environmental Program Specialist 1

PLEASE NOTE: EPA HAS FINALIZED THE eREPORTING RULE; AND, IN THE NEAR FUTURE, ALL NOIs WILL HAVE TO BE SUBMITTED ELECTRONICALLY.
BY FILING AN NOI ELECTRONICALLY, A PROJECT CAN TYPICALLY GAIN COVERAGE IN 5 BUSINESS DAYS COMPARED TO 10 BUSINESS DAYS FOR THE PAPER NOI.
INFORMATION ON THE eNOI CAN BE FOUND ON OUR WEBSITE AT:
http://www.dec.ny.gov/chemical/43133.html UNDER "FORMS."

cc RWE - 9
SWPPP Preparer
Greenman-Pedersen, Inc.
Plotar, Thomas
4950 Genesee Street, Suite 100
Buffalo, NY 14225

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

EXHIBITS

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

EXHIBIT 1

SITE LOCATION MAP

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

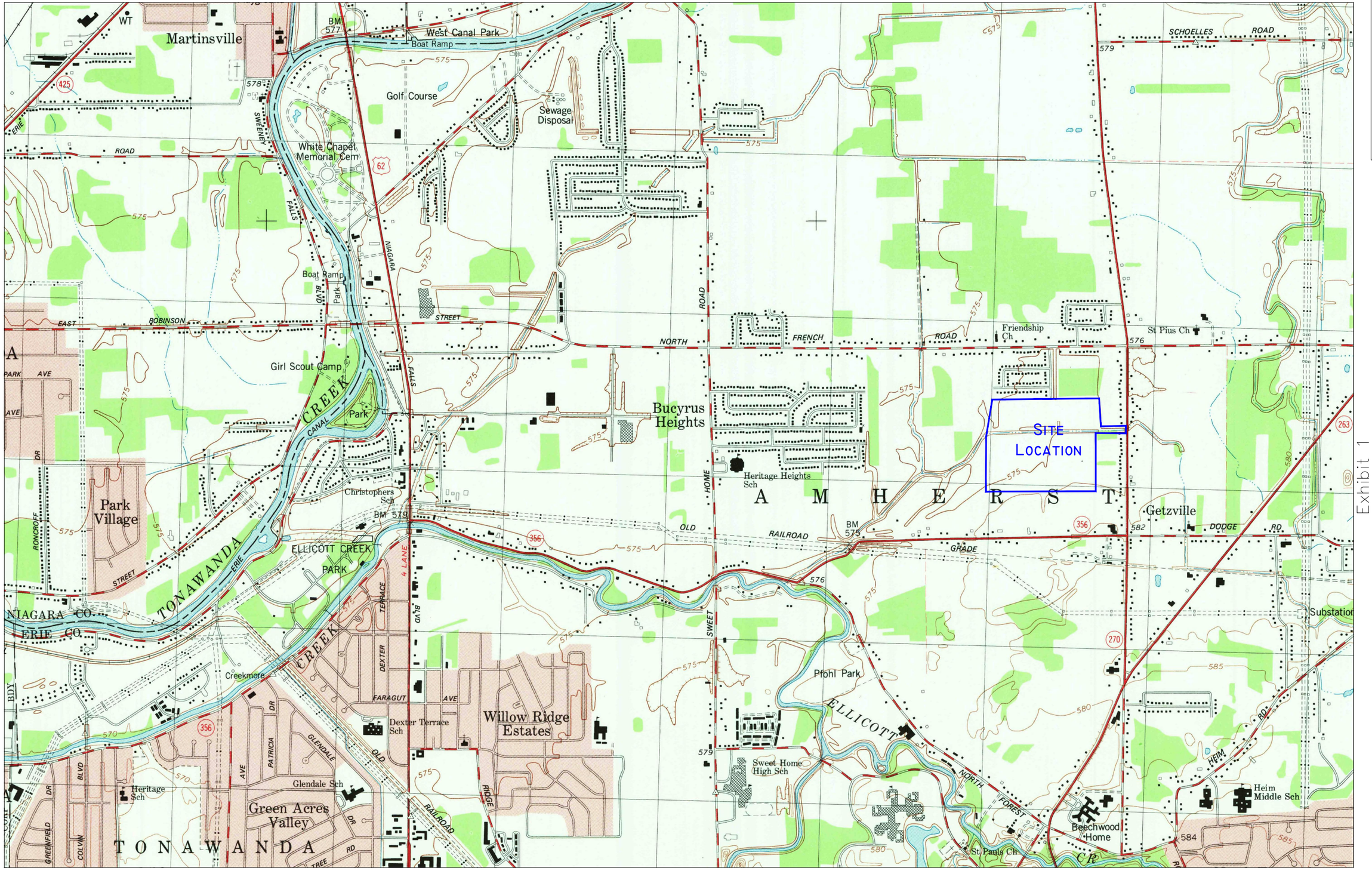

Exhibit 1

Site Location Map

Muir Woods Subdivision

TOWN OF AMHERST, COUNTY OF ERIE, STATE OF NEW YORK

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, N.Y. 14204
(716)853-4844 FAX (716)853-4846

GPI

JOB No.: BUF-2017014 DATE: MAY 201

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EXHIBIT 2

PRE-DEVELOPED WATERSHED DELINEATION MAP

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

SUB 31
AREA = 234.88 ACRES

SUB 29
AREA = 229.32 ACRES

SUB 30
AREA = 190.46 ACRES

SUB 27
AREA = 112.31 ACRES

SUB 26B
AREA = 220.93 ACRES

SUB 28
AREA = 24.65 ACRES

SUB 26A
AREA = 118.92 ACRES

SUB D4DS
AREA = 280.91 ACRES

SUB R1
AREA = 14.58 ACRES

NOTE: TOPOGRAPHIC FEATURES TAKEN FROM TOWN OF AMHERST G.I.S. MAP

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, N.Y. 14225
PH (716) 853-4444 FAX (716) 853-4480

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 2
Existing Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

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EXHIBIT 3

POST DEVELOPED WATERSHED DELINEATION MAP

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

SUB 30
AREA = 425.34 ACRES

SUB 29
AREA = 229.32 ACRES

SUB 27
AREA = 112.31 ACRES

SUB 26B
AREA = 220.93 ACRES

SUB 28
AREA = 24.65 ACRES

SEE EXHIBIT 3A

SUB D4DS
AREA = 280.91 ACRES

SUB R1
AREA = 14.58 ACRES

NOTE: TOPOGRAPHIC FEATURES TAKEN FROM TOWN OF AMHERST G.I.S. MAP

Exhibit 3
Post Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY NEW YORK

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, NY 14225
(716) 853-4444 FAX (716) 853-4480

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

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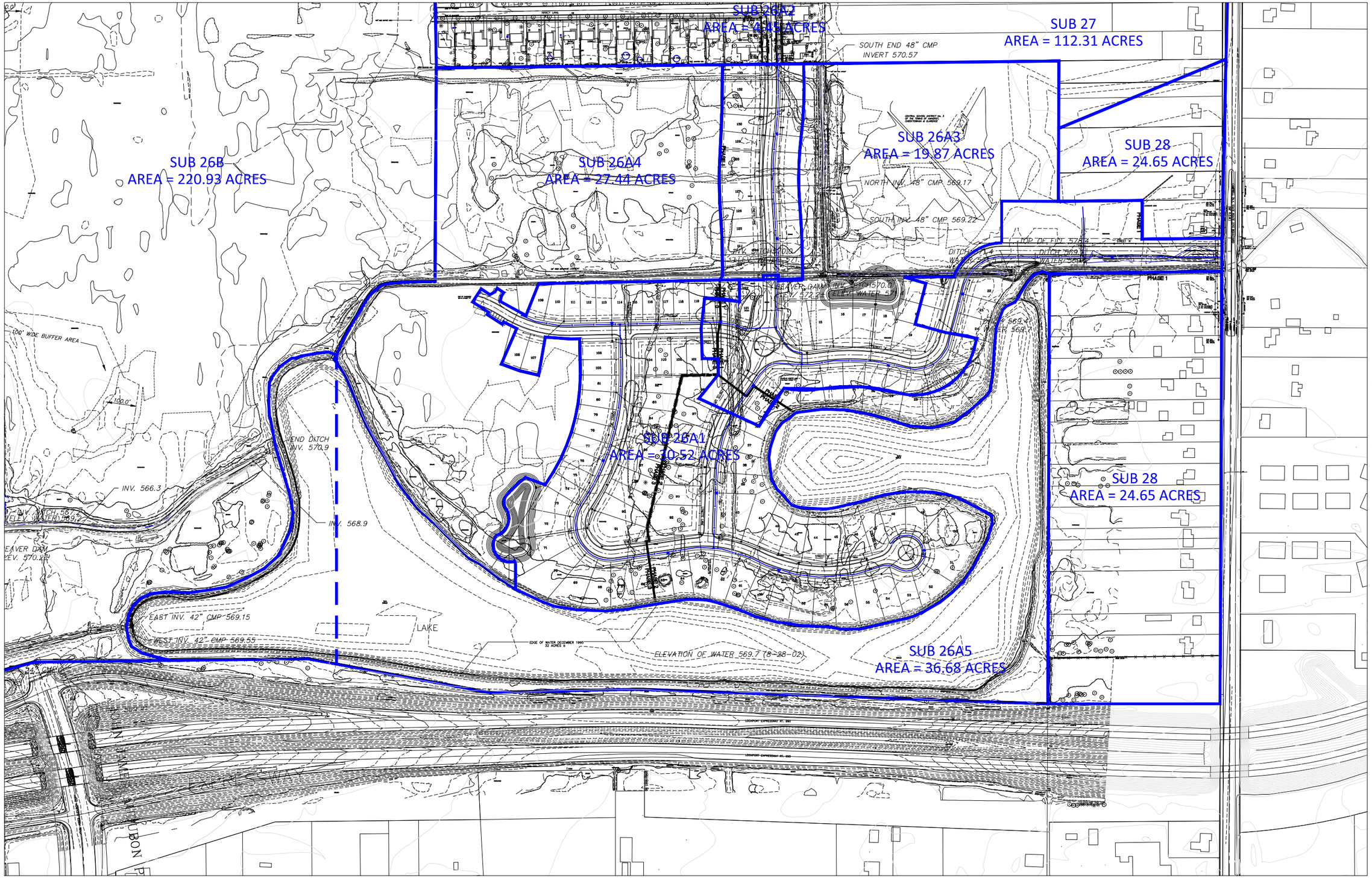

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
4950 GENESEE STREET, SUITE 165 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 3A
Post Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

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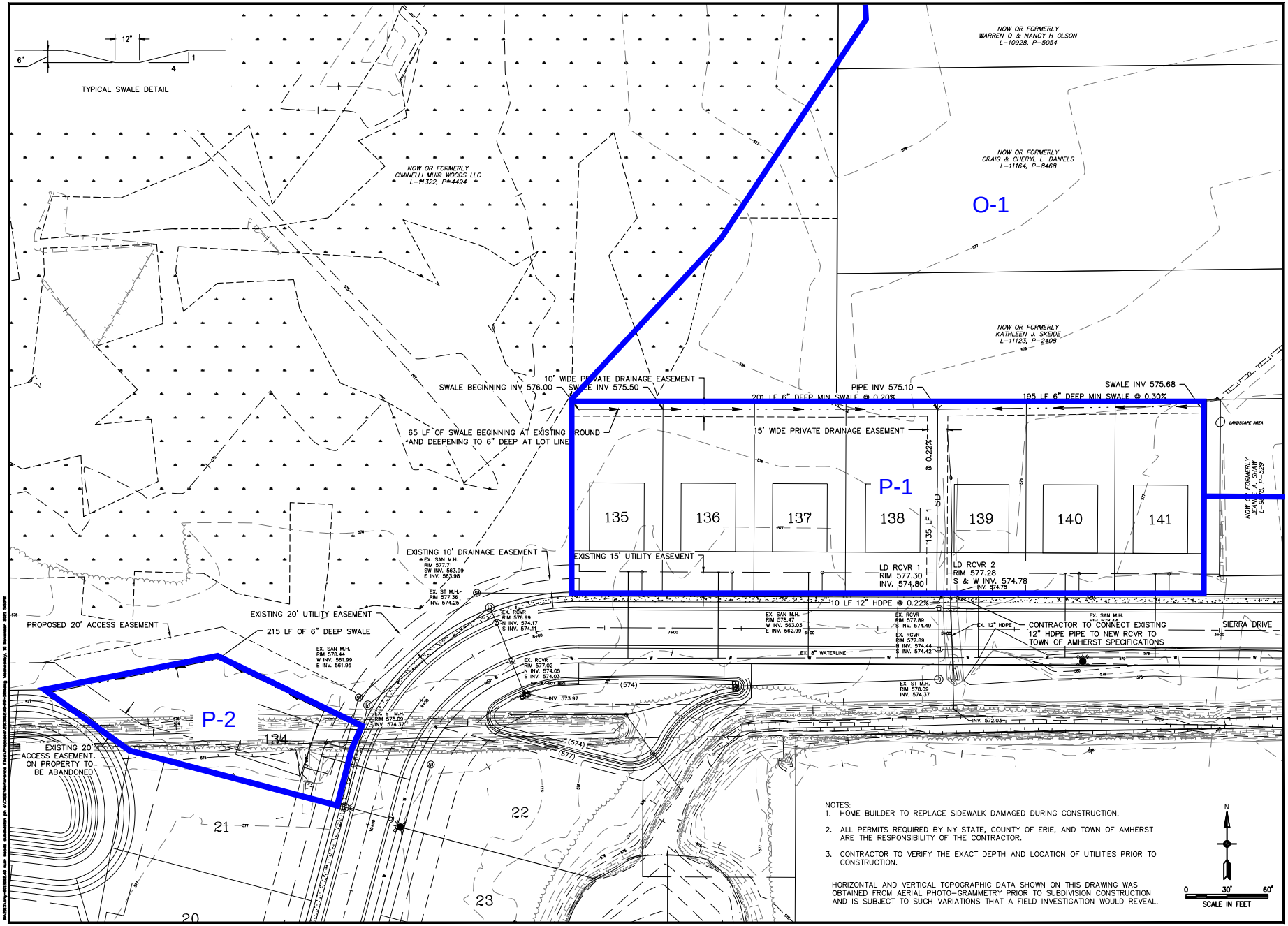


GPI Engineering Design Planning Construction
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 1
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Wood
50 Fountain Plaza, S
Buffalo, NY 142

Muir Woods Subdivision, Phase 4
520 Campbell Blvd

STATE OF NEW YORK GREENMAN PEDERSEN, INC. LICENSED PROFESSIONAL ENGINEER No. 091

REVISIONS

NO.	REVISION

November 12, 20

DRAWN/DESIGN BY THM | CHE

Drainage Pl

SCALE: 1" = 30'

WNY-2013062.4

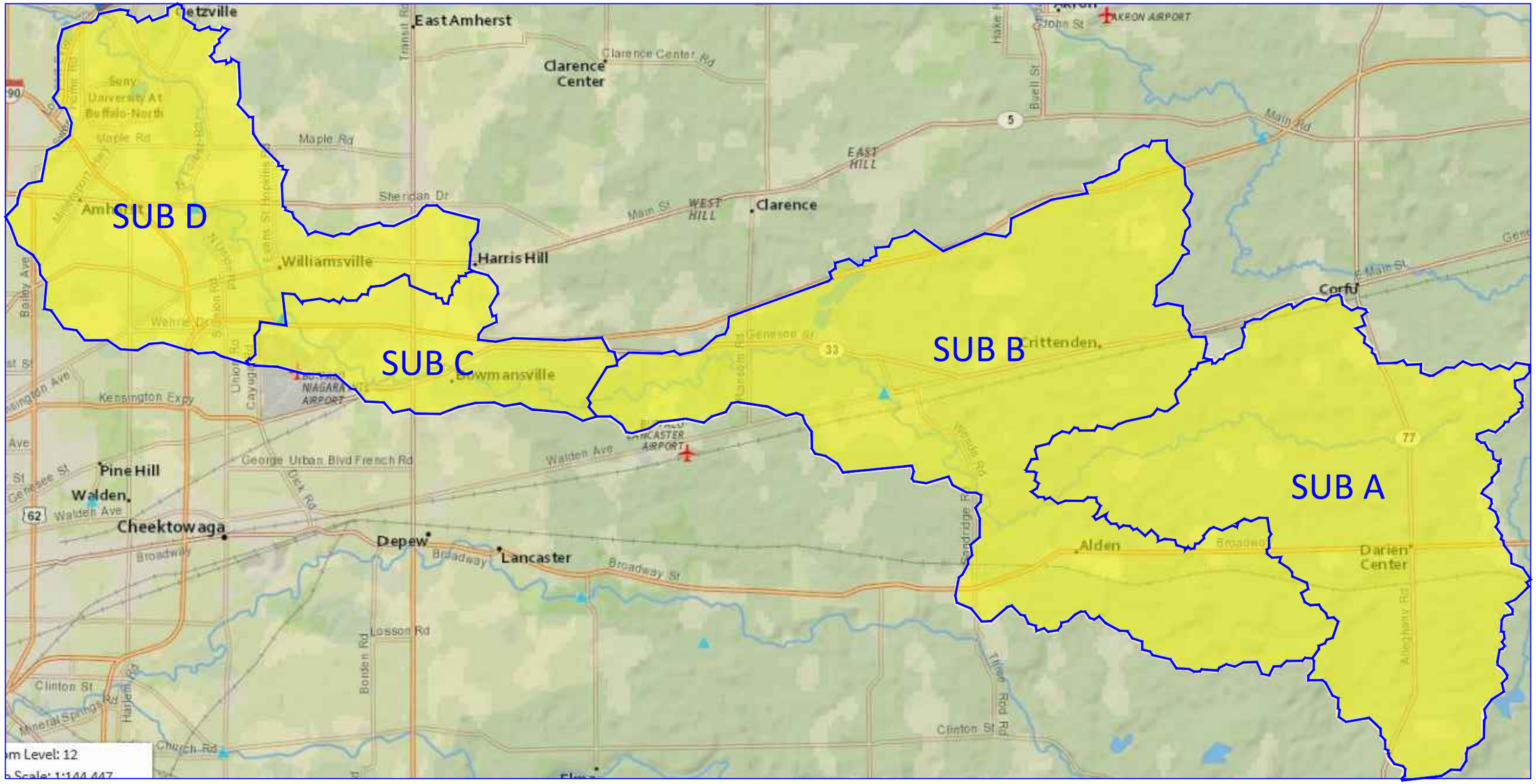
03 OF 0

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

EXHIBIT 4

ELLICOTT CREEK WATERSHED DELINEATION MAP

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)



GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
4950 GENESEE STREET, SUITE 165 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 4
Ellicott Creek Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

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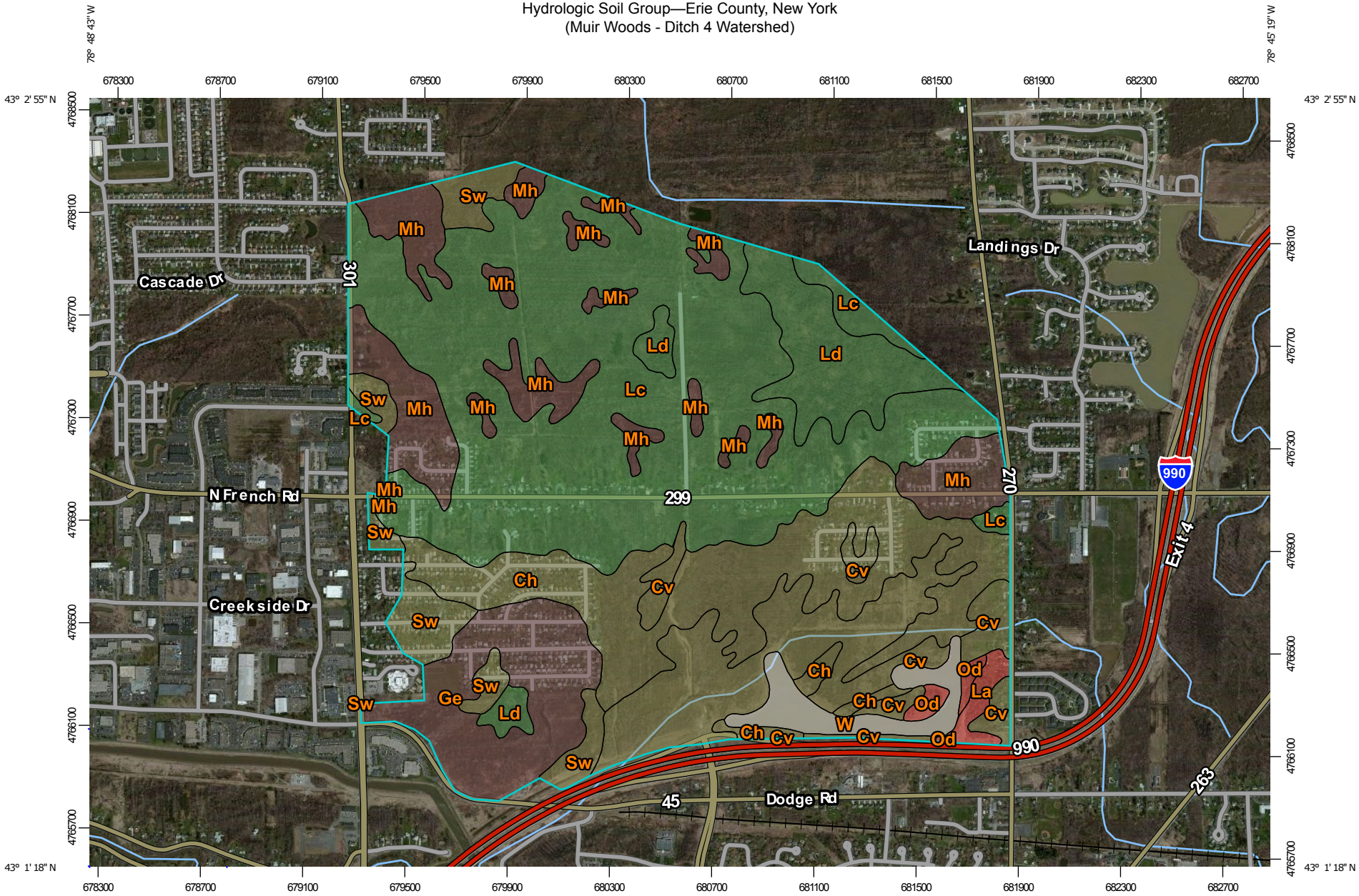
EXHIBIT 5

SITE SOIL MAP

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Hydrologic Soil Group—Erie County, New York
(Muir Woods - Ditch 4 Watershed)



Map Scale: 1:21,100 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Hydrologic Soil Group—Erie County, New York
(Muir Woods - Ditch 4 Watershed)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 15, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Erie County, New York (NY029)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ch	Cheektowaga fine sandy loam	C/D	188.2	15.4%
Cv	Cosad loamy fine sand	C/D	143.5	11.8%
Ge	Getzville silt loam	B/D	93.0	7.6%
La	Lakemont silt loam, 0 to 3 percent slopes	D	8.9	0.7%
Lc	Lamson very fine sandy loam	A/D	484.8	39.8%
Ld	Lamson mucky very fine sandy loam	A/D	77.0	6.3%
Mh	Minoa very fine sandy loam	B/D	129.7	10.6%
Od	Odessa silt loam, 0 to 3 percent slopes	D	6.5	0.5%
Sw	Swormville clay loam	C/D	56.6	4.6%
W	Water		30.9	2.5%
Totals for Area of Interest			**1,219.0**	**100.0%**

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

March 29, 2022

Scott Marshall
Town of Amherst Planning Department
5583 Main Street
Williamsville, NY 14221

RE: FINAL PLAT REVIEW
MUIR WOODS PHASE 4
520 CAMPBELL BLVD
TOWN JOB No. SUB-2021-24

Dear Mr. Marshall:

This letter and the enclosed updated project documentation is being submitted on behalf of Ciminelli Muir Woods, LLC ("Applicant") for the purpose of responding to the written reviews by Town Departments and Committees that have been received in connection with the pending request for Final Plat Approval for the above referenced subdivision to be located at 520 Campbell Boulevard (the "Project Site").

Enclosed please find two (2) sets of the updated fully engineered plans and Engineer's Report prepared by GPI Engineering ("GPI") being submitted on behalf of the Project Sponsor.

The following sections of this letter have been prepared for the purpose of responding to the outstanding departmental and committee reviews that have been issued. For the purposes of convenience, each of the comments in the departmental and committee reviews have been reproduced below in *italics* followed by a response to each comment.

I. COMMENTS OF THE PLANNING DEPARTMENT DATED MARCH 7, 2022:

The Memorandum issued by Daniel C. Howard, AICP, Planning Director, dated March 7, 2022, provided the following comments:

A. ZONING ENFORCEMENT OFFICER REVIEW:

Comment #1: *Approved with the condition that item #1 from the Planning Board Resolution of approval dated February 17, 2022 be addressed. (Condition: That future homes built on lots #134 through #141 meet the minimum yard area requirements of §203-3-6 B of Town Code and the deeds for the individual lots carry within them such restriction.)*

Response to Comment #1: All lots within the proposed development meet the minimum yard requirements of §203-3-6 B of Town Code. Lot areas and dimensions are provided on the subdivision map.

B. PLANNING DEPARTMENT STAFF REVIEW:

Comment #1: *That future homes built on lots #134 through 141 meet the minimum yard area requirements of §203-3-6 B of Town Code and the deeds for the individual lots carry within them such restriction.*

Response to Comment #1: All lots within the proposed development meet the minimum yard requirements of §203-3-6 B of Town Code. Lot areas and dimensions are provided on the subdivision map.

Comment #2: *That 9.88± acres of land which includes 6.88± acres of wetland area be donated to the Town of Amherst. A survey and legal description of this land area will be provided with any final plat submitted for this development.*

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Response to Comment #2: The survey and legal description for the land to be donated to the Town of Amherst will be provided to the Town with the signed final plat maps.

Comment #3: *That the petitioner shall contribute funds to an account to be used toward funding improvements to the intersection of North French Road and Campbell Boulevard. The amount of funds shall be derived from the cost of improvements as determined by the NYSDOT. The funds for the intersection improvements shall be deposited in an account prior to issuance of any certificate of occupancy by the Building Department for homes on the 8 lots (#134 through #141) proposed by this site plan.*

Response to Comment #3: The Project Sponsor acknowledges the requirement. We are not aware of NYSDOT providing any information regarding this requirement.

Comment #4: *That the Declaration of Restrictions and Restrictive Covenants recorded at the County Clerk's Office for the homeowners association for "The Preserve at Muir Woods" be also filed and applied to the subject subdivision and a recorded copy of the Declaration of Restrictions shall be provided to the Town upon recording of the final plat in the County Clerk's office.*

Response to Comment #4: The Declaration of Restrictions will be recorded at the Erie County Clerk's Office subsequent to the filing of the Map Cover at the Erie County Clerk's Office.

Comment #5: *That the recreation path at the western terminus of Sierra Drive connecting this portion of the Muir Woods Development (Sites C & D) to Site B be constructed and that the associated property and trail be conveyed to the Town at no cost by December 31, 2022. Additionally no issuance of any certificate of occupancy by the Building Department for homes on the 8 lots (#134 through #141) be granted until completion of the aforementioned.*

Response to Comment #5: The recreation path from the terminus of Sierra Drive to Site B of Muir Woods is included within the design plans for this phase and it is acknowledged that will be constructed and conveyed to the Town by December 31, 2022.

Comment #6: *That the concerns raised in the Engineering Departments letter dated January 3, 2022 relating to PIP's and I/I mitigation be addressed to the satisfaction of that department.*

Response to Comment #6: The concerns of the Engineering Department have been addressed and responses are listed below.

Site Plan for Final Plat Conditions:

Comment #1: *That the landscaping required between lot #141 and 530 Campbell Boulevard be installed with any PIP or Plumbing Permit issued by the Town of Amherst.*

Response to Comment #1: The Project Sponsor acknowledges that the landscaping as indicated on the design plans be installed with any PIP or Plumbing Permit issued by the Town of Amherst.

Comment #2: *That sidewalks are required along Sierra Drive.*

Response to Comment #2: Sidewalks are already installed on Sierra Drive. A note has been provided on the design plans that any sidewalks damaged during lot and house construction be replaced.

Comment #3: *That street lighting and the associated lighting district is required for the proposed subdivision.*

Response to Comment #3: The Project Sponsor acknowledges that street lighting and an associated lighting district is required for the subdivision.

Comment #4: *That recreation fees are required for the proposed subdivision lots in accordance with the adopted fee schedule.*

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Response to Comment #4: The Project Sponsor acknowledges that recreation fees for the subdivision lots are required.

Comment #5: *Please provide an 8 1/2 " x 11" reduction of the site plan and an electronic version of any revised plans, amended or additional materials submitted for review.*

Response to Comment #5: An 8 ½" x 11' copy of the site plan is enclosed and electronic versions will be provided.

C. LANDSCAPE ARCHITECT REVIEW:

Comment #1: *Petitioner and petitioner's contractor shall take all reasonable measures to protect existing trees which are to be preserved from all possible types of root, trunk, and limb damage; including but no limited to, retaining walls which prevent filling on top of roots or excavating tree roots as required by of §203-7-2-3 (B)(3) of Town Code.*

Response to Comment #1: The Project Sponsor acknowledges this condition.

II. COMMENTS OF THE ENGINEERING DEPARTMENT DATED MARCH 1, 2022:

The Memorandum issued by Brian Armstrong, EIT of the Town Engineering Department dated March 1, 2022, provided the following comments:

Comment #1: *PIP Required (includes Pedestrian Pathway & culvert). Pedestrian pathway and culvert must be constructed and completed prior to issuance of any Town of Amherst Plumbing Permits associated with these eight (8) additional lots.*

Response to Comment #1: The Project Sponsor acknowledges the need to obtain required PIPs that include the pedestrian pathway and culvert.

Comment #2: *Plans must be revised to include pedestrian protection at the proposed pedestrian pathway culvert*.

Response to Comment #2: Plan sheet RT-1 has been updated to provide a barrier for pedestrian protection at the culvert.

Comment #3: *As the proposed average sanitary use is indicated to exceed 2,500 gallons per day, the Report must also be revised to include a detailed downstream sewer capacity analysis. These revisions must be presented to this office prior to the issuance of any Town of Amherst Plumbing Permits.*

Response to Comment #3: The Engineer's Report has been revised to include a detailed downstream sewer capacity analysis. Enclosed is a copy of the letter from Brian Armstrong to the Erie County Health Department dated March 25th approving the DSCA that Sean Hopkins, Esq. previously also e-mailed to you,

Comment #4: *Pursuant to Chapter 160 of the Town Code, this developer has committed to a payment of $8,476.73 to the sewer remediation trust fund. This payment must be received by this office prior to the issuance of any plumbing permits or acceptance of any PIP applications.*

Response to Comment #4: The Project Sponsor acknowledges the requirement to provide payment to the sewer remediation trust fund prior to PIP applications or plumbing permits. A copy of the I/I commitment letter was previously included with the updated Site Plan submission made to the Planning Department on January 31st.

III. CONCLUSION

The applicant requests that the Planning Board grant Final Plat approval subject to appropriate conditions during its next meeting to be held on Thursday, April 21st at 6:30pm.

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Please feel free to contact me at 989-3342 if you have any questions. Thank you for your consideration in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.



Kenneth C. Zollitsch
Director of Land Planning

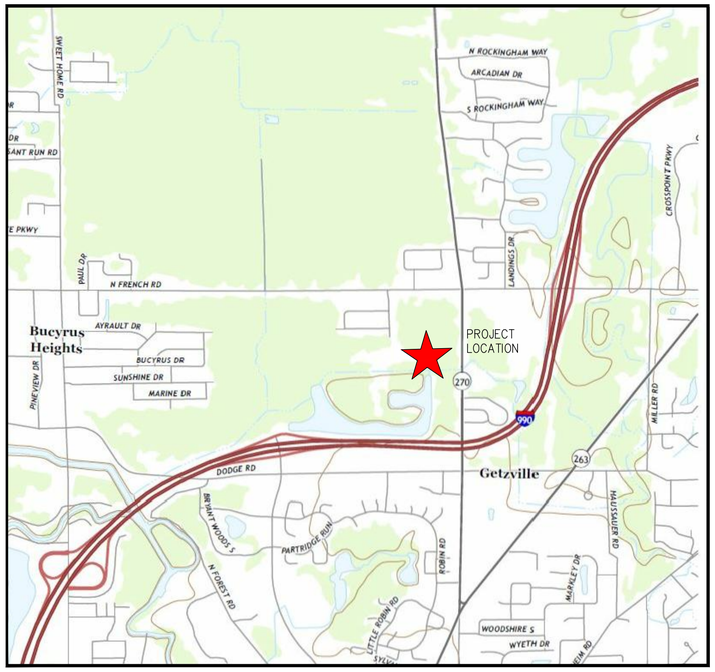
cc: Brian Armstrong, Engineering Department
Josh Ulinger, Ciminelli Muir Woods, LLC
Sean Hopkins, Hopkins Sorgi & McCarthy, PLLC
2013062.40

Attachment: SP-2021-24_A application 051922 (25493 : Sp-2021-24A)

Muir Woods Subdivision, Phase 4

Ciminelli Muir Woods LLC

520 Campbell Blvd
Town of Amherst, NY 14068



PROJECT LOCATION MAP
N.T.S.

Sheet List Table	
Sheet Number	Sheet Title
00	Cover Sheet
--	Subdivision Map
01	Existing Conditions
02	Utility Plan
03	Drainage Plan
04	Site Details
05	Grading Plan
06	Erosion and Sediment Control Plan
07	Erosion and Sediment Control Details
08	Erosion and Sediment Control Notes
L-1	Landscape Plan
RT-1	Recreational Trail Paving Plan
RT-2	Recreational Trail Erosion and Sediment Control Plan

THOMAS WOLANSKI, P.E. DATE: January 26, 2022

STATE OF NEW YORK · GREENMAN PEDERSEN, INC. · No. 151 · LICENSED PROFESSIONAL ENGINEER

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GPI Engineering Design Planning Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

WNY-2013062.40	November 12, 2021

SHEET NO.
00

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Attachment: SP-2021-24_A drawings 051922 (25493 : Sp-2021-24A)

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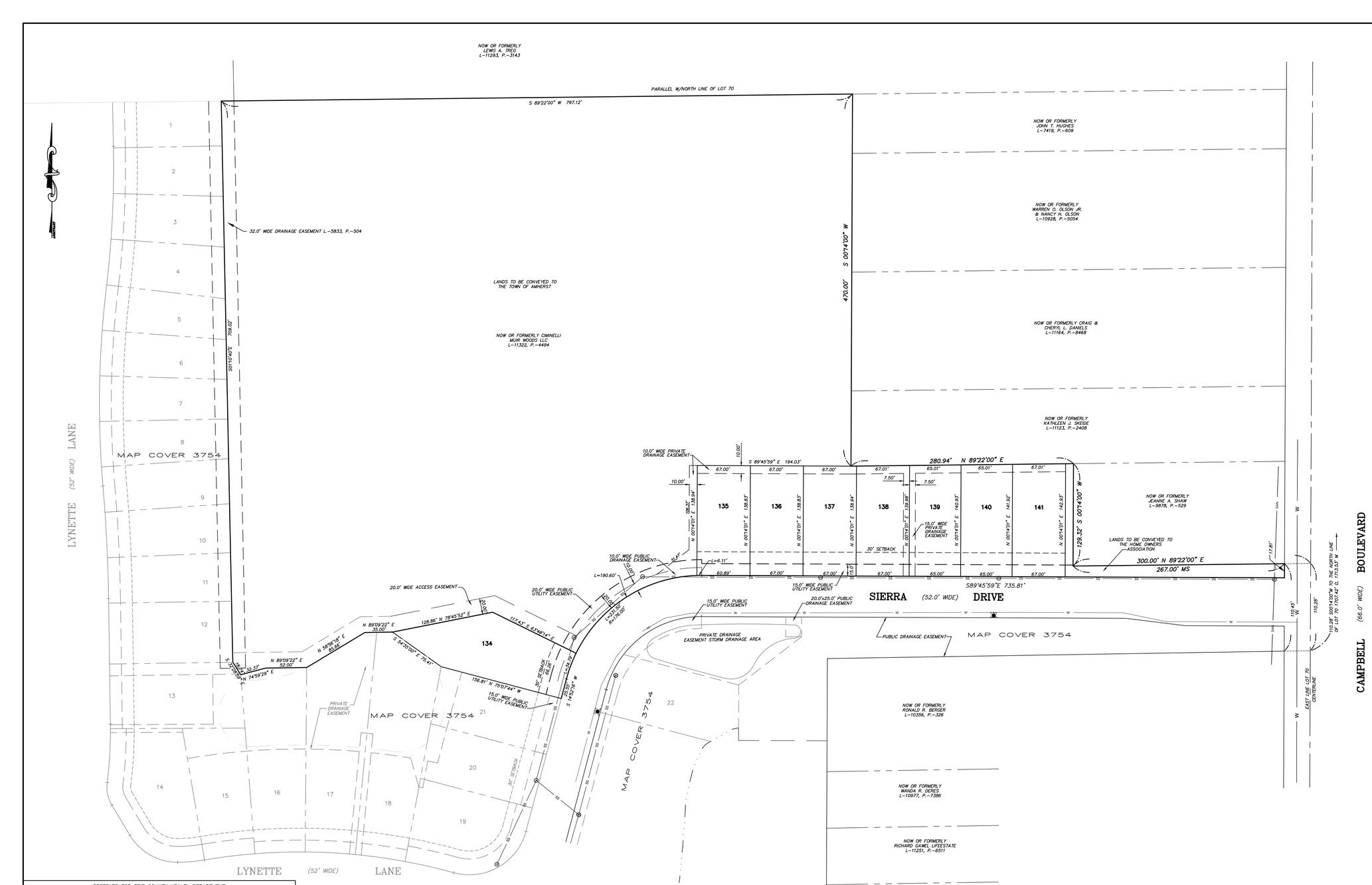
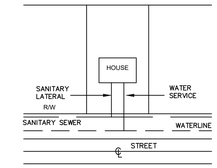


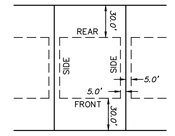
SANITARY SEWER FACILITIES, EXISTING AND PROPOSED, AND WATER SUPPLY FACILITIES, EXISTING AND PROPOSED, SHOWN ON THIS SUBDIVISION MAP ARE FOR THE PURPOSE OF COMPLIANCE WITH NEW YORK STATE REALTY SUBDIVISION LAW. GPI ENGINEERING, LANDSCAPE ARCHITECTURE AND SURVEYING, LLP ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF SANITARY SEWER AND WATER FACILITIES SHOWN ON THIS MAP OR FOR THE APPROVAL, CONSTRUCTION OR ACCEPTANCE BY APPROPRIATE GOVERNMENT AGENCIES OF SAID FACILITIES.



LOT AREAS

LOT 134	13,491 ± Sq. Ft.
LOT 135	9,302 ± Sq. Ft.
LOT 136	9,302 ± Sq. Ft.
LOT 137	9,305 ± Sq. Ft.
LOT 138	9,344 ± Sq. Ft.
LOT 139	9,130 ± Sq. Ft.
LOT 140	9,193 ± Sq. Ft.
LOT 141	9,542 ± Sq. Ft.

TYPICAL LOT SETBACK DEPICTION



NOTES:

ALL IMPROVEMENTS WILL BE INSTALLED UNDER TOWN PERMITS WITH ALL PLANS CONSISTENT WITH PRELIMINARY PLAT.

PUBLIC DRAINAGE EASEMENTS SHALL BE GRANTED TO THE TOWN OF AMHERST TO PROVIDE ACCESS TO STORM WATER FACILITIES. THESE EASEMENTS SHALL REMAIN FREE OF OBSTRUCTIONS.

PRIVATE DRAINAGE EASEMENTS SET FORTH ON THE SUBDIVISION MAP ARE FOR THE BENEFIT OF THE OWNERS OF PROPERTY WITHIN THE SUBDIVISION AND THE BENEFIT DERIVED FROM THESE EASEMENTS IS FOR THE PROPERTY ONLY AND THE TOWN OF AMHERST ASSUMES NO RESPONSIBILITY FOR THE MAINTENANCE THEREOF.

SEE SURVEY PREPARED BY GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP JOB NO. 2013062 DATED: DECEMBER 17, 2017

SUBDIVISION AREA: 13.18± Acres

OWNERS CONSENT FOR FILING :

_____ _____

OWNER DATE

APPROVED BY THE TOWN OF AMHERST PLANNING BOARD, ERIE COUNTY, NEW YORK :

_____ _____

CHAIRMAN DATE

RESERVED FOR ERIE COUNTY HEALTH DEPARTMENT

RESERVED FOR ERIE COUNTY DEPARTMENT OF FINANCE

MARK J. ANDREWS, L.S.

STATE OF NEW YORK — MARK J. ANDREWS — 090231 — LICENSED LAND SURVEYOR

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FILED IN THE ERIE COUNTY CLERK'S OFFICE UNDER

MAP COVER: _____ DATE: _____

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 INCH = 60 FEET

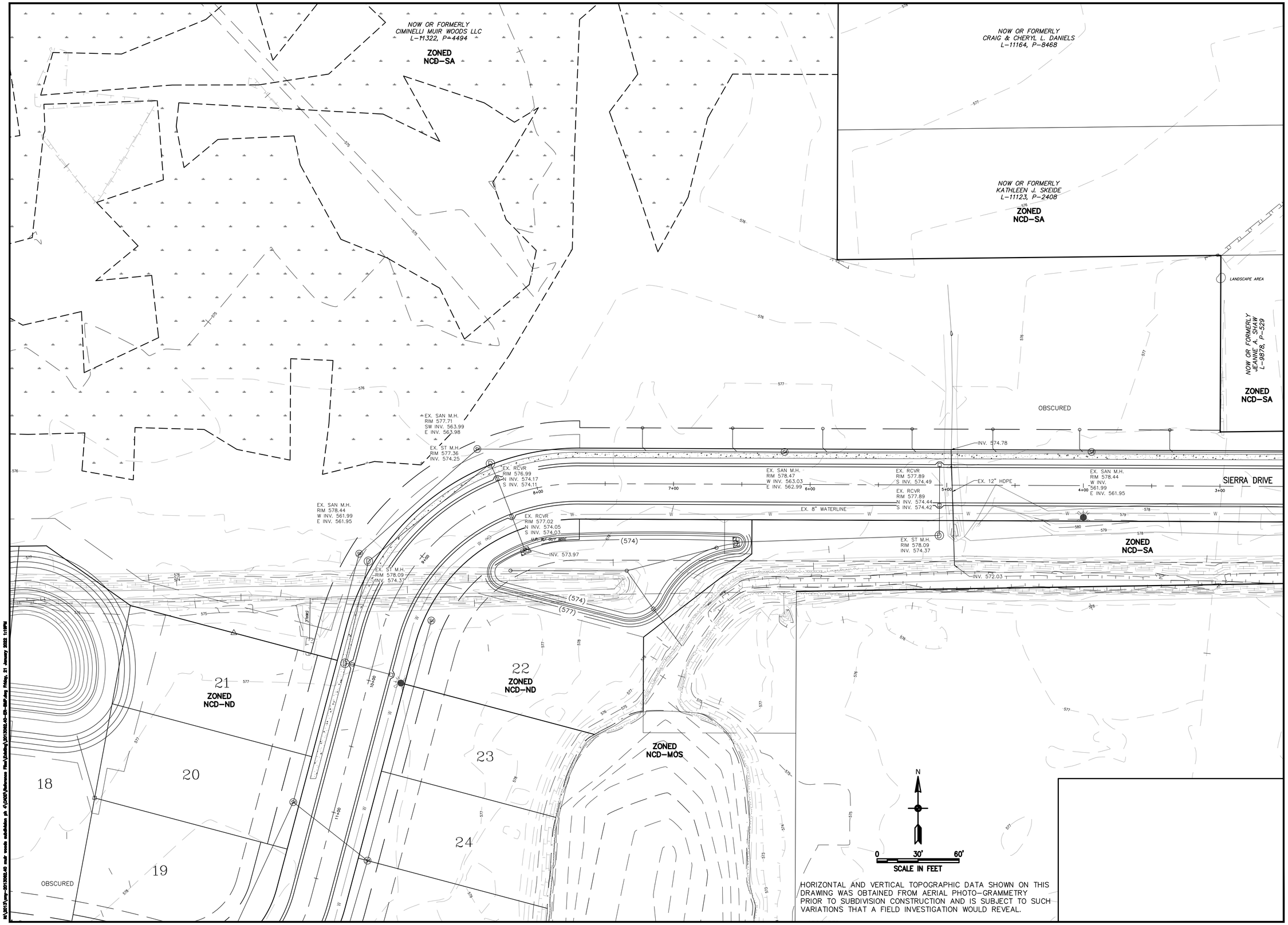
The Preserve at Muir Woods Phase 4

PART OF LOT 70, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062 Date: JANUARY 27, 2022

Attachment: SP-2021-24_A drawings 051922 (25493 : Sp-2021-24A)



HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. 181
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REVISIONS

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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Existing Conditions

SCALE: 1" = 30'

WNY-2013062.40

01 OF 08

Attachment: SP-2021-24_A drawings 051922 (25493 : Sp-2021-24A)

NOW OR FORMERLY
CIMINELLI MUIR WOODS LLC
L-11322, P-4494

ZONED
NCD-SA

NOW OR FORMERLY
CRAIG & CHERYL L. DANIELS
L-11164, P-8468

NOW OR FORMERLY
KATHLEEN J. SKEIDE
L-11123, P-2408

ZONED
NCD-SA

NOW OR FORMERLY
JEANNE A. SHAW
L-9878, P-529

ZONED
NCD-SA

LANDSCAPE AREA

SIERRA DRIVE

ZONED
NCD-SA

ZONED
NCD-ND

ZONED
NCD-ND

ZONED
NCD-MOS

135 136 137 138 139 140 141

134

21

22

23

24

18

19

20

SD

¾" TYPE "K" COPPER TUBING
FARSIDE WATER SERVICES (TYP)

6" PVC SAN LATERAL WITH CLEANOUT

EX. SAN M.H.
RIM 577.71
SW INV. 563.99
E INV. 563.98

EX. ST M.H.
RIM 577.36
INV. 574.25

EX. RCVR
RIM 576.99
N INV. 574.17
S INV. 574.11

EX. SAN M.H.
RIM 578.44
W INV. 561.99
E INV. 561.95

EX. RCVR
RIM 577.02
N INV. 574.05
S INV. 574.03

U.G. TV CUT WIRE

INV. 573.97

EX. ST M.H.
RIM 578.09
INV. 574.37

EX. SAN M.H.
RIM 578.47
W INV. 563.03
E INV. 562.99

EX. RCVR
RIM 577.89
S INV. 574.49
N INV. 574.44
S INV. 574.42

EX. 8" WATERLINE

EX. 12" HDPE

EX. SAN M.H.
RIM 578.44
W INV. 561.99
E INV. 561.95

EX. ST M.H.
RIM 578.09
INV. 574.37

INV. 574.78

INV. 572.03

NOTES:

1. ALL PERMITS REQUIRED NY NY STATE, COUNTY OF ERIE, AND TOWN OF AMHERST ARE THE RESPONSIBILITY OF THE CONTRACTOR..
2. CONTRACTOR TO VERIFY EXACT DEPTH & LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. COPPER TUBING SHALL BE TYPE "K" AND CONFORM TO ASTM B-88-62.
4. P.V.C. (POLYVINYL CHLORIDE) SANITARY SEWER SHALL CONFORM TO A.S.T.M. SDR-35 SPECIFICATIONS OR APPROVED EQUAL.

N

0 30' 60'
SCALE IN FEET

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GPI
Engineering
Design
Planning
Construction Management

Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR

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Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. [illegible]

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THM	TW

Utility Plan

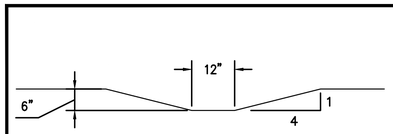
SCALE:
1" = 30'

WNY-2013062.40

02 OF 08

Attachment: SP-2021-24, A drawings 051922 (25493 : Sp-2021-24A)

M:\WNY\proj-2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062-ph-Plt-UTL.dwg Friday, 21 January 2022 10:07:17



TYPICAL SWALE DETAIL

NOW OR FORMERLY
CIMINELLI MUIR WOODS LLC
L-M322, P-4494

ZONED
NCD-SA

NOW OR FORMERLY
CRAIG & CHERYL L. DANIELS
L-11164, P-8468

NOW OR FORMERLY
KATHLEEN J. SKEIDE
L-11123, P-2408

ZONED
NCD-SA

10' WIDE PRIVATE DRAINAGE EASEMENT

BY RCVR 3
RIM 575.80
INV. 574.75

BY RCVR 4
RIM 575.90
INV. 574.88

BY RCVR 5
RIM 576.10
INV. 575.10

LD RCVR 6
RIM 576.00
INV. 575.00

BY RCVR 7
RIM 576.10
INV. 575.10

BY RCVR 8
RIM 576.20
INV. 575.20

BY RCVR 9
RIM 576.30
INV. 575.29

LD RCVR 2
RIM 576.00
INV. 574.60

139 LF 6" HDPE @ 0.20%

67 LF 6" HDPE @ 0.15%

15' WIDE PRIVATE DRAINAGE EASEMENT

195 LF 6" HDPE @ 0.15%

LANDSCAPE AREA

10' WIDE PRIVATE DRAINAGE EASEMENT

104 LF 8" HDPE @ 0.20%

135 LF 6" HDPE @ 0.15%

135 136 137 138 139 140 141

NOW OR FORMERLY
JEANNE A. SHAW
L-9878, P-529

ZONED
NCD-SA

LD RCVR 1
RIM 577.30
INV. 574.39

68 LF 10" HDPE @ 0.20%

EX. SAN M.H.
RIM 577.71
SW INV. 563.99
E INV. 563.98

EXISTING 15' UTILITY EASEMENT

LD RCVR 10
RIM 577.30
INV. 574.80

LD RCVR 11
RIM 577.28
S & W INV. 574.78
INV. 574.78

10 LF 6" HDPE @ 0.15%

EX. ST M.H.
RIM 577.36
INV. 574.25

EXISTING 10' DRAINAGE EASEMENT

EXISTING 20' UTILITY EASEMENT

215 LF OF 6" DEEP SWALE

PROPOSED 20' ACCESS EASEMENT

EX. RCVR
RIM 576.99
N INV. 574.17
S INV. 574.11

PROPOSED NE INV. 574.25

EX. SAN M.H.
RIM 578.47
W INV. 563.03
E INV. 562.99

EX. RCVR
RIM 577.89
S INV. 574.49

EX. RCVR
RIM 577.89
N INV. 574.44
S INV. 574.42

EX. 12" HDPE

CONTRACTOR SHALL CONNECT
EXISTING 12" HDPE PIPE TO NEW
RECEIVER IN ACCORDANCE WITH
TOWN OF AMHERST REQUIREMENTS

SIERRA DRIVE

EX. SAN M.H.
RIM 578.44
W INV. 561.99
E INV. 561.95

EX. 8" WATERLINE

EX. RCVR
RIM 577.02
N INV. 574.05
S INV. 574.03

UTIL. W/ GUY WIRE

INV. 573.97

EX. ST M.H.
RIM 578.09
INV. 574.37

EX. ST M.H.
RIM 578.09
INV. 574.37

INV. 572.03

EXISTING 20'
ACCESS EASEMENT
ON PROPERTY TO
BE ABANDONED

134

21
ZONED
NCD-ND

22
ZONED
NCD-ND

23

24

ZONED
NCD-MOS

18

19

20

ZONED
NCD-SA

NOTES:
1. HOME BUILDER TO REPLACE SIDEWALK DAMAGED DURING CONSTRUCTION.
2. ALL PERMITS REQUIRED BY NY STATE, COUNTY OF ERIE, AND TOWN OF AMHERST ARE THE RESPONSIBILITY OF THE CONTRACTOR.
3. CONTRACTOR TO VERIFY THE EXACT DEPTH AND LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.

N

0 30' 60'
SCALE IN FEET

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

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PREPARED FOR
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Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. 101

WORKING ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Drainage Plan

SCALE: 1" = 30'

WNY-2013062.40

03 OF 08

Attachment: SP-2021-24_A drawings 051922 (25493 : Sp-2021-24A)

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority only shall operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

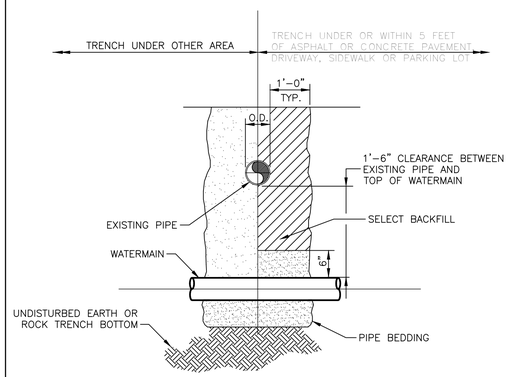
I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	SD29	
		DATE 3/05	REVISED 8/16

11. **All watermain piping shall be installed with a minimum of 5'-0" of cover.**
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of the 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict school bus access.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for approval.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30	
		DATE 3/05	REVISED 8/16



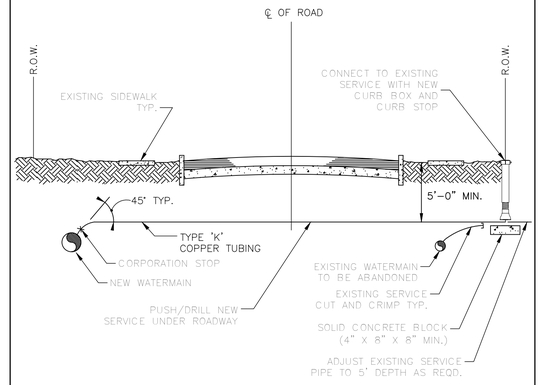
NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18. FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD2_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2	
		DATE 4/28/92	REVISED 7/16



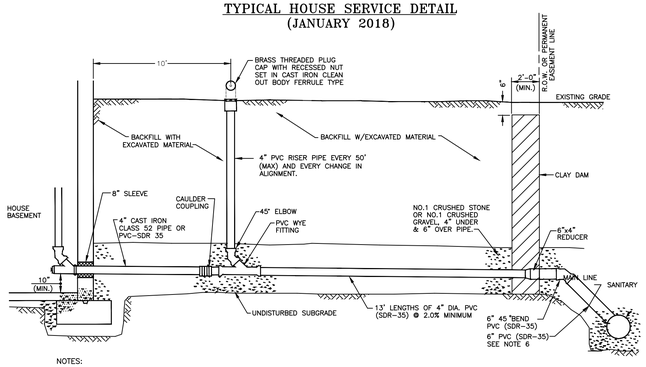
NOTES:

1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES AND PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD16_SERVICE_REPLACE SMO

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD16	
		DATE 4/92	REVISED 10/20

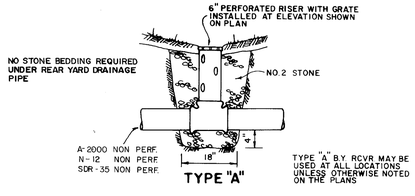
TYPICAL HOUSE SERVICE DETAIL (JANUARY 2018)



NOTES:

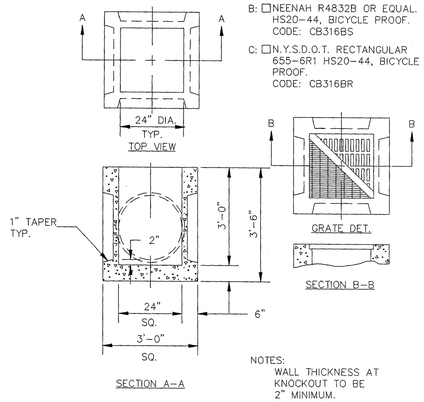
1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY ECWA PRIOR TO BACKFILL.
3. PVC JOINT MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST ASTM SPECIFICATION. PVC PIPE SHALL BE EQUIVALENT TO PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74-42.
4. A MANUAL VALVE SHALL BE INSTALLED ON BASEMENT LAUNDRY DRAIN LINE.
5. CURB BOXES MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALKS OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT, AND THE SIDEWALK.
6. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNDER PAVED AREAS.
7. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'-0" UNDER PAVED AREAS
8. FOR NEW CONSTRUCTION, AN 8x6 WYE WITH 6" PVC TO 8" 45° BEND, THEN 6" x 4" REDUCER IS USED.
9. A 6" CLEAN OUT IS REQUIRED AT THE END OF EACH HOUSE SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF PAVEMENT.
10. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
11. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE HOUSE LATERAL.
12. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

BACK YARD RECEIVER (B.Y. RCVR.) DETAIL



SPECIFICATIONS:
CONCRETE: 4,000 P.S.I. @ 28 DAYS.
ENTRAINED AIR: 5% - 9%
STEEL: A.S.T.M. A496-A615 GRADE 60-60 KSI
DESIGN LOADING: A.A.S.H.T.O. HS-20-44 WITH 30% IMPACT AND EQUIVALENT SOIL PRESSURE OF 130 (PSF). FLOATATION FORCES NOT ACCOUNTED FOR.
WEIGHT 2,268 LBS.

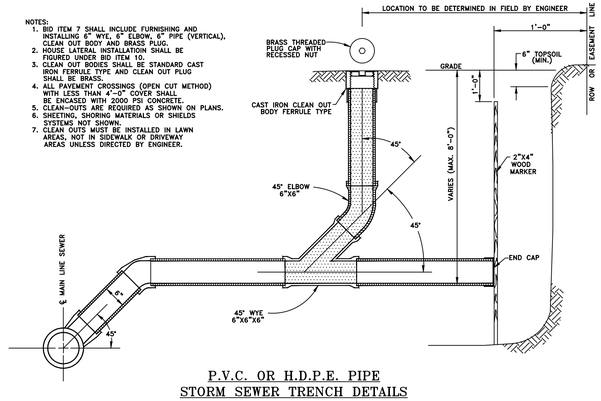
FRAME & GRATE:
A: ☐BY G.C., CODE: CB315BS
B: ☐NEENAH R4832B OR EQUAL. HS20-44, BICYCLE PROOF. CODE: CB316BS
C: ☐N.Y.S.D.O.T. RECTANGULAR 655-6R1 HS20-44, BICYCLE PROOF. CODE: CB316BR



NOTES:
WALL THICKNESS AT KNOCKOUT TO BE 2" MINIMUM.

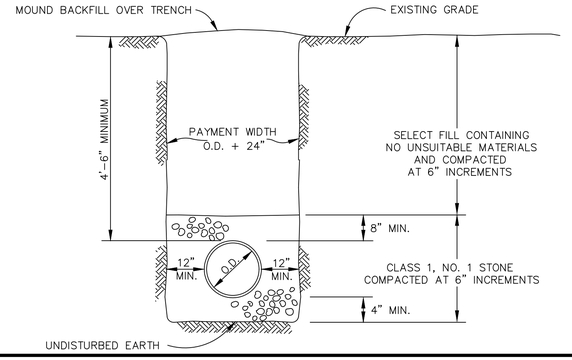
LIGHT DUTY RECEIVER (LD RCVR)

CLEAN-OUT DETAIL FOR SERVICE CONNECTION (JANUARY 2012)



NOTES:
1. BID ITEM 7 SHALL INCLUDE FURNISHING AND INSTALLING 6" WYE, 6" ELBOW, 6" PIPE (VERTICAL), CLEAN OUT BODY AND BRASS PLUG.
2. HOUSE LATERAL INSTALLATION SHALL BE FIGURED UNDER BID ITEM 10.
3. CLEAN OUT BODIES SHALL BE STANDARD CAST IRON FERRULE TYPE AND CLEAN OUT PLUG SHALL BE BRASS.
4. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'-0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
5. CLEAN-OUTS ARE REQUIRED AS SHOWN ON PLANS.
6. SHEETING, SHORING MATERIALS OR SHIELDS SYSTEMS NOT SHOWN.
7. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS UNLESS DIRECTED BY ENGINEER.

P.V.C. OR H.D.P.E. PIPE STORM SEWER TRENCH DETAILS



GPI Engineering Design Planning Construction Management
(716) 633-4844 GPINET.COM
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Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4
520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. 101
ADDITION OR ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

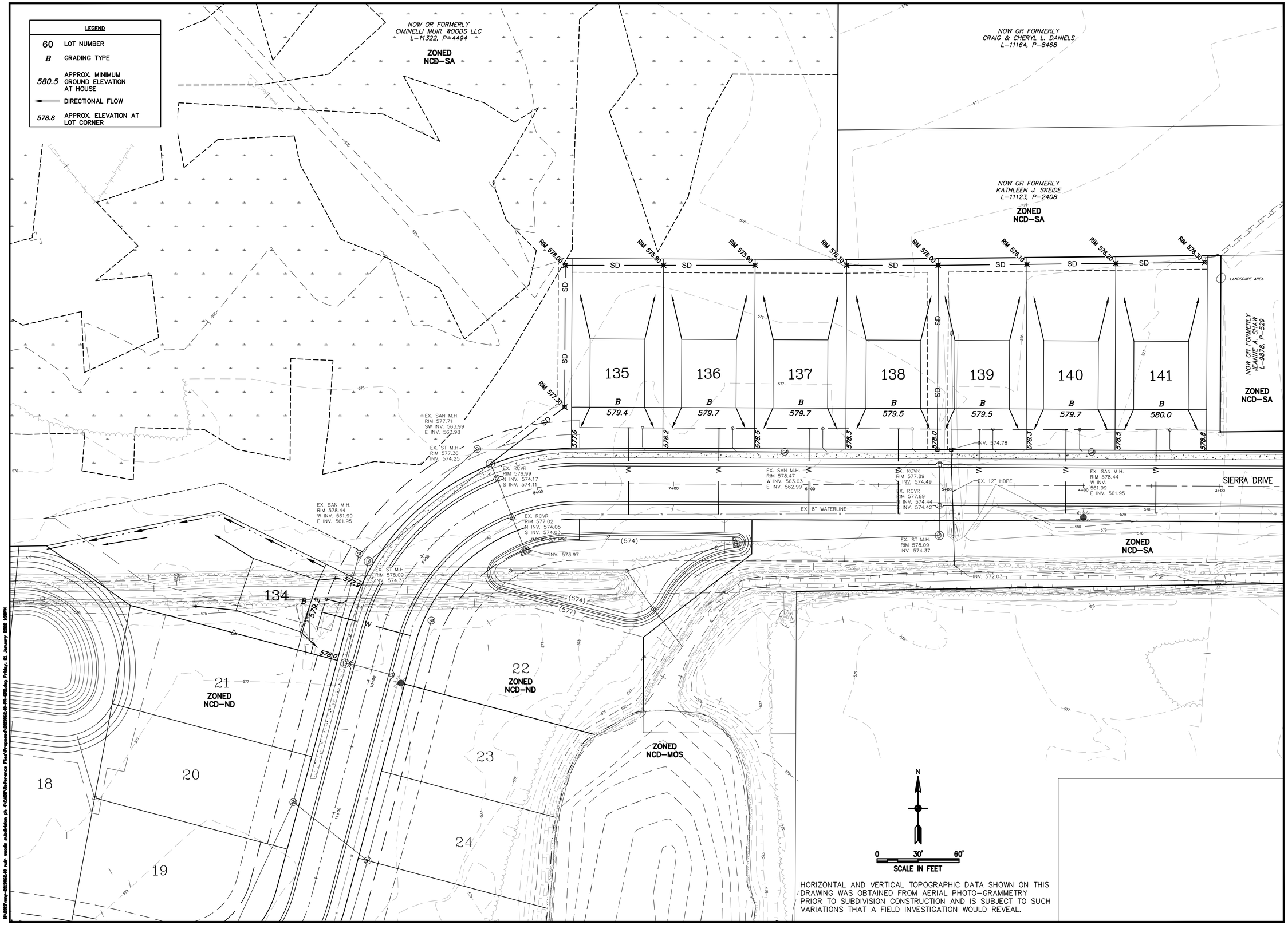
Site Details

SCALE: NONE

WNY-2013062.40

04 OF 08

Attachment: SP-2021-24 A drawings 051922 (25483 : Sp-2021-24A)
Packet Pg. 1996
K:\2013\WNY-2013062.40 Muir Woods Subdivision Ph 4\CAD\Design Plans\04 Site Details.dwg Friday, 21 January 2022 1:35PM



HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

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Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

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1	Rev. Per Town Comments	12-21-21

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Grading Plan

SCALE: 1" = 30'

WNY-2013062.40

05 OF 08

Attachment: SP-2021-24_A drawings 051922 (25493 : Sp-2021-24A)

LEGEND

- FILTER FABRIC DROP INLET PROTECTION
- LAND GRADING
- SILT FENCE
- ORANGE CONSTRUCTION FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- PERMANENT SEEDING (PS)
- DUST CONTROL (DC)
- CHECK DAM
- INLET/OUTLET PROTECTION

LEGEND

INDICATES AREA TO BE STRIPPED, GRADED & WHERE APPLICABLE, EITHER SEEDED OR PAVED (TYP.)

NOW OR FORMERLY
CIMINELLI MUIR WOODS LLC
L-M322, P-4494

ZONED
NCD-SA

NOW OR FORMERLY
CRAIG & CHERYL L. DANIELS
L-11164, P-8468

NOW OR FORMERLY
KATHLEEN J. SKEIDE
L-11123, P-2408

ZONED
NCD-SA

LANDSCAPE AREA

NOW OR FORMERLY
JEANNE A. SHAW
L-9878, P-529

ZONED
NCD-SA

135 136 137 138 139 140 141

CONCRETE WASHOUT AREA

SIERRA DRIVE

134

21
ZONED
NCD-ND

22
ZONED
NCD-ND

23

24

ZONED
NCD-MOS

18 19 20

ZONED
NCD-SA

SD

(574)

(577)

N

0 30' 60'
SCALE IN FEET

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

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Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. [illegible]

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REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Erosion and Sediment Control Plan

SCALE: 1" = 30'

WNY-2013062.40

06 OF 08

W:\8857\wny-2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062.40-PH-PSEdwg Friday, 21 January 2022 2:25PM

Attachment: SP-2021-24_A drawings 051922 (25493 : Sp-2021-24A)

STANDARD AND SPECIFICATIONS FOR RECREATION AREA SEEDING



Definition & Scope

Establishing **permanent** grasses, legumes, vines, shrubs, trees, or other plants, or selectively reducing stand density and trimming woody plants, to improve an area for recreation. To increase the attractiveness and usefulness of recreation areas and to protect the soil and plant resources.

Conditions Where Practice Applies

On any area planned for recreation use, lawns, and areas that will be maintained in a closely mowed condition.

Specifications

ESTABLISHING GRASSES (Turfgrass)

The following applies for playgrounds, parks, athletic fields, camping areas, picnic areas, passive recreation areas such as lawns, and similar areas.

1. Time of Planting

Fall planting is preferred. Seed after August 15. In the spring, plant until May 15.

If seeding is done between May 15 and August 15, irrigation may be necessary to ensure a successful seeding.

2. Site Preparation

A. Install needed water and erosion control measures and bring area to be seeded to desired grades. A minimum of 4 in. topsoil is required.

B. Prepare seedbed by loosening soil to a depth of 4-6 inches and decompacting required areas per Soil Restoration Standard.

C. See Standard and Specification of Topsoiling.

D. Lime to a pH of 6.5. See Lime Application Standard.

E. **Fertilize as per soil test** or, if soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 850 pounds of 5-5-10 or equivalent per acre (20 lbs/1,000 sq. ft.). See Fertilizer Application Standard.

F. Incorporate lime and fertilizer in top 2-4 inches of topsoil.

G. Smooth. Remove sticks, foreign matter, and stones over 1 inch in diameter, from the surface. Firm the seedbed.

3. Planting

Use a cultipacker type seeder if possible. Seed to a depth of 1/8 to 1/4 inch. If seed is to be broadcast, cultipack or roll after seeding. If hydroseeded, lime and fertilizer may be applied through the seeder, and rolling is not practical.

4. Mulching

Mulch all seedings in accordance with Standard and Specifications for Mulching. Small grain straw is the best material.

5. Seed Mixtures

Select seed mixture for site conditions and intended use from Table 4.5.

6. Contact Cornell Cooperative Extension Turf Specialist for suitable varieties.

Turf-type tall fescues have replaced the old KY31 tall fescues. New varieties have finer leaves and are the most resistant grass to foot traffic. Do not mix it with fine textured grasses such as bluegrass and red fescue.

Common ryegrass and redtop, which are relatively short lived species, provide quick green cover. Improved lawn cultivars of perennial ryegrass provide excellent quality turf, but continue to lack winter hardiness.

Common white clover can be added to mixtures at the rate of 1-2 lbs/acre to help maintain green color during the dry summer period; however, they will not withstand heavy traffic. Avoid using around swimming areas as flowers attract bees which can be easily stepped on.

7. Fertilizing—First Year

Apply fertilizer as indicated by the soil test three to four weeks after germination (spring seedlings). If test results have not been obtained, apply 1 pound nitrogen/1,000 square feet using a complete fertilizer with a 2-1-1 or 4-1-3 ratio. Summer and early fall seedings, apply as above unless air temperatures are above 85°F for an extended period. Wait for cooler temperatures to fertilize. Late fall/ winter seedings, fertilize in spring.

8. Restrict Use

New seedlings should be protected from use for one full year or a spring and fall growth cycle where possible to allow development of a dense sod with good root structure.

MAINTAINING GRASSES

1. Maintain a pH of 6.0 - 7.0.

2. Fertilize in late May to early June as follows with 5-5-10 analysis fertilizer at the rate of 5 lbs./1,000 sq. ft. and repeat in late August if sod density is not adequate. Avoid fertilizing when heat is greater than 85°F. Top dress weak sod annually in the spring, but at least once every 2 to 3 years. **Fertilize in accordance with soil test analysis**, after determining adequate topsoil depth exists.

3. Aerate compacted or heavily used areas, like athletic fields, annually as soon as soil moisture conditions permit. Aerate area six to eight times using a spoon or hollow tine type aerator. Do not use solid spike equipment.

4. Reseed bare and thin areas annually with original seed mix.

Site - Use	Species (% by weight)	lbs/1,000 ft² (PLS)	lbs/acre (PLS)
Sunny Sites (well, moderately well, and somewhat poorly drained soils)	*Athletic fields and similar areas*		
	80% Hard fescue	2.4-3.2	105-138
	20% Perennial ryegrass	0.6-0.8	25-37
		3.0-4.0	130-175
	OR, for southern and eastern, NY 50% Hard fescue	1.5-2.0	65-88
	50% perennial ryegrass	1.5-2.0	65-87
		3.0-4.0	130-175
	OR, 100% Creeping Red Fescue	3.4-4.6	150-200
	General recreation areas and lawns (Medium to high maintenance)		
	65% Creeping red fescue	2.0-2.6	85-114
	20% Perennial ryegrass	0.6-0.8	26-35
	15% Fine fescue	0.4-0.6	19-26
		3.0-4.0	130-175
	OR, 100% Creeping red fescue	3.4-4.6	150-200
Sunny Droughty Sites (general recreation areas and lawns, low maintenance) (somewhat excessively to excessively drained soils, excluding Long Island)	65% Fine fescue	2.6-3.3	114-143
	15% Perennial ryegrass	0.6-0.7	26-33
	20% Creeping red fescue	0.8-1.0	35-44
		4.0-5.0	175-220
	OR, 100% Creeping red fescue	3.4-4.6	150-200
Shady Dry Sites (well to somewhat poorly drained soils)	65% fine fescue	2.6-3.3	114-143
	15% perennial ryegrass	0.6-0.7	26-33
	20% Creeping red fescue	0.8-1.0	35-44
	OR	4.0-5.0	174-220
	80% blend of shade-tolerant Cereal rye	2.4-3.2	105-138
	20% perennial ryegrass	0.6-0.8	25-37
	OR	3.0-4.0	130-175
	100% Creeping red fescue	3.4-4.6	150-200
Shady Wet Sites (somewhat poor to poorly drained soils)	70% Creeping red fescue	1.4-2.1	60-91
	30% blend of shade-tolerant Hard fescue	0.6-0.9	25-39
	OR	2.0-3.0	85-130
	100% Chewings fescue	3.4-4.6	150-200

For varieties suitable for specific locations, contact Cornell Cooperative Extension Turf Specialist.
Reference: Thurn, M.C., N.W. Hummel, and A.M. Petrovic. Cornell Extension Pub. Info. Bulletin 185 Revised. HomeLawns Establishment and Maintenance. 1994.

STANDARD AND SPECIFICATIONS FOR COMPOST FILTER SOCK



Definition & Scope

A **temporary** sediment control practice composed of a degradable geotextile mesh tube filled with compost fiber media to filter sediment and other pollutants associated with construction activity to prevent their migration offsite.

Condition Where Practice Applies

Compost filter socks can be used in many construction site applications where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock. In areas with steep slopes and/or rocky terrain, soil conditions must be such that good continuous contact between the sock and the soil is maintained throughout its length. For use on impervious surfaces such as road pavement or parking areas, proper anchorage must be provided to prevent shifting of the sock or separation of the contact between the sock and the pavement. Compost filter socks are utilized both at the site perimeter as well as within the construction areas. These socks may be filled after placement by blowing compost into the tube pneumatically, or filled at a staging location and moved into its designed location.

Design Criteria

1. Compost filter socks will be placed on the contour with both terminal ends of the sock extended 8 feet upslope at a 45 degree angle to prevent bypass flow.

2. Diameters designed for use shall be 12" – 32" except that 8" diameter socks may be used for residential lots to control areas less than 0.25 acres.

3. The flat dimension of the sock shall be at least 1.5 times the nominal diameter.

4. The **Maximum Slope Length** (in feet) above a compost filter sock shall not exceed the following limits:

Dia. (in.)	Slope %							
	2	5	10	20	25	33	50
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50

* Length in feet



5. The compost infill shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content. When using compost filter socks adjacent to surface water, the compost should have a low nutrient value.**

6. The compost filter sock fabric material shall meet the

7. Compost filter socks shall be anchored in earth with 2" x 2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock.

8. All specific construction details and material specifications shall appear on the erosion and sediment control constructions drawings when compost filter socks are included in the plan.

Maintenance

1. Traffic shall not be permitted to cross filter socks.

2. Accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

3. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired in the manner required by the manufacturer or replaced within 24 hours of inspection notification.

4. Biodegradable filter socks shall be replaced after 6 months; photodegradable filter socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.

5. Upon stabilization of the area contributory to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut and the compost spread as an additional mulch to act as a soil supplement.

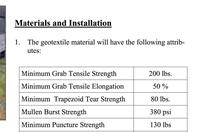
Table 5.1 - Compost Sock Fabric Minimum Specifications Table

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years

Table 5.2 - Compost Standards Table

Organic matter content	25% - 100% (dry weight)
Organic portion	Fibrous and elongated
pH	6.0 – 8.0
Moisture content	30% - 60%
Particle size	100% passing a 1" screen and 10 - 50% passing a 3/8" screen
Soluble salt concentration	5.0 dS/m (mmhos/cm) maximum

STANDARD AND SPECIFICATIONS FOR GEOTEXTILE FILTER BAG



Definition & Scope

A **temporary** portable device through which sediment laden water is pumped to trap and retain sediment prior to its discharge to drainageways or off-site.

Condition Where Practice Applies

On sites where space is limited such as urban construction or linear projects (e.g. roads and utility work) where rights-of-way are limited and larger de-silting practices are impractical.

Design Criteria

1. Location - The portable filter bag should be located to minimize interference with construction activities and pedestrian traffic. It should also be placed in a location that is vegetated, relatively level, and provides for ease of access by heavy equipment, cleanout, disposal of trapped sediment, and proper release of filtered water.

   The filter bag shall also be placed at least 50 feet from all wetlands, streams or other surface waters.

2. Size - Geotextile filter bag shall be sized in accordance with the manufacturers recommendations based on the pump discharge rate.

Materials and Installation

1. The geotextile material will have the following attributes:

Minimum Grab Tensile Strength	200 lbs.
Minimum Grab Tensile Elongation	50 %
Minimum Trapezoid Tear Strength	80 lbs.
Mullen Burst Strength	380 psi
Minimum Puncture Strength	130 lbs
Apparent Opening Size	40 - 80 US sieve
Minimum UV Resistance	70%
Minimum Flow Thru Rate	70 gpm/sq ft

2. The bag shall be sewn with a double needle machine using high strength thread, double stitched "loc" type capable of minimum roll strength of 100 lbs/inch (ASTM D4884).

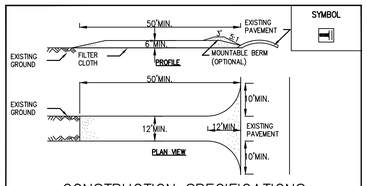
3. The geotextile filter bag shall have an opening large enough to accommodate a 4 inch diameter discharge hose with an attached strap to tie off the bag to the hose to prevent back flow.

4. The geotextile shall be placed on a gravel bed 2 inches thick, a straw mat 4 inches thick, or a vegetated filter strip to allow water to flow out of the bag in all directions.

Maintenance

1. The geotextile filter bag is considered full when remaining bag flow area has been reduced by 75%. At this point, it should be replaced with a new bag.

2. Disposal may be accomplished by removing the bag to an appropriate designated upland area, cut open, remove the geotextile for disposal, and spread sediment contents and seeded and mulched according to the vegetative plan.

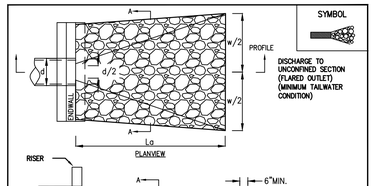


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STABILIZED CONSTRUCTION ACCESS

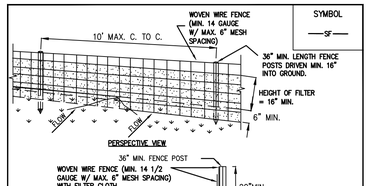


NOTE: APRON @ ZERO GRADE SIDE SLOPE 2:1

NOTE:
SEE RIPRAP STANDARDS AND SPECIFICATIONS
MINIMUM TAILWATER CONDITIONS

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET PROTECTION EXAMPLE



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABLINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

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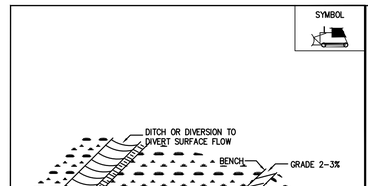
SILT FENCE



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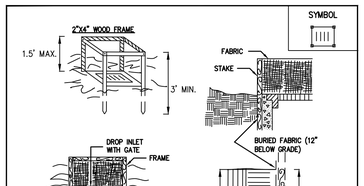
LANDGRADING DETAIL

CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

LANDGRADING SPECIFICATIONS



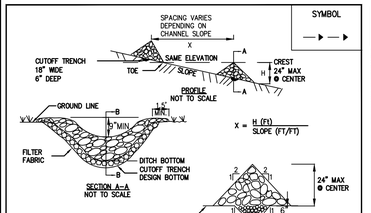
CONSTRUCTION SPECIFICATIONS

1. FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INSET 3 FEET APART AND DRIVE 8 INCHES DEEP. WHERE DEPTH OF FLOW WILL EXCEED 1 FOOT, SPACING MAY BE REDUCED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE PLACED A MINIMUM 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

FABRIC DROP INLET PROTECTION



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE CHECK DAM

STANDARD AND SPECIFICATIONS FOR CONCRETE TRUCK WASHOUT



Definition & Scope

A temporary excavated or above ground lined constructed pit where concrete truck mixers and equipment can be washed after their loads have been discharged, to prevent highly alkaline runoff from entering storm drainage systems or leaching into soil.

Conditions Where Practice Applies

Washout facilities shall be provided for every project where concrete will be poured or otherwise formed on the site. This facility will receive highly alkaline wash water from the cleaning of chutes, mixers, hoppers, vibrators, placing equipment, trowels, and screeds. Under no circumstances will wash water from these operations be allowed to infiltrate into the soil or enter surface waters.

Design Criteria

Capacity: The washout facility should be sized to contain solids, wash water, and rainfall and sized to allow for the evaporation of the wash water and rainfall. Wash water shall be estimated at 7 gallons per chute and 50 gallons per hopper of the concrete pump truck and/or discharging drum. The minimum size shall be 8 feet by 8 feet at the bottom and 2 feet deep. If excavated, the side slopes shall be 2 horizontal to 1 vertical.

Location: Locate the facility a minimum of 100 feet from drainage swales, storm drain inlets, wetlands, streams and other surface waters. Prevent surface water from entering the structure except for the access road. Provide appropriate access with a gravel access road sloped down to the structure. Signs shall be placed to direct drivers to the facility after their load is discharged.

Liner: All washout facilities will be lined to prevent leaching of liquids into the ground. The liner shall be plastic sheeting with a minimum thickness of 10 mils with no holes or tears, and anchored beyond the top of the pit with an earthen berm, sand bags, stone, or other structural appurtenance except at the access point.

If pre-fabricated washouts are used they must ensure the capture and containment of the concrete wash and be sized based on the expected frequency of concrete pours. They shall be sited as noted in the location criteria.

Maintenance

- All concrete washout facilities shall be inspected daily. Damaged or leaking facilities shall be deactivated and repaired or replaced immediately. Excess rainwater that has accumulated over hardened concrete should be pumped to a stabilized area, such as a grass filter strip.
- Accumulated hardened material shall be removed when 75% of the storage capacity of the structure is filled. Any excess wash water shall be pumped into a containment vessel and properly disposed of off site.
- Dispose of the hardened material off-site in a construction/demolition landfill. On-site disposal may be allowed if this has been approved and accepted as part of the projects SWPPP. In that case, the material should be recycled as specified, or buried and covered with a minimum of 2 feet of clean compacted earthfill that is permanently stabilized to prevent erosion.
- The plastic liner shall be replaced with each cleaning of the washout facility.
- Inspect the project site frequently to ensure that no concrete discharges are taking place in non-designated areas.

STANDARD AND SPECIFICATIONS FOR DUST CONTROL



Definition & Scope

The control of dust resulting from land-disturbing activities, to prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

Conditions Where Practice Applies

On construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing where off-site damage may occur if dust is not controlled.

Design Criteria

Construction operations should be scheduled to minimize the amount of area disturbed at one time. Buffer areas of vegetation should be left where practical. Temporary or permanent stabilization measures shall be installed. No specific design criteria is given; see construction specifications below for common methods of dust control.

Water quality must be considered when materials are selected for dust control. Where there is a potential for the material to wash off to a stream, ingredient information must be provided to the NYSDEC.

No polymer application shall take place without written approval from the NYSDEC.

Construction Specifications

A. **Non-driving Areas** – These areas use products and materials applied or placed on soil surfaces to prevent airborne migration of soil particles.

   Vegetative Cover – For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control (see Section 3).

   Mulch (including gravel mulch) – Mulch offers a fast effective means of controlling dust. This can also include rolled erosion control blankets.

   Spray adhesives – These are products generally composed of polymers in a liquid or solid form that are mixed with water to form an emulsion that is sprayed on the soil surface with typical hydroseeding equipment. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. In no case should the application of these adhesives be made on wet soils or if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators and others working with the material.

B. **Driving Areas** – These areas utilize water, polymer emulsions, and barriers to prevent dust movement from the traffic surface into the air.

   Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access route to provide short term limited dust control.

   Polymer Additives – These polymers are mixed with water and applied to the driving surface by a water truck with a gravity feed drip bar, spray bar or automated distributor truck. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations. Incorporation of the emulsion into the soil will be done to the appropriate depth based on expected traffic. Compaction after incorporation will be by vibratory roller to a minimum of 95%. The prepared surface shall be moist and no application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators working with the material.

   Barriers – Woven geo-textiles can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads. Stone can also be used for construction roads for effective dust control.

   Windbreak – A silt fence or similar barrier can control air currents at intervals equal to ten times the barrier height. Preserve existing wind barrier vegetation as much as practical.

Maintenance

Maintain dust control measures through dry weather periods until all disturbed areas are stabilized.

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2"	9 cu. yds.	405 cu. yds.	3"	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over fiber fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/ yd. 60-90 lbs./roll	48" x 50 yds. or 48" x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	4' x 112.5' or 8' x 112.5'.	—	—	Use without additional mulch. Excellent for seeding establishment. Anchor as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only - no change in grade	HSG A&B	HSG C&D	Protect area from any ongoing construction activities.
	Apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of c

POLLUTION PREVENTION

1. THE FOLLOWING GENERAL NOTES PROVIDE A DESCRIPTION OF POLLUTION PREVENTION MEASURES UTILIZED TO CONTROL LITTER, CONSTRUCTION CHEMICALS, CONSTRUCTION DEBRIS, AND STORAGE PRACTICES FROM BECOMING A POLLUTANT SOURCE TO STORMWATER DISCHARGES, AS WELL AS SPILL PREVENTION AND RESPONSE MEASURES.

2. MATERIAL DELIVERY AND STORAGE:

   A. LOCATE MATERIAL STORAGE AND DELIVERY AREAS AT A MINIMUM DISTANCE OF 100 FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   B. KEEP INVENTORY LOW.

   C. STORE DRY CHEMICALS AND BAGGED MATERIALS ON PALLETS.

   D. STORE ALL FLAMMABLE PRODUCTS AWAY FROM ANY HEAT AND/OR IGNITION SOURCE.

   E. PROVIDE SECONDARY CONTAINMENT FOR LIQUIDS.

   F. KEEP DESIGNATED STORAGE AREAS CLEAN AND WELL ORGANIZED. CONDUCT WEEKLY INSPECTIONS TO CHECK FOR DAMAGED CONTAINERS, LEAKS, ETC.

   G. COMPLY WITH STATE AND LOCAL REQUIREMENTS FOR STORAGE OF HAZARDOUS WASTE.

   H. DURING THE WET SEASON, COVER CHEMICALS, DRUMS, AND BAGGED MATERIALS TO PREVENT CONTACT WITH RAINWATER (E.G. TARPS, BINS, STRUCTURES).

   I. DURING THE WET SEASON, COVER SECONDARY CONTAINMENT AREAS TO PREVENT ACCUMULATION OF WATER.

   J. KEEP CHEMICALS LABELED AND IN ORIGINAL CONTAINERS.

   K. TRAIN EMPLOYEES AND CONTRACTORS ON THE PROPER USE OF STORAGE AREA.

3. SPILL PREVENTION AND CONTROL:

   A. NOTIFY ALL CONSTRUCTION WORKERS OF THE LOCATION OF MATERIALS UTILIZED FOR CLEANING UP SPILLS.

   B. STORE SPILL CLEANUP MATERIALS ON SITE AND NEAR POTENTIAL SPILL AREAS.

   C. KEEP COMMERCIALLY AVAILABLE SPILL KITS FOR CONSTRUCTION EQUIPMENT ON SITE.

   D. KEEP DRUMS, BARRELS, TEMPORARY STORAGE BAGS, OR EQUIVALENT MATERIALS FOR CONTAINMENT AND TRANSPORTATION ON SITE.

   E. KEEP ABSORBENT PADS, OIL BOOMS, MAT, OR EQUIVALENT MATERIALS ON SITE.

   F. KEEP WASHABLE, REUSABLE RAGS FOR CLEANING UP SMALL LUBRICANT LEAKS ON SITE.

   G. TRAIN EMPLOYEES AND SUBCONTRACTORS ON PROPER SPILL PREVENTION AND CONTROL METHODS.

   H. NEVER HOSE DOWN OR BURY DRY MATERIAL SPILLS. CLEANUP AS MUCH AS POSSIBLE AND DISPOSE OF PROPERLY.

   I. IN THE EVENT OF A SPILL OCCURRENCE, THE FOLLOWING ACTIONS ARE TO BE TAKEN:

      1. DOCUMENT THE SPILL AND REPORT TO THE PROJECT CONSTRUCTION MANAGER AND ENVIRONMENTAL MONITOR.

      2. FOR SPILLS LESS THAN 5 GALLONS ON AN IMPERVIOUS SURFACE, ATTEMPT TO CONFINE AND CLEAN THE SPILL.

      3. FOR SPILLS GREATER THAN 5 GALLONS, ATTEMPT TO CONFINE THE SPILL AND CALL A REMEDIATION CONTRACTOR IF ASSISTANCE IS REQUIRED WITH PRODUCT RECOVERY AND CONTAINMENT.

      4. FOR SPILLS GREATER THAN 5 GALLONS, REPORT TO NYSDEC REGION 9 SPILL PREVENTION AND RESPONSE (716-851-7220) WITHIN TWO HOURS OF DISCOVERY.

      5. PROVIDE WRITTEN DOCUMENTATION OF THE SPILL.

      6. DISPOSAL OF RECOVERED MATERIALS MUST BE CONDUCTED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.

4. SOLID WASTE MANAGEMENT:

   A. PROVIDE AS MANY WASTE BINS AS NEEDED TO KEEP SITE CLEAN OF LITTER AND WASTE.

   B. DURING THE WET SEASON, WASTE BINS MUST BE COVERED TO PREVENT RUNOFF FROM TRASH.

   C. COLLECT TRASH ON A DAILY BASIS.

   D. ARRANGE FOR REGULAR WASTE COLLECTION BY A LICENSED TRASH HAULER.

   E. SEGREGATE AND RECYCLE WASTE MATERIALS (E.G. PAINTS, SOLVENTS, OIL, ETC.)

   F. PROVIDE COVERED WASTE BINS FOR DISPOSAL OF ALL EMPTY PRODUCTS (E.G. PAINTS, SOLVENTS, GLUES, PESTICIDES, ETC.)

   G. LOCATE WASTE CONTAINER STORAGE AREA(S) AT A MINIMUM DISTANCE OF 100 FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   H. PROVIDE SECONDARY CONTAINMENT FOR HAZARDOUS WASTE CONTAINERS.

   9. COMPLY WITH ALL LOCAL AND STATE SOLID WASTE DISPOSAL AND NUISANCE REQUIREMENTS.

   I. DO NOT HOSE OUT WASTE CONTAINERS ON SITE.

   J. TRAIN EMPLOYEES AND SUBCONTRACTORS TO USE PROPER SOLID WASTE MANAGEMENT.

5. VEHICLE/EQUIPMENT MAINTENANCE:

   A. DO NOT DISCHARGE VEHICLE/MACHINERY WASH WATERS OR SOLVENTS TO STORM DRAINS OR TO SURFACE WATER BODIES.

   B. LOCATE AREAS FOR FUELING AND MAINTENANCE AT A MINIMUM DISTANCE OF 100-FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   C. ANY EQUIPMENT WHICH MUST BE REFUELED IN THE FIELD WILL BE REFUELED FROM TANKS CARRIED TO THE WORK SITE BY TRUCK.

   D. PREVENT SPILLS AND LEAKS DURING FUELING AND MAINTENANCE OPERATIONS.

   E. INSPECT AND MAINTAIN VEHICLES REGULARLY TO MINIMIZE LEAKS AND DRIPS; PLACE DRIP PANS OR ABSORBENT MATERIALS UNDER LEAK-PRONE MACHINERY WHEN IDLE.

   F. COMPLY WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS FOR FUEL STORAGE TANKS.

6. LANDSCAPING OPERATIONS:

   A. CAREFULLY FOLLOW RECOMMENDED USAGE INSTRUCTIONS FOR THE APPLICATION OF ALL FERTILIZER. DISPOSAL OF TREES, BRUSH, OR OTHER DEBRIS IN ANY STREAM CORRIDOR, WETLAND, OR SURFACE WATER IS PROHIBITED. AVOID APPLICATIONS OF FERTILIZERS PRIOR TO STORM EVENTS. APPLY FERTILIZERS IN MULTIPLE SMALLER APPLICATIONS, AS OPPOSED TO ONE LARGE APPLICATION. TRAIN EMPLOYEES AND SUBCONTRACTORS IN THE PROPER USE OF LANDSCAPE MATERIALS AND CHEMICALS.

7. CONCRETE WASTE MANAGEMENT:

   A. AVOID MIXING EXCESS AMOUNTS OF CONCRETE OR FRESH CEMENT ON SITE.

   B. STORE CONCRETE, GROUT, AND MORTAR UNDER COVER AND AWAY FROM DRAINAGE AREAS.

   C. DESIGNATE A WASH OUT AREA ON SITE AND INSURE THAT MATERIAL CAN NOT FLOW TO STORM DRAINS, OPEN DITCHES, STREETS, OR SURFACE WATER BODIES BY CONSTRUCTING A TEMPORARY PIT OR BERMED AREA.

   D. CONCRETE FROM WASHOUT AREA SHOULD BE ALLOWED TO SET. UPON COMPLETION OF THE CONCRETE WORK, THE CONTRACTOR SHALL BREAK UP, REMOVE, AND HAUL AWAY SOLID CONCRETE THAT HAS ACCUMULATED IN THE WASHOUT.

   E. TRAIN EMPLOYEES AND SUBCONTRACTORS IN PROPER CONCRETE WASTE MANAGEMENT.

8. SANITARY/SEPTIC WASTE MANAGEMENT:

   A. LOCATE SANITARY FACILITIES FOR CONVENIENT ACCESS AND AT A MINIMUM OF 100 FEET AWAY FROM DRAIN INLETS AND SURFACE WATER BODIES.

   B. UNTREATED RAW WASTEWATER MAY NOT BE DISCHARGED TO LAND, THE STORM DRAIN SYSTEM, OR TO SURFACE WATER BODIES.

   C. SANITARY/SEPTIC FACILITIES SHOULD BE MAINTAINED IN GOOD WORKING ORDER BY A LICENSED SERVICE.

   D. ARRANGE REGULAR WASTE COLLECTION BY A LICENSED HAULER BEFORE FACILITIES OVERFLOW.

   E. IF WASHING OUT OF INTERIOR OR PORTABLE TOILETS IS NEEDED, INSURE THAT WASH WATER IS DISCHARGED TO LAND AND DOES NOT FLOW INTO STREET, THE STORM DRAIN SYSTEM, OR SURFACE WATER BODIES.

GENERAL ENVIRONMENTAL NOTES AND RESTRICTIONS

GENERAL NOTES:

1. THE CONTRACTOR SHALL HAVE KNOWLEDGE OF, AND WORK IN COMPLIANCE WITH THE TERMS AND CONDITIONS STATED IN THE PERMITS ISSUED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC), AND IS SUBJECT TO THE SANCTIONS FOR VIOLATIONS OF SUCH PERMITS.

2. ALL ACTIVITIES AUTHORIZED UNDER THE PERMITS ISSUED BY THE NYSDEC MUST BE IN STRICT CONFORMANCE WITH THE DETAILS DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

3. NONE OF THE ISSUED PERMITS ALLOW FOR THE RIGHT TO TRESPASS UPON THE LANDS OR INTERFERE WITH THE PROPERTY AND/OR RIPARIAN RIGHTS OF LANDOWNERS THAT ARE NOT PARTICIPANTS OF THE PROJECT.

4. THE CONTRACTOR SHALL NOTE THE CONDITION OF ANY EXISTING FENCE THAT MAY BE IMPACTED BY PROJECT CONSTRUCTION. FENCES THAT MUST BE REMOVED AND/OR CUT WILL HAVE A TEMPORARY GATE INSTALLED. UPON COMPLETION OF CONSTRUCTION, THE TEMPORARY GATE WILL BE REMOVED AND THE FENCE WILL BE REBUILT TO LIKE-NEW CONDITION AS DIRECTED BY THE LANDOWNER.

5. LOCAL FIRE DEPARTMENTS AND EMERGENCY MANAGEMENT TEAMS SHALL BE MADE AWARE OF HAZARDOUS CHEMICALS AND WASTE ON-SITE.

6. REPRESENTATIVES FROM THE NYSDEC SHALL BE PERMITTED TO INSPECT THE SITE AT ANY TIME DEEMED NECESSARY, TO ENSURE THAT ALL ACTIVITIES ARE IN ACCORDANCE WITH THE TERMS AND CONDITIONS SPECIFIED IN THE ISSUED PERMITS.

7. CROSSING OF EXISTING GAS TRANSMISSION PIPELINES OR ANY OTHER EXISTING UNDERGROUND UTILITY BY HEAVY EQUIPMENT SHALL BE RESTRICTED TO IMPROVED GRAVEL ACCESS ROAD CROSSINGS.

8. ALL CONSTRUCTION ACTIVITY, INCLUDING OPERATION OF MACHINERY, EXCAVATION, FILLING, GRADING, CLEARING OF VEGETATION, DISPOSAL OF WASTE, AND STOCKPILING OF MATERIAL MUST TAKE PLACE WITHIN THE APPROVED WORK AREA AS DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

9. FUGITIVE DUST RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE MINIMIZED BY IMPLEMENTING APPROPRIATE CONTROL MEASURES. THESE MEASURES MAY INCLUDE THE APPLICATION OF MULCH, WATER, STONE, OR APPROVED CHEMICAL AGENTS ON ACCESS ROADS, EXPOSED SOILS, STOCKPILED SOILS, OR UNPAVED PUBLIC ROADS WHEN DRY AND WINDY CONDITIONS EXIST. A WATERING VEHICLE SHALL BE AVAILABLE FOR THE DURATION OF PROJECT ACTIVITIES, INCLUDING THROUGHOUT RESTORATION.

10. BLASTING IS NOT PERMITTED WITHOUT PRIOR TOWN APPROVAL AND ACQUISITION OF ALL REQUIRED PERMITS.

11. NOISE IMPACTS SHALL BE MINIMIZED AND MITIGATED TO THE EXTENT PRACTICABLE. CONTRACTOR SHALL MAINTAIN ALL EQUIPMENT IN GOOD OPERATING CONDITIONS AND ALL MOTORS AND ENGINES WILL BE MUFFLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND WILL COMPLY WITH STATE ENVIRONMENTAL LAW, SUBCHAPTER E, PART 450 (NOISE FROM HEAVY MOTOR VEHICLES). ANY FAULTY NOISE SUPPRESSOR WILL BE REPAIRED OR REPLACED. EQUIPMENT WILL NOT BE LEFT RUNNING UNNECESSARILY, AND EXISTING TALL GROWING VEGETATION WILL BE MAINTAINED, TO THE MAXIMUM EXTENT PRACTICABLE, TO SERVE AS A NOISE BUFFER.

12. CONSTRUCTION ACTIVITY WILL ONLY OCCUR BETWEEN THE HOURS OF 7:00 A.M. AND 6:00 P.M. MONDAY THROUGH SATURDAY. AT THE DISCRETION OF THE TOWN OF AMHERST, WORK HOURS MAY BE EXPANDED.

13. WITHIN 100 FEET OF STATE-REGULATED WETLANDS AND 50 FEET OF OTHER WATER BODIES, REMOVE ONLY THE MINIMUM VEGETATION NECESSARY TO ALLOW CONSTRUCTION AND OPERATION OF THE FACILITY.

14. THE DISPOSAL OF TREES, BRUSH, OR OTHER DEBRIS IN ANY STREAM CORRIDOR, WETLAND, OR SURFACE WATER IS PROHIBITED.

15. CULVERTS SHALL BE SUFFICIENT SIZE AND CAPACITY TO PREVENT ALTERATION OF THE NATURAL FLOW. REFER TO CONSTRUCTION DRAWINGS FOR CULVERT SIZES.

16. THE USE OF EQUIPMENT IN ANY STREAM OR WETLAND AREA, UNLESS PERMITTED, IS STRICTLY PROHIBITED.

17. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PRECLUDE CONTAMINATION OF ANY WETLAND OR WATERWAY BY SUSPENDED SOLIDS, SEDIMENTS, FUELS, SOLVENTS, LUBRICANTS, EPOXY COATINGS, PAINTS, CONCRETE, LEACHATE, OR ANY OTHER ENVIRONMENTALLY DELETERIOUS MATERIALS ASSOCIATED WITH THE PROJECT. THESE MATERIALS SHALL BE STORED A MINIMUM OF 100 FEET FROM ANY WETLAND, STREAM, DITCH, WATERCOURSE, OR DRAINAGE. NO EQUIPMENT RE-FUELING SHALL OCCUR WITHIN THE SAME 100-FOOT AREA.

18. STREAMS AND WETLANDS WILL BE PROTECTED FROM INDIRECT IMPACTS DURING CONSTRUCTION BY UTILIZING VARIOUS EROSION AND SEDIMENT CONTROL MEASURES INDICATED IN THE EROSION AND SEDIMENT CONTROL DETAILS, INCLUDING SILT FENCES PLACED BETWEEN WATER RESOURCE BOUNDARIES AND CONSTRUCTION AREAS. EXPOSED SOIL WILL BE SEEDED AND/OR MULCHED, AS SOON AS PRACTICABLE, TO ASSURE THAT EROSION AND SILTATION IS KEPT TO A MINIMUM ALONG STREAM AND WETLANDS BOUNDARIES.

19. TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AS SOON AS PRACTICABLE AND APPROPRIATE, AS INDICATED IN THE EROSION AND SEDIMENT CONTROL PLANS. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY GRADING OR FILLING OPERATIONS AND INSTALLATIONS OF PROPOSED STRUCTURES OR UTILITIES. THEY SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND THE AREA IS STABILIZED AND/OR RE-VEGETATED. ADDITIONALLY, NO SITE PREPARATION WORK SHALL BE UNDERTAKEN UNTIL ALL REQUIRED EROSION CONTROL MEASURE HAVE BEEN INSTALLED.

20. SILTATION PREVENTION MEASURES, SUCH AS SILT FENCING AND STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, TO PREVENT MOVEMENT OF SILT AND TURBID WATERS FROM THE PROJECT SITE AND INTO ANY WATERCOURSE, STREAM, WATER BODY, OR WETLAND. THESE MEASURES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND THE AREA IS STABILIZED AND/OR RE-VEGETATED.

21. ALL DISTURBED AREAS WHERE SOIL WILL BE TEMPORARILY EXPOSED OR STOCKPILED FOR LONGER THAN ONE WEEK SHALL BE CONTAINED BY A CONTINUOUS LINE OF SILT FENCE PLACED ON THE DOWN SLOPE SIDE BETWEEN THE FILL AND WETLAND OR STATE-REGULATED 100-FOOT ADJACENT AREA. TARPS ARE AUTHORIZED TO SUPPLEMENT THESE APPROVED METHODS.

22. ALL AREAS OF SOIL DISTURBANCE RESULTING FROM THIS PROJECT SHALL BE STABILIZED IMMEDIATELY FOLLOWING PROJECT COMPLETION OR PRIOR TO NYSDEC PERMIT EXPIRATION, WHICHEVER COMES FIRST. THE NYSDEC APPROVED METHODOLOGIES AREA AS FOLLOWS:

   A. STABILIZATION OF THE ENTIRE DISTURBED AREA WITH APPROPRIATE VEGETATION (GRASSES, ETC.)
   B. TEMPORARILY STABILIZATION WITH STRAW MULCH OR JUTE MATTING OR OTHER SIMILAR NATURAL FIBER MATTING WITHIN ONE WEEK OF FINAL GRADING. TEMPORARY STABILIZATION SHALL BE MAINTAINED UNTIL A MATURE VEGETATIVE COVER IS ESTABLISHED

23. VISIBLE TURBID DISCHARGES FROM LAND CLEARING, GRADING OR EXCAVATING ACTIVITIES, OR DE-WATERING OPERATIONS SHALL NOT ENTER A STREAM, NAVIGABLE WATER, OR WETLAND. PRIOR TO ENTRY IN A STREAM, NAVIGABLE WATER, OR WETLAND, ANY SUCH DISCHARGE SHALL BE:

   A. RETAINED IN AN APPROPRIATELY MAINTAINED UPLAND SETTLING BASIN
   B. FILTERED THROUGH CRUSHED STONE, SAND, STRAW BALES, SILT SCREENING (MAXIMUM OPENING SIZE OF U.S. SIEVE NUMBER 20), ETC, OR;
   C. DIRECTED TO A GRASSY UPLAND AREA SUFFICIENT DISTANCE FROM THE STREAM TO PREVENT CHANGE IN TURBIDITY OF THE RECEIVING WATER.

24. IN THE EVENT THAT ARCHAEOLOGICAL MATERIALS, HUMAN REMAINS, OR EVIDENCE OF HUMAN BURIALS ARE ENCOUNTERED DURING CONSTRUCTION, ALL WORK IN THE VICINITY OF THE FIND SHALL BE IMMEDIATELY HALTED, THE FIND PROTECTED FROM FURTHER DAMAGE, AND THE CONSTRUCTION MANAGER AND ENVIRONMENTAL MONITOR ADVISED. THE PERMITEE IS REQUIRED TO NOTIFY THE LOCAL POLICE AND THE STATE HISTORIC PRESERVATION OFFICE IMMEDIATELY FOLLOWING SUCH A DISCOVERY.

INSPECTIONS

THE OWNER AND SITE CONTRACTOR SHALL HAVE A QUALIFIED PROFESSIONAL CONDUCT AN ASSESSMENT OF THE SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND TO CERTIFY IN AN INSPECTION REPORT THAT THE APPROPRIATE EROSION AND SEDIMENT CONTROLS DESCRIBED IN THE SWPPP AND REQUIRED BY THE SPDES GENERAL PERMIT HAVE BEEN ADEQUATELY INSTALLED OR IMPLEMENTED TO ENSURE OVERALL PREPAREDNESS OF THE SITE FOR THE COMMENCEMENT OF CONSTRUCTION. AFTER COMMENCEMENT OF CONSTRUCTION, THE OWNER OR OPERATOR SHALL ENSURE THAT AT LEAST ONE TRAINED CONTRACTOR IS ON SITE ON A DAILY BASIS WHEN SOIL DISTURBANCE ACTIVITIES ARE BEING PERFORMED. FURTHER, THE OWNER SHALL HAVE A QUALIFIED PROFESSIONAL PERFORM SITE INSPECTIONS WEEKLY FOR SITES WITH DISTURBANCE AREAS OF LESS THAN FIVE (5) ACRES AND TWICE WEEKLY FOR SITES WITH DISTURBANCE AREAS OF GREATER THAN FIVE (5) ACRES. PRIOR TO FILING A NOTICE OF TERMINATION (NOT) FORM WITH NYSDEC FOR EACH PROJECT SITE OR AT THE END OF THE PERMIT TERM, THE OWNER SHALL HAVE THE QUALIFIED PROFESSIONAL PERFORM A FINAL SITE INSPECTION.

SPILL PREVENTION, CONTAINMENT, & COUNTER-MEASURES NOTES

1. GENERAL: PERSONNEL RESPONSIBLE FOR THE OVERSIGHT OF THE PETROLEUM PRODUCTS AND HAZARDOUS OR CONTROLLED SUBSTANCES INCLUDE:

   A. CONSTRUCTION MANAGER
   B. JOB-SITE COORDINATORS DESIGNATED BY THE CONSTRUCTION MANAGER

2. SPILLS SHALL BE IMMEDIATELY REPORTED TO THE OWNER BY THE CONTRACTOR. THE CONTRACTOR WILL KEEP AN UP-TO-DATE LIST OF QUALIFIED EMERGENCY RESPONSE CONTRACTORS WITH THE CAPABILITY OF REACHING THE PROJECT SITE QUICKLY. IN THE EVENT THAT A SPILL OCCURS ON THE SITE, THE FOLLOWING NOTIFICATION PROCEDURE WILL BE FOLLOWED.

   A. CONSTRUCTION TEAM LEADER NOTIFIES THE CONSTRUCTION MANAGER.
   B. CONSTRUCTION MANAGER NOTIFIES THE INSPECTOR DESIGNATED BY THE TOWN OF AMHERST.
   C. CONSTRUCTION MANAGER NOTIFIES THE OWNER AT (716-631-8000).
   D. THE OWNER NOTIFIES NYSDEC REGION 9 SPILL PREVENTION AND RESPONSE (716-851-7220).

PETROLEUM PRODUCTS & HAZARDOUS / CONTROLLED SUBSTANCES

1. PETROLEUM PRODUCTS AND HAZARDOUS OR CONTROLLED SUBSTANCES SHALL BE STORED AT THE TEMPORARY STORAGE AND STAGING AREA. IT IS ANTICIPATED THAT THE FOLLOWING HAZARDOUS OR CONTROLLED SUBSTANCES AND PETROLEUM PRODUCTS MAY BE STORED ON SITE IN REGULATORY APPROVED STORAGE CONTAINERS.

   A. GASOLINE
   B. DIESEL FUEL
   C. EQUIPMENT OILS AND LUBRICANTS
   D. COMMERCIAL FERTILIZER

EROSION AND SEDIMENT CONTROL PRACTICES

1. ALL SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES TO CONFORM TO THE LATEST EDITION OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL. SELECT THE APPROPRIATE SESC MEASURES TO BEST CONTROL SOIL EROSION AND SEDIMENTATION, SHOULD SITE CONDITIONS WARRANT.

2. PROVIDE AND MAINTAIN SESC MEASURES IN ACCORDANCE WITH THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND SESC DRAWINGS TO EFFECTIVELY CONTAIN ALL SOIL MATERIAL WITHIN THE SITE CONSTRUCTION AREA WHEN RAINFALL IS IMMINENT.

   A. THE PLAN AND DETAILS SHOWN ARE INTENDED TO BE USED AS A GUIDE. ANY REVISIONS DEEMED NECESSARY SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

3. THE CONTROL MEASURES THAT CAN BE UTILIZED UTILIZED DURING THE PROJECT ARE SUMMARIZED BELOW:

   A. SILT FENCE: FENCE SHALL BE INSTALLED AROUND SOIL STOCKPILES, WHERE ROADWAY CUT/FILL SLOPES ARE LOCATED WITHIN 100 FEET OF WATERCOURSES, AT THE LOCATION OF UTILITY LINE STREAM CROSSINGS, AND BETWEEN WETLAND BOUNDARIES AND CONSTRUCTION AREAS.

   B. STABILIZED CONSTRUCTION ENTRANCE: STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED WHERE ALL ACCESS ROADS INTERSECT LOCAL, COUNTY OR STATE ROADS.

   C. TEMPORARY SWALE: A TEMPORARY SWALE IS TO BE CONSTRUCTED TO PREVENT RUNOFF FROM ENTERING DISTURBED AREAS BY INTERCEPTING AND DIVERTING IT TO A STABILIZED OUTLET OR TO INTERCEPT SEDIMENT LADEN WATER AND DIVERT IT TO A SEDIMENT TRAPPING DEVICE.

   D. EARTH DIKE: EARTH DIKES CAN ALSO BE INSTALLED FOR DIVERTING CLEAN WATER AWAY FROM DISTURBED AREAS AND/OR INTERCEPT AND DIRECT SEDIMENT LADEN WATER TO A SEDIMENT TRAPPING DEVICE.

   E. SEDIMENT TRAP: SEDIMENT TRAPS ARE INSTALLED IN DRAINAGE WAYS, NATURAL OR TEMPORARY, BY EXCAVATION AND/OR EMBANKMENT TO INTERCEPT SEDIMENT LADEN RUNOFF AND RETAIN THE SEDIMENT.

   F. SEDIMENT FILTER BAG: SEDIMENT FILTER BAGS SHALL BE USED TO FILTER WATER PUMPED FROM OPEN EXCAVATIONS. SEDIMENT FILTER BAGS SHALL BE USED DURING CULVERT INSTALLATIONS AND AT INTERCONNECT STREAM CROSSINGS.

   G. WATERING VEHICLE: THE WATERING VEHICLE SHALL BE USED TO PREVENT SURFACE AND AIR MOVEMENT OF DUST FROM DISTURBED SOIL SURFACES THAT MAY CAUSE OFF-SITE DAMAGE, HEALTH HAZARDS, AND TRAFFIC SAFETY PROBLEMS. WATER WILL BE USED TO SPRAY THE SURFACE ON CONSTRUCTION ROADS, ACCESS POINTS, AND OTHER DISTURBED AREAS WHERE OFF-SITE DAMAGE MAY OCCUR IF DUST IS NOT CONTROLLED.

CONSTRUCTION SCHEDULE:

1. OBTAIN PLAN APPROVAL AND OTHER APPLICABLE PERMITS.
2. HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND SILT FENCE WHERE SHOWN ON EROSION AND SEDIMENT CONTROL PLAN.
4. INSTALL ALL TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES AS DESIGNED ON PLANS.
5. PLACE EXCAVATED MATERIAL IN AREAS REQUIRING FILL. TOPSOIL TO BE STOCKPILED IN AN AREA APPROVED BY ENGINEER. STOCKPILED MATERIAL TO BE ENCLOSED BY SILT FENCE. STOCKPILES SHALL UNDERGO TEMPORARY STABILIZATION METHODS WITHIN 14 DAYS OF INACTIVITY.
6. INSTALL SITE UTILITIES AND STORM SEWERS.
7. CONSTRUCT BUILDINGS.
8. GRADE, TOPSOIL AND SEED AS SOON AS PRACTICAL UPON COMPLETION OF UTILITIES INSTALLATION.
9. ONCE ALL DISTURBED AREAS ARE VEGETATED, ALL TEMPORARY SEDIMENT CONTROL MEASURES CAN BE REMOVED. SITE CONTRACTOR MUST HAVE THE ENTIRE SITE STABILIZED PRIOR TO WITHDRAWING FROM SITE.

CONSTRUCTION SPECIFICATIONS

GENERAL SPECIFICATIONS FOR THE INSTALLATION OF THE EROSION AND CONTROL PRACTICES ARE SUMMARIZED BELOW.

1. SILT FENCE: FILTER FABRIC SHOULD BE INSTALLED AT LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION SHOULD BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO ALLOW FOR POOLING OF WATER. A 6 INCH DEEP TRENCH SHOULD BE EXCAVATED, MINIMIZING THE DISTURBANCE ON THE DOWNSIDE SLOPE. THE BOTTOM OF THE TRENCH SHOULD BE AT LEVEL GRADE. MAXIMUM DEVIATION FROM LEVEL GRADE SHOULD BE 1% AND NOT EXTEND MORE THAN 25 FEET. THE BOTTOM OF THE FENCE SHOULD BE ANCHORED BY PLACING FABRIC IN BOTTOM OF THE TRENCH, AND BACKFILLING AND COMPACTING THE FILL MATERIAL IN THE TRENCH. SUPPORT STAKES SHOULD BE DRIVEN 18 INCHES BELOW THE EXISTING GROUND SURFACE AT 8 FEET (MAX) INTERVALS. FILTER FABRIC SHOULD BE STRETCHED AND FASTENED TO THE UPSLOPE SIDE OF THE SUPPORT STAKES. AT FABRIC ENDS, BOTH ENDS SHOULD BE WRAPPED AROUND THE SUPPORT STAKE AND STAPLED. IF THE FABRIC COMES ALREADY ATTACHED TO THE STAKES, THE END STAKES SHOULD BE HELD TOGETHER WHILE THE FABRIC IS WRAPPED AROUND THE STAKES AT LEAST ONE REVOLUTION PRIOR TO DRIVING THE STAKES.

2. STABILIZED CONSTRUCTION ENTRANCE: CLEAR THE ENTRANCE/EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. PLACE GEOTEXTILE FABRIC OVERLAYED WITH STONE TO THE DIMENSIONS, GRADES, AND ELEVATION SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS.

3. TEMPORARY SWALE:

   ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.

   DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.

   DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.

   ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE

   THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.

   FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.

   ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.

   STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC -10AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSIOR, SOD	LINED WITH 4-8" RIP-RAP OR RECYCLED CONCRETE EQUIVALENT
4	8.1-20.%	LINED WITH 4-8" RIP-RAP	ENGINEERED DESIGN

MAINTENANCE PLAN

ALL EROSION AND SEDIMENT POLLUTION CONTROL DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY. THE CONTROL DEVICES WILL BE INSPECTED AND MAINTAINED AS PRESCRIBED BELOW.

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY REPAIRS NEEDED WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT ACCUMULATIONS AT THE SILT FENCE SHALL BE REMOVED WHEN THE DEPTH OF THE SEDIMENT AT THE FENCE REACHES 0.5-FEET. REPAIRS WILL BE MADE TO THE FENCE TO MAINTAIN ITS BARRIER.
3. THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT THE TRACKING OF SEDIMENT ONTO PUBLIC AND PRIVATE RIGHT-OF-WAYS OR STREETS. PERIODICALLY, THE ENTRANCE WILL BE TOP DRESSED WITH ADDITIONAL AGGREGATE TO MAINTAIN THE 6-INCH THICKNESS. ANY SEDIMENT WHICH IS SPILLED, DROPPED OR WASHED ONTO PUBLIC AND PRIVATE RIGHT-OF-WAYS SHALL BE REMOVED IMMEDIATELY.
4. SEDIMENT FILTER BAGS SHALL BE INSPECTED DAILY DURING USE. IF A PROBLEM IS DETECTED, PUMPING SHOULD CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED. FILTER BAGS WILL BE REPLACED WHEN THEY BECOME ½ FULL. SPARE BAGS SHOULD BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR FILLED.
5. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
6. DUST CONTROL MEASURES SHALL BE MAINTAINED THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS ARE STABILIZED.

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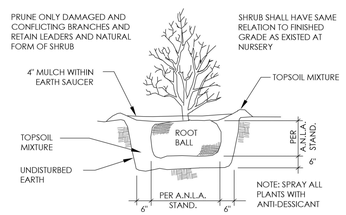
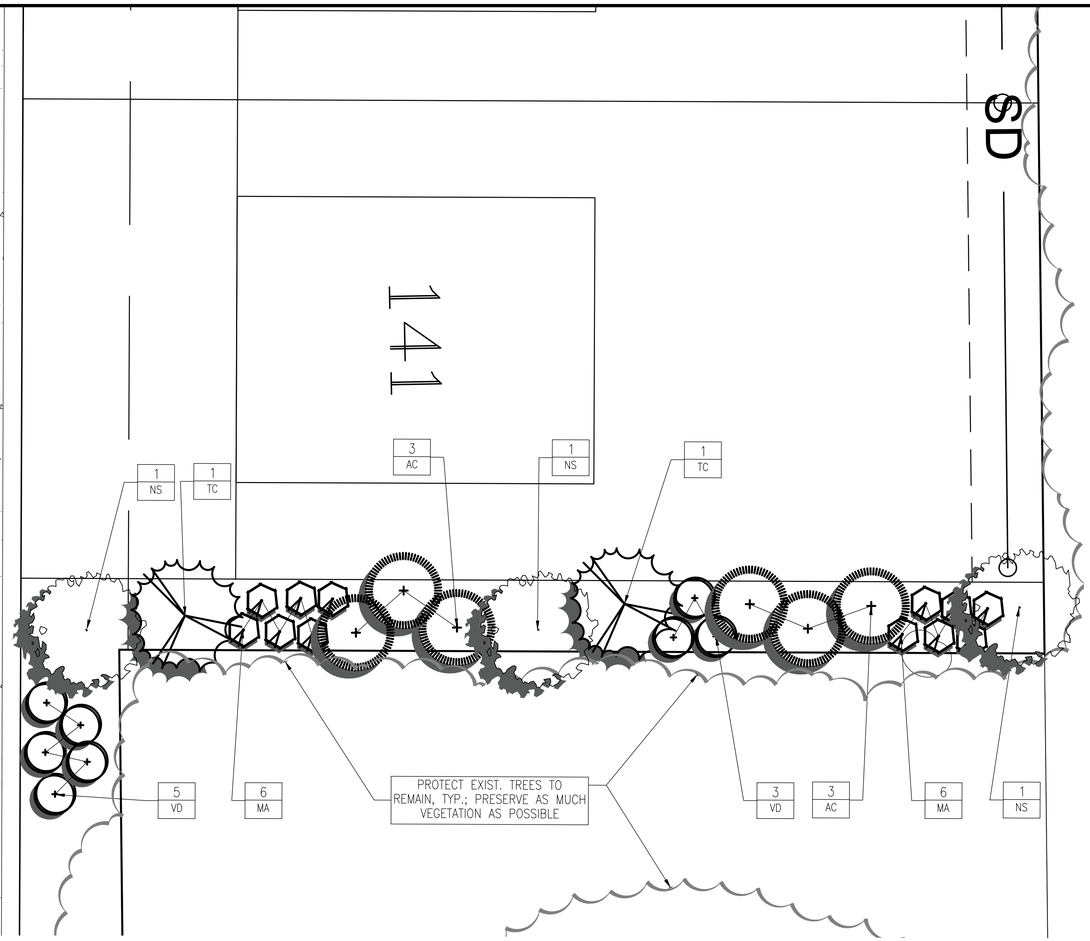
PREPARED FO



SHRUB PLANTING

SCALE: N.T.S.



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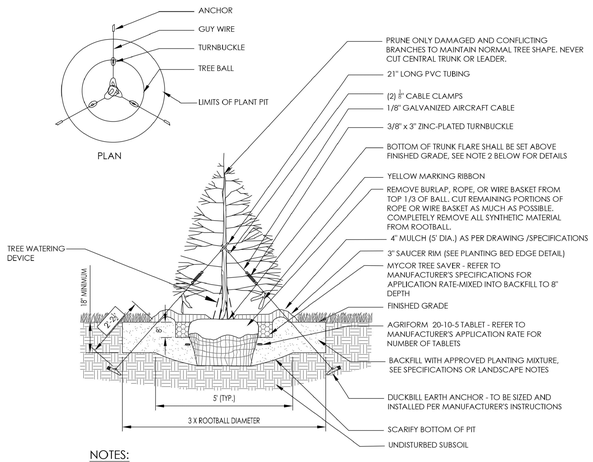
LANDSCAPE NOTES:

1. IT IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY TO VISIT THE SITE PRIOR TO BID MOBILIZATION, TO BECOME FAMILIAR WITH EXISTING CONDITIONS AT THE SITE.
2. STANDARDS SET FORTH IN THE "AMERICAN STANDARD FOR NURSERY STOCK", ANSI Z60.1 (LATEST EDITION) REPRESENT GUIDELINE SPECIFICATIONS ONLY AND SHALL CONSTITUTE THE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIALS DELIVERED AND INSTALLED ON THIS PROJECT.
3. ALL PLANTS MUST BE HEALTHY, VIGOROUS AND FREE OF PESTS AND DISEASE.
4. ALL PLANTS MUST BE HARDY UNDER CLIMATE CONDITIONS THAT EXIST AT THE PROJECT SITE AND GROWN AT A NURSERY IN THE SAME HARDINESS ZONE AS THE PROJECT LOCATION.
5. ALL PLANTS MUST BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED ON THE PLANT LIST.
6. ANY PROPOSED DEVIATION TO THE LANDSCAPE PLAN MUST FIRST BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO THE INSTALLATION OF THE PROPOSED LANDSCAPING CHANGES.
7. ALL TREES MUST BE STRAIGHT–TRUNKED, INJURY FREE, HAVE A FULL, SYMMETRICAL CROWN (HEAD) AND MEET ALL REQUIREMENTS SPECIFIED (E.G. SINGLE STEM, MULTI–STEM, HEAVY BRANCHED, ETC.).
8. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS.
9. ANY DISCREPANCIES IN THE QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR LANDSCAPE ARCHITECT (OWNER'S REPRESENTATIVE).
10. ANY CONCERNS RELATED TO SITE CONDITIONS AND/OR PLANT LOCATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR DESIGN LANDSCAPE ARCHITECT (OWNER'S REPRESENTATIVE) PRIOR TO INSTALLATION.
11. ALL GRADING AND UTILITY WORK SHALL BE COMPLETED PRIOR TO INSTALLATION OF PLANT MATERIAL AND LANDSCAPE MULCH.
12. THE FINAL LOCATION OF TREES AND OTHER LANDSCAPING SHALL BE DETERMINED IN THE FIELD BASED ON UTILITY STAKEOUT AND SHALL NOT CONFLICT WITH TRAFFIC SIGNS AND/OR UTILITIES. STAKE OUT SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
13. PLANTING BACKFILL MIXTURE: 20 PARTS ON–SITE SOIL, 10 PARTS SCREENED TOPSOIL, 5 PARTS PEAT MOSS, 5 PARTS ALL GROW, 2.5 PARTS WELL ROTTED MANURE AND 10 LBS. 5–10–5 PLANTING FERTILIZER, MIXED THOROUGHLY PER CUBIC YARD.
14. MULCH ALL PLANT BEDS, AND INDIVIDUAL TREES IN LAWN AREAS WITH COMPOSTED AND AGED SHREDDED HARDWOOD BARK MULCH TO A DEPTH OF FOUR (4") INCHES UNLESS OTHERWISE SPECIFIED ON PLANTING DETAILS, OR AS DIRECTED BY THE LANDSCAPE ARCHITECT DUE TO SITE CONDITIONS. MULCH SAMPLE TO BE SUBMITTED TO THE OWNER AND THE OWNER'S REPRESENTATIVE FOR FINAL APPROVAL.
15. ANY PLANT WHICH TURNS BROWN, DEFOLIATES OR DIES PRIOR TO FINAL ACCEPTANCE BY THE OWNER, OR LANDSCAPE ARCHITECT, SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH THE SAME PLANT (SPECIES, VARIETY AND SIZE) AS SPECIFIED ON THE PLANT SCHEDULE (LIST).
16. THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIALS UNTIL THE PROJECT HAS RECEIVED FINAL ACCEPTANCE BY THE OWNER OR OWNER'S REPRESENTATIVE. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO: WATERING, MULCHING, FERTILIZING, SPRAYING (FUNGICIDE, PESTICIDE, ANTI–DESICANT), AS WELL AS RAISING PLANTS THAT HAVE SETTLED TOO DEEP OR REQUIRE STRAIGHTENING.
17. ALL AREAS DISTURBED BY SITE GRADING AND/OR UTILITY INSTALLATION SHALL RECEIVE APPROVED TOPSOIL (BASED ON APPROVED SAMPLES SUBMITTED BY THE CONTRACTOR) AND SPREAD TO A DEPTH NOT LESS THAN SIX (6") INCHES AFTER COMPACTION. TOPSOIL PLACED FOR LAWNS SHALL BE FINE GRADED, SEEDED, MULCHED AND WATERED UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED (BY OTHERS). THIS IS EXCLUDING FOUNDATION PLANT BEDS, LANDSCAPE ISLANDS AND ENTRANCE AREAS. **TOPSOIL PLACEMENT IS NOT A PART OF THIS CONTRACT.**
18. LOCATIONS OF EXISTING BURIED UTILITIES SHOWN ON THE SITE PLAN ARE BASED UPON THE BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE TO CALL FOR A UTILITY STAKEOUT PRIOR TO COMMENCING PLANT INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, AND SITE APPURTENANCES WHICH OCCURS AS A RESULT OF LANDSCAPE INSTALLATION OPERATIONS.
19. EXISTING TREES INDICATED TO BE REMOVED SHALL OCCUR UNDER THE SITE CONTRACT FOR THIS PROJECT. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR NEW PLANTINGS OR RESTORATION OF THE DISTURBED AREA (LAWNS, PLANT BEDS).
20. EXISTING TREES TO REMAIN SHALL BE PROTECTED BY INSTALLING A TEMPORARY FENCE AT THE OUTER LIMITS OF THE TREE CANOPY.
21. ALL SHRUB BEDS ADJACENT TO LAWN AREAS SHALL HAVE A SPADED EDGE BORDER.

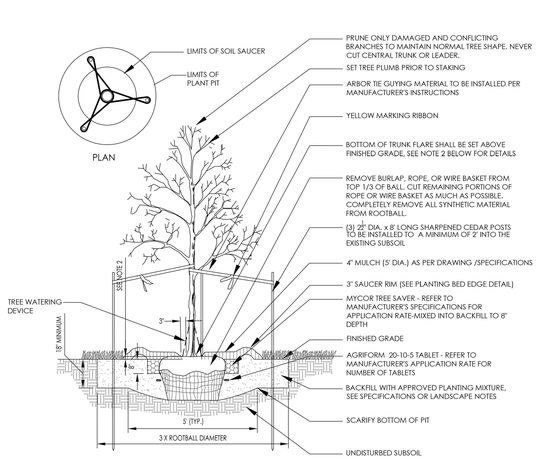


NOTES:

1. MAINTAIN A 2' MINIMUM RADIUS CLEAR OF MULCH AROUND THE TRUNK.
2. THE DISTANCE BETWEEN THE BOTTOM OF THE TRUNK FLARE AND THE FINISHED GRADE SHALL BE AS FOLLOWS:
   FOR SANDY OR LOAMY SOILS: 1"
   FOR CLAY OR POORLY DRAINED SOILS: 3"
   THE CONTRACTOR SHALL REVIEW THE APPROPRIATE PLANTING DEPTH WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. WHEN TAGGING TREES AT THE NURSERY, MARK THE NORTH SIDE OF THE TREE IN THE FIELD AND WHEN INSTALLING, ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE

EVERGREEN TREE PLANTING

SCALE: N.T.S.



NOTES:

1. MAINTAIN A 3" MINIMUM RADIUS CLEAR OF MULCH AROUND THE TRUNK.
2. THE DISTANCE BETWEEN THE BOTTOM OF THE TRUNK FLARE AND THE FINISHED GRADE SHALL BE AS FOLLOWS:
   2.1. FOR SANDY OR LOAMY SOILS: 1"
   2.2. FOR CLAY OR POORLY DRAINED SOILS: 3"
   THE CONTRACTOR SHALL REVIEW THE APPROPRIATE PLANTING DEPTH WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. WHEN TAGGING TREES AT THE NURSERY, MARK THE NORTH SIDE OF THE TREE IN THE FIELD AND WHEN INSTALLING, ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE

DECIDUOUS TREE PLANTING

SCALE: N.T.S.

MUIR WOODS SUBDIVISION PHASE 4 - Plant List

(December 2021)

Key	No.	Botanical Name	Common Name	Min. Size	Remarks
TREES					
AC	6	*Abies Concolor*	White Fir	7-8' Hgt.	B&B Full to ground
NS	3	*Nyssa sylvatica*	Black Gum	2 1/2" Cal.	single leader
TC	2	*Tsuga Canadensis*	Canadian Hemlock	8-10' Hgt.	B&B; Full to ground
SHRUBS					
MA	12	*Mahonia aquifolium*	Oregon Hollygrape	4' hgt.	48" hgt. min.- Full
VD	8	*Viburnum dentatum*	Arrowwood Viburnum	4' hgt.	Balled & burlap
		(**) NOTE: Per Town of Amherst Zoning Ordinance Sect. 7-2-3 (A) (1) (g), all shrubs to be a minimum of 24-inches in height (at the time of planting)			

PLANTING LEGEND

PROP. LRG. EVERGREEN TREE

PROP. DECIDUOUS TREE

PROP. DECIDUOUS SHRUB

PROP. EVERGREEN SHRUB

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4
520 Campbell Blvd
Town of Amherst, NY 14068

REGISTERED LANDSCAPE ARCHITECT ★ JOHN D. REDDINGTON ★ 001930-1 ★ STATE OF NEW YORK

WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	rev. per Town comments	12/16/2021
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Landscape Plan

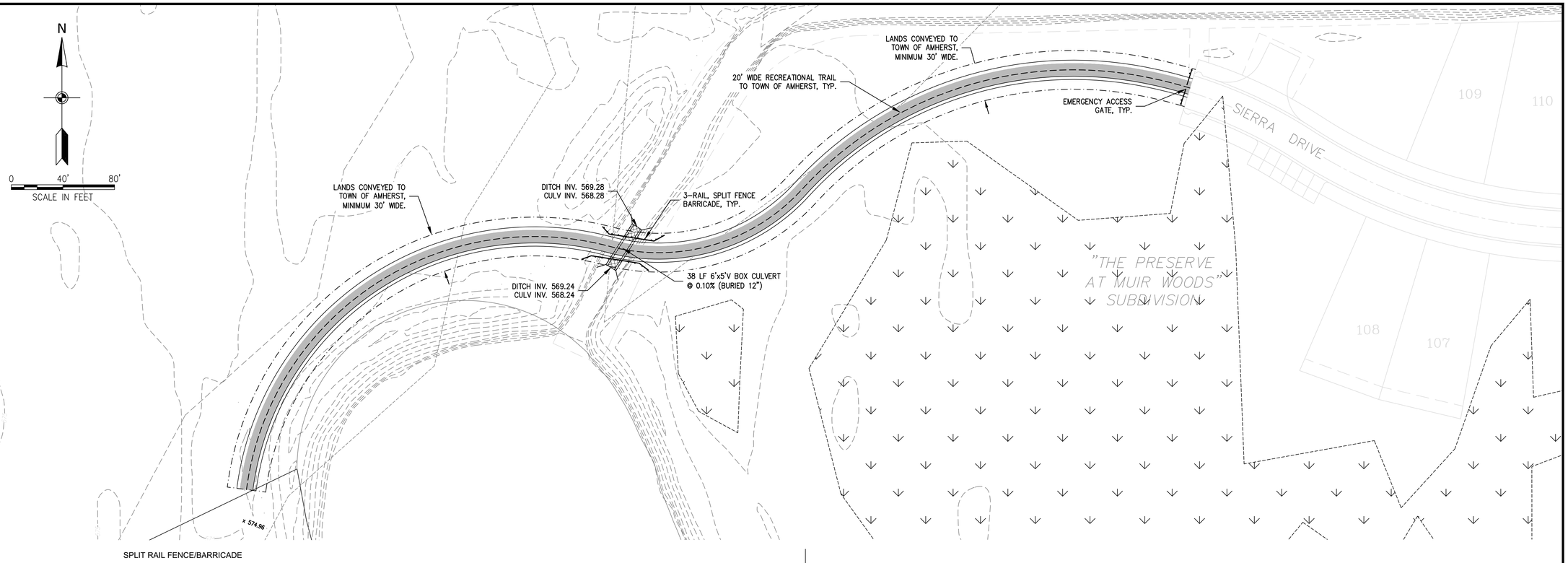
SCALE: 1" = 10'

WNY-2013062.40

L-1

Attachment: SP-2021-24_A drawings 051922 (25493 : Sp-2021-24A)

M:\WNY\wny-2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062.40-PH-LAYout.dwg Friday, 21 January 2022 8:56PM



Part 1 GENERAL 1

1.1 **GENERAL**

A. Unless otherwise required by Town ordinances, fences/Barricades shall be four; feet in height.
B. All wood materials shall be treated wood, or wood of a natural resistance to decay. Materials shall be free from loose knots, cracks, and other imperfections.
C. This specification is written around traditional split rail style fencing. However, post and rail or buck and rail style fences will be considered on a case-by-case basis. Designs and specifications for these styles should be submitted to the Town for review and approval.

2.1 MATERIAL

2.2 **RAILS**

A. 3-rail or 2-rail "American Style" split rail system shall be used.

2.3 **POSTS**

A. Posts shall be 18-inch girth (apprx. 25 square inches).
B. 2-rail posts shall be approximately 64-inches in height.
C. 3-rail posts shall be approximately 78-inches in height.
D. Posts shall be buried 30-inches into ground.

3.1 INSTALLATION

3.3 **INSTALLATION OF POSTS**

A. Posts shall be set true to line and grade.
B. Line posts do not require concrete footings.
C. Corner, or end posts do require 12-inch diameter concrete footings extending at least 24-inches into undisturbed natural ground or properly compacted fill.

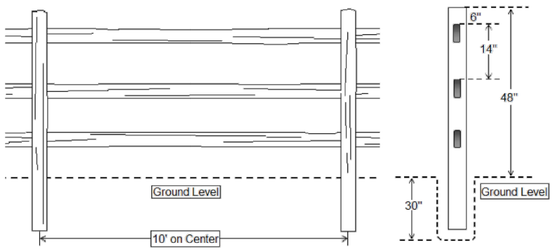
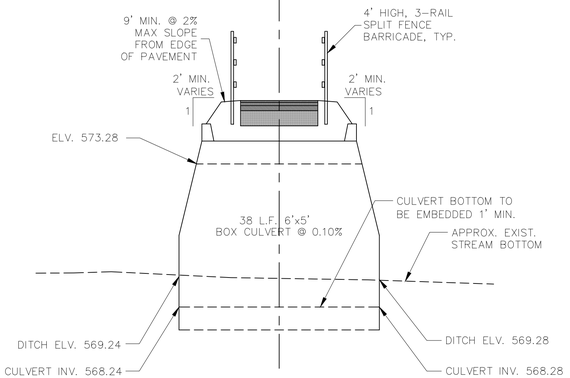
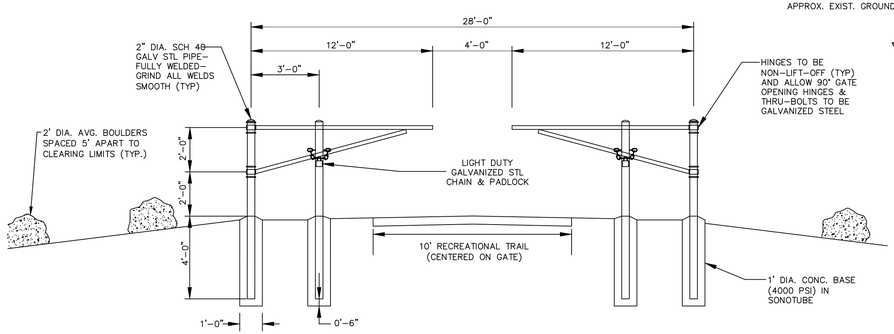


FIGURE 1 - 3-rail Split Rail Fence/Barricade Detail.

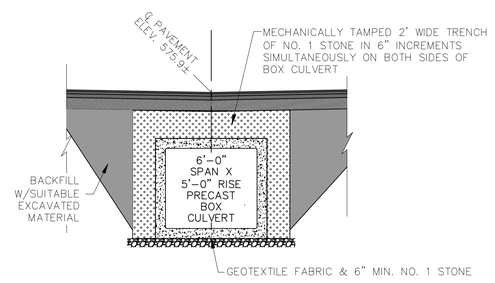
(Source: CFC Fences & Decks)



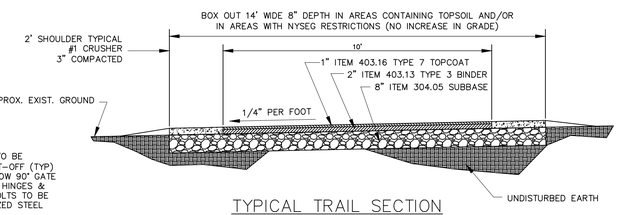
RECREATIONAL TRAIL BOX CULVERT ELEVATION
SCALE: N.T.S.



ACCESS GATE DETAIL
NOT TO SCALE



RECREATIONAL TRAIL BOX CULVERT SECTION
SCALE: N.T.S.



TYPICAL TRAIL SECTION

GPI Engineering Design Planning Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. [illegible]
DOCUMENT ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY:	CHECKED BY
THM	TW

Recreational Trail Paving Plan

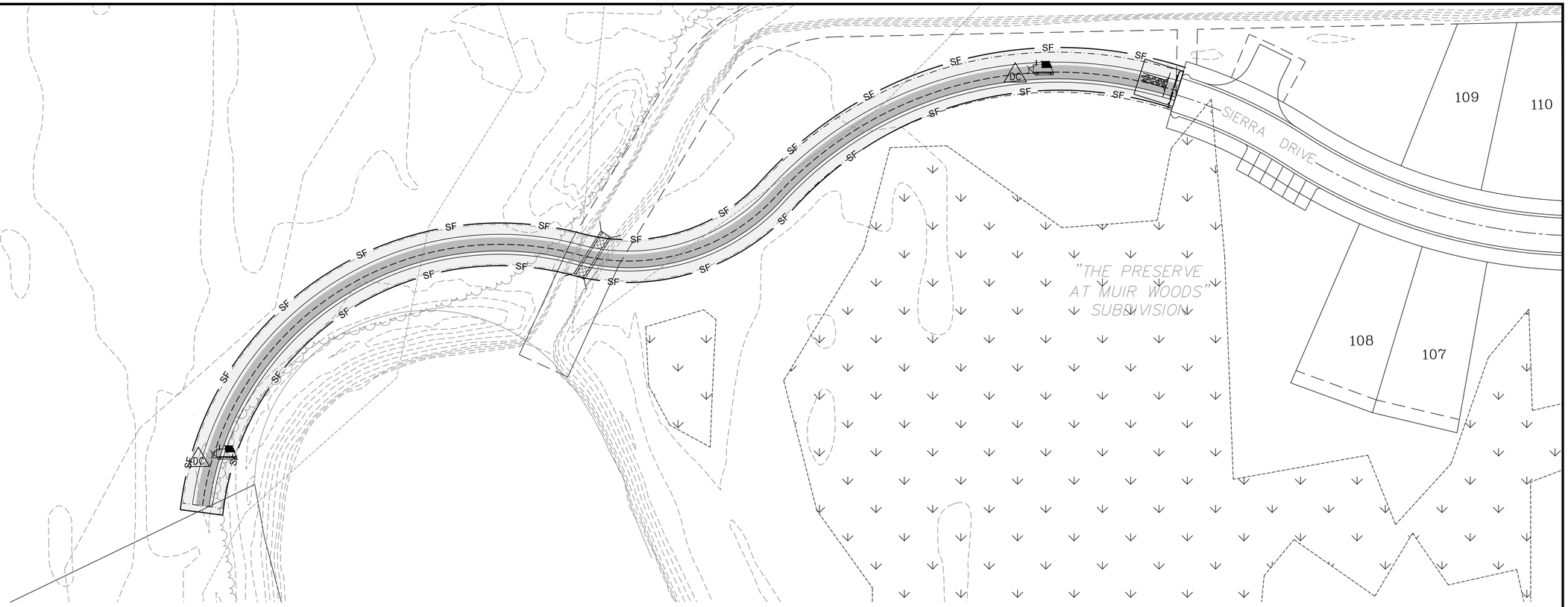
SCALE: 1" = 40'

WNY-2013062.40

RT-1

Attachment: SP-2021-24, A drawings 051922 (25483 : Sp-2021-24A)

N:\2013\2013062 - Muir Woods\Site B\2013062.01 Muir Woods Site B - Aspen Heights\CADD\Design Plans\RT-1 Recreational Trail Paving Plan.dwg Friday, 25 March 2022 12:39PM



EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

N

0 40' 80'
SCALE IN FEET

LEGEND

CHECK DAM	
FILTER FABRIC/ FILTER BAG DROP INLET PROTECTION	
LAND GRADING	
SILT FENCE	SF
TEMPORARY SEEDING	TS
STABILIZED CONSTRUCTION ENTRANCE	
PERMANENT SEEDING	PS
DUST CONTROL	DC
INLET/OUTLET PROTECTION	
TOPSOILING	

INDICATES MIN. AREA TO BE STRIPPED, GRADED, & WHERE APPLICABLE, EITHER SEEDED OR PAVED (TYP.)

GPI Engineering Design Planning Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. 1[illegible]
WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS

NO.	REVISION	DATE
1	Rev. Per Town Comments	12-21-21

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Recreational Trail Erosion and Sediment Control Plan

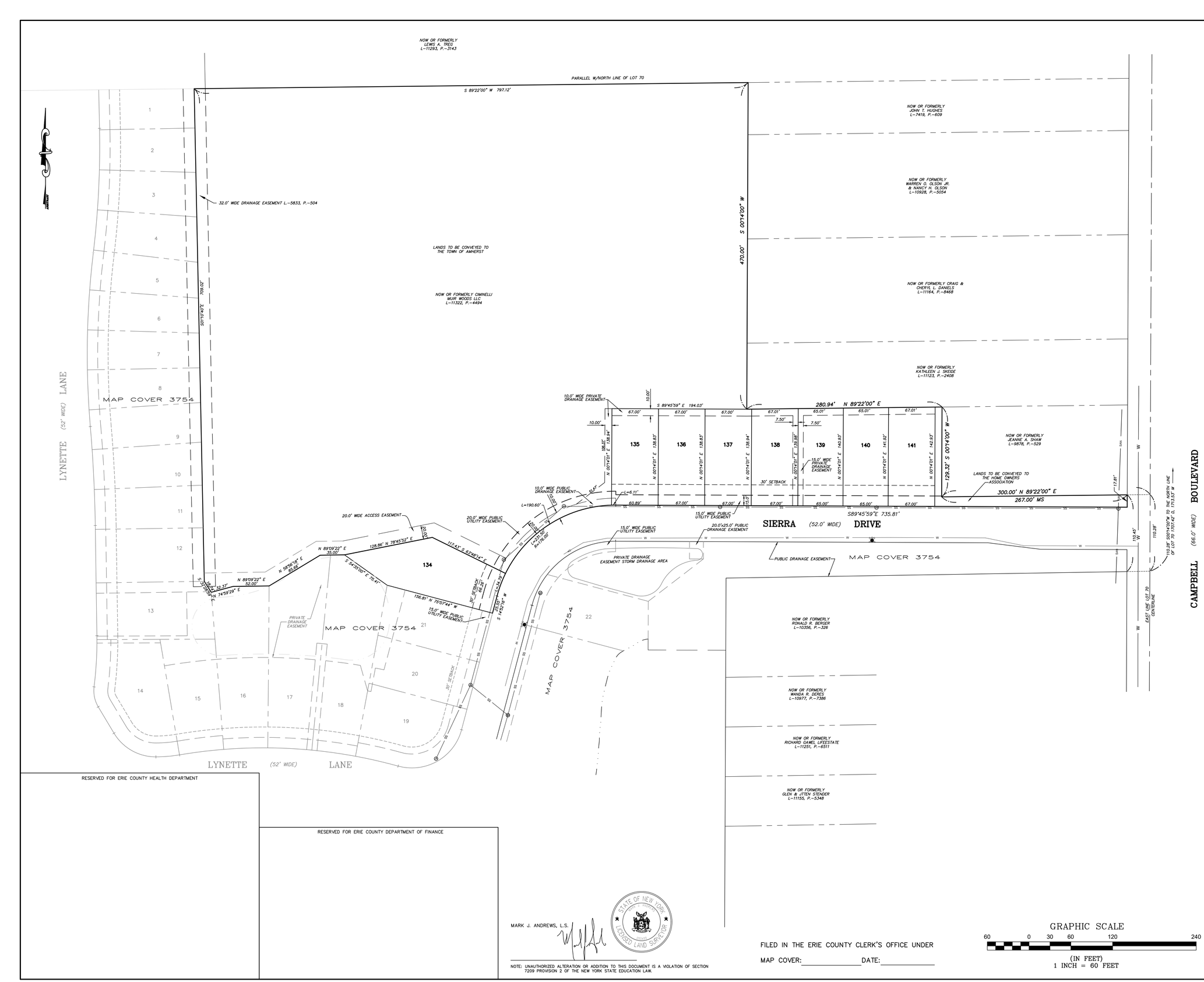
SCALE: 1" = 40'

WNY-2013062.40

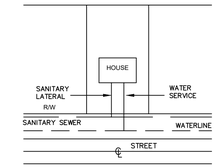
RT-2

Attachment: SP-2021-24_A drawings 051922 (25493 : Sp-2021-24A)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.



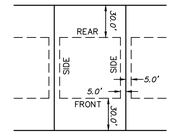
SANITARY SEWER FACILITIES, EXISTING AND PROPOSED, AND WATER SUPPLY FACILITIES, EXISTING AND PROPOSED, SHOWN ON THIS SUBDIVISION MAP ARE FOR THE PURPOSE OF COMPLIANCE WITH NEW YORK STATE REALTY SUBDIVISION LAW. GPI ENGINEERING, LANDSCAPE ARCHITECTURE AND SURVEYING, LLP ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF SANITARY SEWER AND WATER FACILITIES SHOWN ON THIS MAP OR FOR THE APPROVAL, CONSTRUCTION OR ACCEPTANCE BY APPROPRIATE GOVERNMENT AGENCIES OF SAID FACILITIES.



LOT AREAS

LOT 134	13,491 ± Sq. Ft.
LOT 135	9,302 ± Sq. Ft.
LOT 136	9,302 ± Sq. Ft.
LOT 137	9,305 ± Sq. Ft.
LOT 138	9,344 ± Sq. Ft.
LOT 139	9,130 ± Sq. Ft.
LOT 140	9,193 ± Sq. Ft.
LOT 141	9,542 ± Sq. Ft.

TYPICAL LOT SETBACK DEPICTION



NOTES:

ALL IMPROVEMENTS WILL BE INSTALLED UNDER TOWN PERMITS WITH ALL PLANS CONSISTENT WITH PRELIMINARY PLAT.

PUBLIC DRAINAGE EASEMENTS SHALL BE GRANTED TO THE TOWN OF AMHERST TO PROVIDE ACCESS TO STORM WATER FACILITIES. THESE EASEMENTS SHALL REMAIN FREE OF OBSTRUCTIONS.

PRIVATE DRAINAGE EASEMENTS SET FORTH ON THE SUBDIVISION MAP ARE FOR THE BENEFIT OF THE OWNERS OF PROPERTY WITHIN THE SUBDIVISION AND THE BENEFIT DERIVED FROM THESE EASEMENTS IS FOR THE PROPERTY ONLY AND THE TOWN OF AMHERST ASSUMES NO RESPONSIBILITY FOR THE MAINTENANCE THEREOF.

SEE SURVEY PREPARED BY GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP JOB NO. 2013062 DATED: DECEMBER 17, 2017

SUBDIVISION AREA: 13.18± Acres

OWNERS CONSENT FOR FILING :

_____ _____

OWNER DATE

APPROVED BY THE TOWN OF AMHERST PLANNING BOARD, ERIE COUNTY, NEW YORK :

_____ _____

CHAIRMAN DATE

RESERVED FOR ERIE COUNTY HEALTH DEPARTMENT

RESERVED FOR ERIE COUNTY DEPARTMENT OF FINANCE

MARK J. ANDREWS, L.S.

STATE OF NEW YORK — MARK J. ANDREWS — 050921 — LICENSED LAND SURVEYOR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

FILED IN THE ERIE COUNTY CLERK'S OFFICE UNDER

MAP COVER: _____ DATE: _____

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 INCH = 60 FEET

The Preserve at Muir Woods Phase 4

PART OF LOT 70, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062 Date: JANUARY 27, 2022

Attachment: SP-2021-24_A drawings 051922 (25493 : Sp-2021-24A)

DRAFT
(05/19/2022)

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst Planning Board

Project: SP-2021-24_A

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Unlisted Action

Description of Action: Authorization for the Final Plat for a project which consists of a residential subdivision on a 1.8± acre portion of an approximately 14.39± acre parcel located at 520 Campbell Boulevard consisting of eight lots for detached single-family homes fronting on Sierra Drive. a public roadway, the donation of 11.25± acres of land which includes 6.88± acres of wetland area to the Town of Amherst and the construction of the recreational path at the western terminus of Sierra Drive. Work will include the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 520 Campbell Boulevard, Amherst, Erie County

Petitioner: Ciminelli Muir Woods

Attachment: SP-2021-24A_draft_neg_dec_051922 (25493 : Sp-2021-24A)

REASONS SUPPORTING THIS DETERMINATION

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on April 5, 2022 reviewed the Grading, Drainage and Utility Plans, Erosion Control Plan and Engineers Report submitted on March 29, 2022. Based on its review of these documents, the Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on March 29, 2022 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department has reviewed the application documents submitted on February 29, 2022 and determined in their review of March 3, 2022 that the subject project has or will have met all Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. The NYS Office of Parks, Recreation and Historic Preservation has reviewed the project and, as stated in their letter of October 10, 2001, determined that there will be no impact on these resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the New Community District – Neighborhood (NCD-ND) zoning district; neighboring uses are single family lots and zoned New Community District – Neighborhood or Suburban Agriculture (NCD-ND or NCD-SA); therefore, the project is consistent with surrounding land use.

6. The proposed subject development will include the creation of eight new single family residential lots and recreational trail which will not cause a major change in the use of either the quantity or type of energy.

Attachment: SP-2021-24A_draft_neg_dec_051922 (25493 : Sp-2021-24A)

7. The proposed eight lots for future detached single family homes and recreational trail extension ~~project~~ will not create any hazard to human health. The Fire Chief's Council previously on December 6, 2021, has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency have or will have been met.

8. The proposed eight lots for future detached single family homes and recreational trail extension will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The proposed eight new single family residential lots will be consistent with the scale of surrounding land uses.

9. The proposed eight lots for future detached single family homes and recreational trail extension will not significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated March 3, 2022 and NYSDOT dated _____ indicates that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on March 11, 2022, Assessor on April 5, 2022, and Right-of-Way Agent on February 23, 2022. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Second by: Ayes; Noes Absent

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

Attachment: SP-2021-24A_draft_neg_dec_051922 (25493 : Sp-2021-24A)

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-24_A_(520_Campbell_Blvd_(NCD)_2022\SP-2021-24_A_draft neg dec_051922.doc
cc: Amherst Town Clerk
Amherst Building Department
ECDEP
NYSDEC
NYSDOT
Adam Faeth, Ciminelli Real Estate Corporation, 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Sean Hopkins, 5500 Main Street, Suite 343, Williamsville, NY 14221
Ken Zollitsch, Greenman-Pedersen, 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Amy Dake, SRF Associates, 3495 Winton Place, Building E, Suite 110, Rochester, NY 14623

Attachment: SP-2021-24A_draft_neg_dec_051922 (25493 : Sp-2021-24A)

DRAFT (5/19/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION (NCD)
SP-2021-24_A

PETITIONER

Ciminelli Muir Woods, LLC
c/o Sean Hopkins
5500 Main Street, Suite 343
Williamsville, NY 14221

PROPERTY LOCATION

520 Campbell Boulevard (NCD)

WHEREAS the Town of Amherst Planning Board on Thursday, May 19, 2022 held a public hearing on a site plan for the proposed eight lot residential subdivision and donation of 11.25 acres of land to the Town of Amherst, and

WHEREAS the Planning Board has reviewed the plans and specifications for the proposed project, and

WHEREAS the Site Plan has been referred to the Town's various review agencies and they have made findings on this project, and

WHEREAS the Planning Board finds that:

1. The proposed site plan is consistent with the intent, objectives and specific requirements of the Zoning Ordinance, specifically those of the New Community District, Section 5-2.

2. The proposed site plan is in conformity with the Approved Development Plan for the Audubon New Community.

3. Adequate services and utilities are or will be available prior to occupancy, and

4. Review of the US Army Corps of Engineers under Section 404 of the Clean Water Act is required since hydric / potentially hydric soils have been identified on the parcel. A Preliminary Jurisdictional Determination from the USACOE was issued on July 12, 2017.

5. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

6. The Site Plan is consistent with all other applicable laws.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

Attachment: SP-2021-24A_draft_resolution_051922 (25493 : Sp-2021-24A)

DRAFT (5/19/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION (NCD)
SP-2021-24_A

PETITIONER	PROPERTY LOCATION
Ciminelli Muir Woods, LLC	520 Campbell Boulevard (NCD)

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-15-9 of the Zoning Ordinance, approves said Site Plan, subject to the following conditions:

1. That future homes built on lots #134 through #141 meet the minimum yard area requirements of §203-3-6 B of Town Code and the deeds for the individual lots carry within them such restriction.

2. That 11.25± acres of land which includes 6.88± acres of wetland area be donated to the Town of Amherst. Additionally no issuance of any certificate of occupancy by the Building Department for homes on the 8 lots (#134 through #141) be granted until conveyance of the aforementioned.

3. That the petitioner shall contribute funds to an account to be used toward funding improvements to the intersection of North French Road and Campbell Boulevard. The amount of funds shall be derived from the cost of improvements as determined by the NYSDOT. The funds for intersection improvements shall be deposited in an account prior to issuance of any certificate of occupancy by the Building Department for homes on the 8 lots (#134 through #141) proposed by this site plan.

4. That the Declaration of Restrictions and Restrictive Covenants recorded at the County Clerk's Office for the homeowners association for "The Preserve at Muir Woods" be also filed and applied to the subject subdivision and a recorded copy of the Declaration of Restrictions shall be provided to the Town upon recording of the final plat in the County Clerk's office.

5. That the recreational path at the western terminus of Sierra Drive connecting this portion of the Muir Woods Development (Sites C & D) to Site B be constructed and that the associated property and trail be conveyed to the Town at no cost by December 31, 2022. Additionally no issuance of any certificate of occupancy by the Building Department for homes on the 8 lots (#134 through #141) be granted until completion of the aforementioned recreational path.

6. That a SWPPP permit be obtained for phase IV from the Town and that a concrete washout area be shown on the erosion and sediment control plan as stipulated in the Stormwater Management Officer,s letter dated January 11, 2022.

7. That the concerns raised in the Engineering Departments letter dated January 3, 2022 relating to PIP's and I/I mitigation be addressed to the satisfaction of that department.

Attachment: SP-2021-24A_draft_resolution_051922 (25493 : Sp-2021-24A)

DRAFT (5/19/22)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION (NCD)
SP-2021-24_A

PETITIONER	PROPERTY LOCATION
Ciminelli Muir Woods, LLC	520 Campbell Boulevard (NCD)

NOW THEREFORE BE IT FURTHER RESOLVED that Sierra Drive is classified as local street(s) and that sidewalks are required, and that the required ramps and/or curb cuts to meet ADA compliance be included and constructed with the P.I.P. for the roadway utilities.

NOW THEREFORE BE IT FURTHER RESOLVED in reviewing the proposed 8 lot subdivision and §204-3-2 O of Town Code that street lighting and the associated lighting district is required.

NOW THEREFORE BE IT FURTHER RESOLVED that recreation fees are required for the proposed subdivision lots in accordance with the adopted fee schedule.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-24_A_(520_Campbell_Blvd_(NCD)_2022\SP-2021-24_A_draft resolution_051922.doc

cc: Commissioner of Building
Town Engineer
Town Attorney
Fire Chiefs
Traffic/Safety Coordinator
Highway Superintendent
Adam Faeth, Ciminelli Real Estate Corporation, 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Sean Hopkins, 5500 Main Street, Suite 343, Williamsville, NY 14221
Ken Zollitsch, Greenman-Pedersen, 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Amy Dake, SRF Associates, 3495 Winton Place, Building E, Suite 110, Rochester, NY 14623

Approved Plan: January 27, 2022
Received: February 22, 2022

Attachment: SP-2021-24A_draft_resolution_051922 (25493 : Sp-2021-24A)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor

Daniel C. Howard,
Planning Direct

Daniel J. Ulatowski,
Assistant Planning D

MAY 26 '22 PM

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency:	Town of Amherst Planning Board	**Project:**	SP-2021-24_A
Address:	5583 Main Street Williamsville, NY 14221 (716) 631-7051	**Date:**	May 19, 2022

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Unlisted Action

Description of Action: Authorization for the Final Plat for a project which consists of a residential subdivision on a 1.8± acre portion of an approximately 14.39± acre parcel located at 520 Campbell Boulevard consisting of eight lots for detached single-family homes fronting on Sierra Drive. a public roadway, the donation of 11.25± acres of land which includes 6.88± acres of wetland area to the Town of Amherst and the construction of the recreational path at the western terminus of Sierra Drive. Work will include the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 520 Campbell Boulevard, Amherst, Erie County

Petitioner: Ciminelli Muir Woods

Attachment: SP-2021-24A_signed_neg_dec_051922 (25493 : Sp-2021-24A)

MAY 25 '22 PM 3:35 RCVD

Reasons Supporting This Determination

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on April 5, 2022 reviewed the Grading, Drainage and Utility Plans, Erosion Control Plan and Engineers Report submitted on March 29, 2022. Based on its review of these documents, the Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.
2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The donation of 11.25± acres of land to the Town of Amherst as part of the project will preserve vegetation and wildlife habitat and natural resources. The Planning Department reviewed a Landscape Plan submitted on March 29, 2022 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.
3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department has reviewed the application documents submitted on February 29, 2022 and determined in their review of March 3, 2022 that the subject project has or will have met all Zoning Ordinance regulations.
4. The project is within an area identified by the State as having potential archaeological or historical significance. The NYS Office of Parks, Recreation and Historic Preservation has reviewed the project and, as stated in their letter of October 10, 2001, determined that there will be no impact on these resources.
5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the New Community District – Neighborhood (NCD-ND) zoning district; neighboring uses are single family lots and zoned New Community District – Neighborhood or Suburban Agriculture (NCD-ND or NCD-SA); therefore, the project is consistent with surrounding land use.
6. The proposed subject development will include the creation of eight new single family residential lots and recreational trail which will not cause a major change in the use of either the quantity or type of energy.
7. The proposed eight lots for future detached single family homes and recreational trail extension will not create any hazard to human health. The Fire Chief's Council previously on December 6, 2021, has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency have or will have been met.

Attachment: SP-2021-24A_signed_neg_dec_051922 (25493 : Sp-2021-24A)

MAY26'22 PM 3:35 RCVD

8. The proposed eight lots for future detached single family homes and recreational trail extension will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The proposed eight new single family residential lots will be consistent with the scale of surrounding land uses.

9. The proposed eight lots for future detached single family homes and recreational trail extension will not significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated March 3, 2022 and NYSDOT dated May 19, 2022 indicates that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on March 11, 2022, Assessor on April 5, 2022, and Right-of-Way Agent on February 23, 2022. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by Penberthy, Second by Chmiel; Ayes 6, Noes 0, Absent 1 (Giuliani)

ASST. PLANNING DIR. 5/19/2022
signature & title of preparer Date

5-26-22
Robert J. Gilmour, Planning Board Chair Date

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-24_A_(520_Campbell_Blvd_(NCD)_2022\SP-2021-24_A_neg dec_051922.docx
cc: Amherst Town Clerk
Amherst Building Department
ECDEP
NYSDEC
NYSDOT
Adam Faeth, Ciminelli Real Estate Corporation, 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Sean Hopkins, 5500 Main Street, Suite 343, Williamsville, NY 14221
Ken Zollitsch, Greenman-Pedersen, 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Amy Dake, SRF Associates, 3495 Winton Place, Building E, Suite 110, Rochester, NY 14623

Attachment: SP-2021-24A_signed_neg_dec_051922 (25493 : Sp-2021-24A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION (NCD)
SP-2021-24_A

PETITIONER

Ciminelli Muir Woods, LLC
c/o Sean Hopkins
5500 Main Street, Suite 343
Williamsville, NY 14221

PROPERTY LOCATION

520 Campbell Boulevard (NCD)

MAY 26 '22 PM 3:36 RCVD

WHEREAS the Town of Amherst Planning Board on Thursday, May 19, 2022 held a public hearing on a site plan for the proposed eight lot residential subdivision and donation of 11.25 acres of land to the Town of Amherst, and

WHEREAS the Planning Board has reviewed the plans and specifications for the proposed project, and

WHEREAS the Site Plan has been referred to the Town's various review agencies and they have made findings on this project, and

WHEREAS the Planning Board finds that:

1. The proposed site plan is consistent with the intent, objectives and specific requirements of the Zoning Ordinance, specifically those of the New Community District, Section 5-2.

2. The proposed site plan is in conformity with the Approved Development Plan for the Audubon New Community.

3. Adequate services and utilities are or will be available prior to occupancy, and

4. Review of the US Army Corps of Engineers under Section 404 of the Clean Water Act is required since hydric / potentially hydric soils have been identified on the parcel. A Preliminary Jurisdictional Determination from the USACOE was issued on July 12, 2017.

5. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

6. The Site Plan is consistent with all other applicable laws.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

Attachment: SP-2021-24A_signed_resolution_051922 (25493 : Sp-2021-24A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION (NCD)
SP-2021-24_A

PETITIONER

Ciminelli Muir Woods, LLC

PROPERTY LOCATION

520 Campbell Boulevard (NCD)

MAY 26 '22 PM 3:35 RCVD

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-15-9 of the Zoning Ordinance, approves said Site Plan, subject to the following conditions:

1. That Amendment #75 to the Audubon Development Plan be finalized prior to issuance of any certificate of occupancy by the Building Department for homes on the 8 lots (#134 through #141).

2. That future homes built on lots #134 through #141 meet the minimum yard area requirements of §203-3-6 B of Town Code and the deeds for the individual lots carry within them such restriction.

3. That the petitioner satisfactorily address the email from the New York State Department of Transportation dated May 19, 2022 authored by Ronald J. Hayes relating to improvements required along the Campbell Boulevard corridor to the satisfaction of that agency prior to issuance of any certificate of occupancy by the Building Department for homes on the 8 lots (#134 through #141) proposed by this site plan.

4. That the Declaration of Restrictions and Restrictive Covenants recorded at the County Clerk's Office for the homeowners association for "The Preserve at Muir Woods" be also filed and applied to the subject subdivision and a recorded copy of the Declaration of Restrictions shall be provided to the Town upon recording of the final plat in the County Clerk's office.

5. That the recreational path at the western terminus of Sierra Drive connecting this portion of the Muir Woods Development (Sites C & D) to Site B be constructed and that the associated property and trail be conveyed to the Town at no cost by December 31, 2022. Additionally no issuance of any certificate of occupancy by the Building Department for homes on the 8 lots (#134 through #141) be granted until completion of the aforementioned recreational path.

6. That the 11.25± acres of land which includes 6.88± acres of wetland area be conveyed to the Town of Amherst. Additionally no issuance of any certificate of occupancy by the Building Department for homes on the 8 lots (#134 through #141) be granted until conveyance of the aforementioned.

7. That the requirements in the Engineering Departments letter dated April 5, 2022 relating to PIP's and I/I mitigation be addressed to the satisfaction of that department.

Attachment: SP-2021-24A_signed_resolution_051922 (25493 : Sp-2021-24A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION (NCD)
SP-2021-24_A

PETITIONER

Ciminelli Muir Woods, LLC

PROPERTY LOCATION

520 Campbell Boulevard (NCD)

MAY 25 '22 PM 3:36 RCVD

8. That a SWPPP permit be obtained for phase IV of the "Preserve at Muir Woods" subdivision from the Town as stipulated in the Stormwater Management Officer's letter dated January 11, 2022.

NOW THEREFORE BE IT FURTHER RESOLVED that Sierra Drive is classified as local street(s) and that sidewalks are required, and that the required ramps and/or curb cuts to meet ADA compliance be included and constructed with the P.I.P. for the roadway and utilities.

NOW THEREFORE BE IT FURTHER RESOLVED that the landscaping required between proposed lot # 141 and 530 Campbell Boulevard be included and installed with the P.I.P. for the roadway and utilities.

NOW THEREFORE BE IT FURTHER RESOLVED in reviewing the proposed 8 lot subdivision and §204-3-2 O of Town Code that street lighting and the associated lighting district is required, and that it be included and constructed with the P.I.P. for the roadway and utilities.

NOW THEREFORE BE IT FURTHER RESOLVED that recreation fees are required for the proposed subdivision lots in accordance with the adopted fee schedule.

The foregoing resolution was adopted by the Town of Amherst Planning Board, May 19, 2022 moved by Penberthy, seconded by Raffaele, ayes 6, noes 0, absent 1 (Giuliani).

Robert J. Gilmour, Planning Board Chair

5-26-22
Date

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-24_A_(520_Campbell_Blvd_(NCD)_2022\SP-2021-24_A_resolution_051922.doc

cc: Commissioner of Building
Town Engineer
Town Attorney
Fire Chiefs
Traffic/Safety Coordinator
Highway Superintendent
Adam Faeth, Ciminelli Real Estate Corporation, 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Sean Hopkins, 5500 Main Street, Suite 343, Williamsville, NY 14221
Ken Zollitsch, Greenman-Pedersen, 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Amy Dake, SRF Associates, 3495 Winton Place, Building E, Suite 110, Rochester, NY 14623

Approved Plan: Greenman-Pedersen, January 27, 2022
Received: February 22, 2022

Attachment: SP-2021-24A_signed_resolution_051922 (25493 : Sp-2021-24A)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

Meeting: 04/21/22 06:30 PM
Department: Planning
Category: Rezoning and Relief from Conditions of Rezoning
Prepared By: Amy Carrato
Initiator: Dan Howard
Sponsors:
DOC ID: 25497

ADOPTED

PLANNING BOARD ITEM (ID # 25497)

Request to Rezone 14.81± Acres of Land from Ctr-8 to RD & GI, Z-2021-07

Property located at 4252-4258 Ridge Lea Road (portion, BCD)
Benderson Development Company LLC, Petitioner

The proposed request is to rezone 14.81 acres of land to the Research & Development (RD) and General Industrial (GI) zoning districts. The proposed rezoning will allow for a new 108,000± square foot warehouse building and to connect the proposed warehouse to the existing southerly 21,736 square foot building, which will be utilized for the compounding and blending of soap products for the car wash industry. This will include a 3,000 square foot building addition, including new parking, utilities, drainage and landscaping.

James Boglioli, Esq., Benderson Development Company LLC, represented the petitioner, explained the proposal and was available to answer questions from the Board.

In response to the Board's questions, Mr. Boglioli stated employees will arrive at 6 am, manufacturing will take place at the rear of the building, manufacturing noise will not be heard outside of the warehouse, there will be no public access only a gated emergency vehicle access to Meyer Road, the buffer along the residential properties will consist of 50' of current green space followed by an additional 50' of green space with a fence on top of a berm, he met with the neighbors and met 90% of resident concerns, there are no safety precautions necessary for the chemicals being mixed on site, and the number of parking spots will be addressed during the site plan process.

Geri DiCosmo, 378 Meyer Road, spoke in opposition of the proposal.

No further comments were heard on this proposal. The hearing was closed.

Following later discussion, Ms. Penberthy moved to approve the request based on the resolution. The motion was seconded by Mr. Gill and carried. Ayes 5, Noes 0, Abstain 1 (Chmiel), Absent 1 (Gilmour).

ATTACHMENTS:

- Z-2021-07 application 042122 (PDF)
- Z-2021-07 drawings 042122 (PDF)
- Z-2021-07_draft resolution_042122 (PDF)
- Z-2021-07_signed_resolution_042122 (PDF)

RESULT:	**APPROVED [5 TO 0]**
MOVER:	Brittany Lee Penberthy, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Gill, Giuliani, Penberthy, Raffaele Jr., Kahn
ABSTAIN:	Michael Chmiel
ABSENT:	Robert J. Gilmour

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Rezoning Review and, if required Comprehensive Plan Amendment

For Official Use

File #: _____ **Acreage** _____ **Fee $** _____

Address Verified by Assessor's Office _____
VERIFIED BY DATE

Materials Accepted by Town Clerk & Fee Paid _____
ACCEPTED BY DATE

Materials Checked by Building Dept. _____
RECEIVED BY DATE

Materials Received by Planning Dept. _____
RECEIVED BY DATE

		Fill In Applicable Fees
2 ACRES OR LESS	**$1,250**	_____
2 – 20 ACRES **$1,250 + $250/acres or fraction thereof over 2 acres**		_____
20 – 30 ACRES **$5,700 + $150/acre or fraction thereof over 20 acres**		_____
OVER 30 ACRES **$6,900 +$75/acre or fraction thereof over 30 acres**		_____
Request for Relief of/Change to Conditions of Zoning Approval	**$ 1,200**	_____
AFFIDAVIT FEE FOR PUBLIC HEARING	**$ 15.00**	_____
	TOTAL FEE:	**$**_____

Town of Amherst Planning Department 5583 Main Street Williamsville New York 14221
(716) 631-7051 Fax (716) 631-7153 Web www.amherst.ny.us

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

TO BE COMPLETED BY APPLICANT

1. **Petitioner:** Name: Benderson Development Company, LLC

Address: 570 Delaware Avenue

Buffalo, New York 14202
City State Zip Code

Phone: 716-878-9626 Fax: 716-886-1026

E Mail jmb@benderson.com

2. **The undersigned hereby petitions the Honorable Town Board to rezone the following described property**

From: CTR-8.0 District

To: RD & GI District

3. **Street address of land to be rezoned:** (must be verified by Town Assessor's Office)

4224 - 4256 Ridge Lea Road

SBL #: 54.02-1-51, 54.02-1-43, 54.02-1-44.2, 54.02-1-44.1, 54.15-1-4.1, 54.15-1-8.1

4. **Area of land to be rezoned** (in acres): 14.81

5. **Owner of Land**:

Name: 93 NYRPT, LLC

Address: 570 Delaware Avenue, Buffalo, NY 14202

Telephone: 716-878-9626

6. **Representative** (Architect, Engineer, Landscape Architect, Surveyor or Attorney):

Name: James A. Boglioli

Address: 570 Delaware Avenue

Buffalo, New York 14202
City State Zip Code

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

7. **Petitioner's interest in property**

_____Option to purchase

_____Owner

X
_____Other (explain) Affiliated Company

8. **The following are all others having an interest in this application and join herein with the petitioner named above:** (describe extent of interest; attach sheets as needed)

9. **Attach Survey and Legal description of land to be rezoned. The Survey must be prepared by a New York State Licensed Land Surveyor.**

10. **Said property has the following deed restrictions or Covenants:** (attach copy)

Liber _____ Page _____

11. **Information on proposed project:**

A. Description of the character of the proposed development:

See attached letter

B. Rationale for rezoning request:

1. Why was this site chosen?

See attached letter

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

2. Why cannot land be used with the existing zoning?

See attached letter

3. How will this rezoning impact surrounding properties?

See attached letter

4. How will this rezoning impact the school system?

See attached letter

12. Quantitative Data:

A. Total # of dwelling units N/A

B. Distribution of dwelling units by type N/A

C. Gross Residential Density per acre N/A

D. Total amount of Open Space

E. Proposed Non-Residential Floor Area

13. Development Schedule:

Start

Finish

Stages (# of)

14. If any portion of the proposed development is planned to be sold or leased, please describe:

N/A

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

15. **Open Space ownership and maintenance provisions (if applicable):**

N/A

16. **Basis for Findings (Sec. 8-3-5 of the Town Zoning Code) (Attach sheets and supplemental materials as necessary.)**

A. **The proposed zoning and development plan must be generally consistent with the policies of the Comprehensive Plan and the Town Zoning Ordinance.**

1. State in detail why the proposed zoning is consistent with the adopted Town of Amherst Bicentennial Comprehensive Plan. Cite specific sections, maps, and/or figures in the plan that support the proposed zoning at this location (The Comprehensive Plan document is available at the Planning Department, Town Clerk's Office, Amherst libraries, or at www.amherst.ny.us). Add sheets as needed.

See attached letter

2. Pursuant to NYS Town Law Section 272a(11), "all Town land use regulations must be in accordance with a comprehensive plan adopted pursuant to this Section." The Town Board adopted the Comprehensive Plan pursuant to NYS Town Law 272 on January 2, 2007. If the rezoning is approved, the Town Board may require the Plan to be amended, as applicable.

Cite all text, map, and / or figures that must be amended to support the proposed zoning at this location (attach pages as necessary) and provide detailed suggested amendments.

See attached letter

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

3. State why the proposed zoning is consistent with intent and objectives (Sec. 1-2-2) of the Zoning Ordinance:

See attached letter

B. Adequate Services and Utilities are available or are proposed to be made available with the construction of the development:

1. Sanitary Sewer See attached letter
2. Storm Sewer/Drainage See attached letter
3. Water See attached letter
4. Other

C. Compatibility with the present zoning and conforming uses of nearby property and with the character of the neighborhood:

See attached letter

D. Suitability of the subject property for uses permitted by the current versus the proposed district:

See attached letter

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

E. **Whether the proposed change tends to improve the balance of uses, or meets a specific demand in the Town:**

See attached letter

17. The petitioner encloses herewith the sum of $_____ to pay the fee, and consents to the placement of a sign(s) at the described location identifying this request for a period of time to be determined by the Town Clerk.

18. The undersigned certifies that all information required to be disclosed pursuant to Section 809 of the General Municipal Law (see below) is as follows:

The undersigned swears or affirms that all statements made herein are true, that all drawings submitted correctly show the situation involved in this petition.

COURTNEY L. ADAMO
Notary Public-State of New York
No. 01AD6413282
Qualified in Niagara County
Commission Expires January 25, 2025

Signature of Petitioner

Subscribed and sworn to before me this 23 day of March, 20 22

Notary Public, Erie County, New York Courtney L Adamo

N.Y.S. General Municipal Law - Section 809 Disclosure in certain applications:

1. Every application, petition or request submitted for a variance, amendment, change of zoning, approval of a plat, exemption from a plat or official map, license or permit, pursuant to the provision of any ordinance, local law, rule or regulation constituting the zoning and planning regulations of a municipality shall state the name, residence and the nature and extent of the interest of any state office or any office or employee of such municipality or of a municipality of which such municipality is a part, in the person, partnership or association making such application, petition or request (hereinafter called the applicant) to the extent known to such applicant.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

2. For the purpose of this section an officer or employee shall be deemed to have an interest in the applicant when he, his spouse, or their brothers, sisters, parents, children, grandchildren, or the spouse of any of them

   (a) is the applicant, or
   (b) is an officer, director, partner or employee of the applicant, or
   (c) legally or beneficially owns or controls stock of a corporate applicant or is a member of a partnership or association applicant, or
   (d) is a party to an agreement with such an applicant, express or implied, whereby he may receive any payment or other benefit, whether or not for services rendered, dependent or contingent upon the favorable approval of such applicant, petition or request.

3. In the county of Nassau the provisions of subdivisions one and two of this section shall also apply to a party officer. "Party Officer" shall mean any person holding any position or office, whether by election, appointment or otherwise, in any party as defined by subdivision four or section two of the election law.

4. Ownership of less than five per cent of the stock of a corporation whose stock is listed on the New York or American Stock Exchanges shall not constitute an interest for the purposes of this section.

5. A person who knowingly and intentionally violates this section shall be guilty of a misdemeanor.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Amherst Commerce Center - Proposed Rezoning		
Project Location (describe, and attach a general location map): 4252 - 4256 Ridge Lea Road, Town of Amherst, Erie County		
Brief Description of Proposed Action (include purpose or need): The proposed project is a rezoning request to rezone 14.8 acres +/- of land to the RD (Research & Development) zoning district to allow for a new 108,000 SF Warehouse building and to connect the proposed warehouse to the existing southerly 21,736 SF building with a 3,000 SF building addition along with new parking, utilities, drainage and landscaping.		
Name of Applicant/Sponsor: Benderson Development Company, LLC	Telephone: 716-878-9626 E-Mail: jamesboglioli@benderson.com	
Address: 570 Delaware Ave		
City/PO: Buffalo	State: NY	Zip Code: 14202
Project Contact (if not same as sponsor; give name and title/role):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Town Board - Rezoning	6/2021
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Planning Board - Site Plan Approval	6/2021
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☑Yes ☐No	Town of Amherst - Traffic Safety Board	6/2021
e. County agencies ☑Yes ☐No	Erie County - Planning Dept	6/2021
f. Regional agencies ☐Yes ☑No		
g. State agencies ☐Yes ☑No		
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes ☑No

If Yes, identify the plan(s):

_____

_____

_____

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

_____

_____

_____

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C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
CTR-8 (Center 8) District

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☑ Yes ☐ No
If Yes,
i. What is the proposed new zoning for the site? RD - Research & Development

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home School District

b. What police or other public protection forces serve the project site?
Town of Amherst Police, Erie County Sheriffs and New York State Police

c. Which fire protection and emergency medical services serve the project site?
North Bailey Fire Protection District

d. What parks serve the project site?
None

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Warehouse/Industrial

b. a. Total acreage of the site of the proposed action? 14.8 +/- acres
b. Total acreage to be physically disturbed? 14.8 +/- acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 52.1 +/- acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 15 months
ii. If Yes:
- Total number of phases anticipated 1
- Anticipated commencement date of phase 1 (including demolition) 4 month 22 year
- Anticipated completion date of final phase 7 month 23 year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

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f. Does the project include new residential uses? ☐ Yes ☑ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No

If Yes,

i. Total number of structures 1

ii. Dimensions (in feet) of largest proposed structure: 36 height; 180 width; and 600 length

iii. Approximate extent of building space to be heated or cooled: 111,000 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☑ Yes ☐ No

If Yes,

i. Purpose of the impoundment: Stormwater Detention Pond

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☑ Surface water streams ☐ Other specify:

iii. If other than water, identify the type of impounded/contained liquids and their source.

iv. Approximate size of the proposed impoundment. Volume: 15 million gallons; surface area: 0.75 +/- acres

v. Dimensions of the proposed dam or impounding structure: 8 height; 200 length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

earth fill

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐ Yes ☑ No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)

If Yes:

i .What is the purpose of the excavation or dredging?

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards):
- Over what duration of time?

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No
If yes, describe.

v. What is the total area to be dredged or excavated? acres

vi. What is the maximum area to be worked at any one time? acres

vii. What would be the maximum depth of excavation or dredging? feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☑ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description):

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ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☐ No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☐ No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑ Yes ☐ No
If Yes:

i. Total anticipated water usage/demand per day: 11,000 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑ Yes ☐ No
If Yes:

- Name of district or service area: Erie County Water Authority
- Does the existing public water supply have capacity to serve the proposal? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No
- Do existing lines serve the project site? ☑ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☑ No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑ Yes ☐ No
If Yes:

i. Total anticipated liquid waste generation per day: 9,900 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑ Yes ☐ No
If Yes:

- Name of wastewater treatment plant to be used: Amherst Plant #16
- Name of district: Amherst Sewer District #16
- Does the existing wastewater treatment plant have capacity to serve the project? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No

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- Do existing sewer lines serve the project site? ☑ Yes ☐ No
- Will a line extension within an existing district be necessary to serve the project? ☐ Yes ☑ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐ Yes ☑ No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑ Yes ☐ No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 9.33 acres (impervious surface)

_____ Square feet or 14.8 acres (parcel size)

ii. Describe types of new point sources. roof drains and parking lot catch basins

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

on site stormwater management facility

- If to surface waters, identify receiving water bodies or wetlands: _____
- Will stormwater runoff flow to adjacent properties? ☐ Yes ☑ No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑ Yes ☐ No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐ Yes ☑ No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐ Yes ☑ No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐ Yes ☐ No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

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h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

_____

iii. Parking spaces: Existing 167 Proposed 399 Net increase/decrease 232

iv. Does the proposed action include any shared use parking? ☑Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☑Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☑Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☑Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

77.7 kWh

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

via grid/local utility

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7 AM - 9 PM
- Saturday: 7 AM - 9 PM
- Sunday: none
- Holidays: 7 AM - 9 PM

ii. During Operations:

- Monday - Friday: 7 AM - 9 PM
- Saturday: 7 AM - 9 PM
- Sunday: 7 AM - 9 PM
- Holidays: 7 AM - 9 PM

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m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Construction equipment 7 AM to 8 PM

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: _____

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

dark sky, LED fixtures mounted at 15 to 25 feet per zoning code requirements

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

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5.a

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	3.77	9.33	+5.56
• Forested	N/A	N/A	N/A
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	N/A	N/A	N/A
• Agricultural (includes active orchards, field, greenhouse etc.)	N/A	N/A	N/A
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.0	0.75	+.75
• Wetlands (freshwater or tidal)	N/A	N/A	N/A
• Non-vegetated (bare rock, earth or fill)	N/A	N/A	N/A
• Other Describe: landscape area	11.03	4.72	-6.31

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c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☑ Yes ☐ No
If Yes,
i. Identify Facilities:
Sweet Home Middle School

e. Does the project site contain an existing dam? ☐ Yes ☑ No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No
If Yes:
i. Has the facility been formally closed? ☐ Yes ☐ No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☐ No
If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

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v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? > 7 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:

CfB - Cayuga Silt Loam	18.4 %
CoA - Churchville Silt Loam	70.2 %
Od - Odessa Silt Loam	11.4 %

d. What is the average depth to the water table on the project site? Average: 3 feet

e. Drainage status of project site soils:

☐ Well Drained:	_____% of site
☑ Moderately Well Drained:	18.4 % of site
☑ Poorly Drained	81.6 % of site

f. Approximate proportion of proposed action site with slopes:

☑ 0-10%:	100 % of site
☐ 10-15%:	_____% of site
☐ 15% or greater:	_____% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☑ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☐ Yes ☑ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☐ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☐ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☐ Yes ☑ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

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m. Identify the predominant wildlife species that occupy or use the project site: _____

_____ _____ _____

_____ _____ _____

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

_____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☑ No

If Yes:

i. Species and listing (endangered or threatened): _____

_____

_____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No

If Yes:

i. Species and listing: _____

_____

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No

If yes, give a brief description of how the proposed action may affect that use: _____

_____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

_____

_____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

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e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☐ Yes ☑ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: Ellicott Creek - 1.5 miles; Tonawanda Creek - 2.2 miles; Niagara River - 4.3 miles

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): Local Waterway

iii. Distance between project and resource: see above miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name Matthew J. Oates, P.E. Date 06/23/2021

Signature _____ Title Director, Engineering

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

PRINT FORM

BENDERSON DEVELOPMENT COMPANY, LLC. • 570 Delaware Ave., Buffalo, NY 14202 • 716/886-0211• FAX 716/886-2269 • www.benderson.com

June 23, 2021

VIA HAND DELIVERY
Brian J. Kulpa, Town Supervisor
Town of Amherst
5583 Main Street
Williamsville, NY 14221

RE: Proposed Rezoning of 4252 – 4256 North Bailey Ave
BDP# 5077

Dear Mr. Kulpa and Members of the Town Board:

In connection with the above-referenced property, please accept this letter and the enclosed application materials in support of our request to rezone the parcel located at 4252 – 4256 North Bailey Ave (portion of "Amherst Commerce Center") from Center 8 District ("CTR-8") to Research and Development District ("RD").

Information on the Project:

A. Description of the Character of the Proposed Development

Delta Sonic Carwash Systems, Inc. (hereinafter "Delta Sonic") currently has operations in three states: New York, Pennsylvania and Illinois. As part of these operations, Delta Sonic fabricates parts for the car wash facilities, as well as stores and ships products to all of the car wash facilities. Delta Sonic maintains warehouse space throughout Western New York to meet this need. Delta Sonic is proposing to consolidate all its warehouse and distribution facilities on a single property in Amherst. As part of this proposal, Delta Sonic is proposing to construct a new 111,000 s.f. warehouse building, as well as utilize the three existing +/- 65,161 s.f. buildings that currently exist. Delta Sonic would be moving the following operations to the new Amherst campus:

- **Soap Blending Facility**: Packaged bulk manufactured soaps and other cleaning agents are brought to the facility by drum, tote, and bulk truck, to be stored and or blended together for centralized storage and distribution to all Delta Sonics.

- **Warehousing**: and distribution of operational supplies such as uniforms, small wears equipment, lights, napkins, towels, small equipment, coffee machines, ice machines, etc.

- **Equipment Manufacturing**: Fabrication of Car Wash operational equipment. Bulk steel, pumps, motors, electronic sensors, etc. are brought into the facility and used to make equipment for the car wash tunnel, auto detailing operations, signage, etc. Sometimes new equipment designs, and layouts are set up for mechanical R&D purposes.

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- **Print Shop**: Design and printing of advertising signage for company operations

- **Equipment Storage and distribution**: Operational equipment such as food service furniture, reach-in cooler, millwork, detail vacuums, cooler/freezer racking, registers, computers, new fuel dispensers, hoses, etc.

Delta Sonic will be making a significant investment in its new Amherst Campus. In addition to relocating jobs form the surrounding area to this property, Delta Sonic will be creating new job opportunities as Delta Sonic continues to expand its business. Delta Sonic is currently under construction with new car wash facilities on Niagara Falls Blvd. in Amherst and in Oswego, Illinois, as well as recently opened a new facility in Lancaster, NY. In addition, we have numerous new projects being proposed, as well as expansions to existing facilities. This will result in continued growth and opportunity at the new Amherst campus.

B. Rationale for the Rezoning Request

1. Why was the site chosen?

The site is owned by the Benderson family who also owns and operated Delta Sonic. The site was previously located in the RD zoning district. It is currently improved with three existing 65,161 s.f. buildings with uses that are consistent with those permitted in the in the RD zoning district. Further, the site has suitable available land for the addition of the 111,000 s.f. building with sufficient property to buffer the development. In addition, Delta Sonic utilizes the Thruway (I-90) to distribute its products and materials and the site has easy access to the I-290, and therefore easy access to the I-90.

2. Why cannot land be used with the existing zoning?

The land is currently being used for uses permitted by the RD zoning. This area of the site is not suitable for the increased density permitted buy the current zoning. Further, it would require removal of the existing buildings and infrastructure.

3. How will this rezoning impact the surrounding properties?

The proposed rezoning will not have a negative impact on the surrounding properties. In fact, all the abutting properties, except the residential properties located along Meyer Road are owned and operated by Benderson Development. Further, the proposed zoning district is consistent with the prior zoning district for the property, therefore resulting in no negative impacts. Further, the proposed Delta Sonic campus will integrate and be consistent with the future development of the remainder of the property and will provided for a more significant buffer between the proposed use and the adjacent residential uses that the current zoning allows along with

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providing a good transition between the existing residential homes and the higher density allowed in the Center-8 District.

As discussed herein, the proposed RD represents a suitable blend of uses between the existing development of Amherst Commerce Center and the possible redevelopment opportunities available as part of the CTR-8 zoning for the remainder of the property. The proposed project is located adjacent to three existing buildings in the southeast section of the property and will be incorporated into the overall design of this area of the property while also providing appropriate buffers to the adjacent residential properties that are much greater than the buffers required within the CTR-8 district. The Project Site is located directly to the west of Interstate 290 and north/east of existing residential homes that have been rezoned into the CTR 8 district as part of the Town of Amherst's redevelopment plan of this area.

4. How will this rezoning impact the school system?

This rezoning will have a positive impact on the school system. It will increase school taxes while not imposing any burden on the school system.

Basis for Findings (Sec. 8-3-5 of the Town Code).

A. The proposed zoning and development plan must be generally consistent with the policies of the Comprehensive Plan and the Town Zoning Ordinance.

1. State in detail why the proposed zoning is consistent with the adopted Town of Amherst Bicentennial Comprehensive Plan.

The proposed project meets Economic Development goals, policies and objectives as identified in the Comprehensive Plan. As noted in the introduction of Comprehensive Plan Section 5.0 "*since the Town's industrial and retail sectors are expected to grow more modestly… steps must be taken in the coming years to ensure these sectors remain stable*." That section continues that this process should include "the *construction of new space that allows for flexibility for tenants.*"

Comprehensive Plan Section 5.2 *provides "A Town with a strong tax base and ample economic opportunities for a diverse base of employers and employees, housed in attractive, state of the art commercial developments in convenient and accessible locations*." The project as proposed will improve the tax base in Amherst. Further it will bring a number of employees to the area and is conveniently located in proximity to the I-290, I-990 and Niagara Falls Blvd. As noted on page 5-3 of the Comprehensive Plan "studies have shown that …. Industrial development partially subsidize(s) the cost of providing high quality facilities and services. Without such development, the burden on the residential taxpayers would be significantly higher."

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

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Further, Comprehensive Plans section 3.3 at Tables 1 and 2 provide that the for the existing land use, industrial accounts for 1.0% (Table 1) and that the plan seeks to have industrial-office land use account for 3.2%. This project helps achieve that goal.

2. Pursuant to NYS Town Law section 212a(11), "all Town land use regulations must be in accordance with a comprehensive plan adopted pursuant to this section." The Town Board adopted the Comprehensive Plan pursuant to NYS Town law 272 on January 2, 2007. If the rezoning is approved, the Town Board may require the Plan to be amended as applicable. Cite all text, map, and/or figures that must be amended to support the proposed zoning at this location and provide detailed suggested amendments.

   The following changes to the Comprehensive Plan are suggested:

   - Figure 3 at page 3-4: Change the subject property from the "New Community District" designation to "Industrial."
   - Figure 6 at page 3-30: On the Conceptual Land Use Plan change the subject property from Commercial/Mixed use to Industrial/Office.
   - Figure 6-A at page 3-37: Remove the subject property from the Suburban Center designation.
   - Add a discussion to 3.3.4 Office and Industrial that this site has historically been zoned RD and that the continued use and redevelopment of this property with uses consistent with the RD district is desirable due to its location to the I-290.

3. State why the proposed zoning is consistent with intent and objectives (Sec. 1-2-2) of the Zoning Ordinance.

   The ordinance is intended to achieve, among others, the following objectives:

   a) To protect the character and values of residential, institutional and public uses, business, commercial and manufacturing uses and to insure their orderly and beneficial development

      The proposed project maintains the current character of the commercial and manufacturing uses in the area, while adding a state-of-the-art building and increasing employment opportunities in Amherst.

   b) To prevent overcrowding of the land.

      The project does not result in the overcrowding of land. Under the current zoning significantly more density would be permitted. Further, adequate land is available to buffer the residential uses on Meyer Road.

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c) To prevent excessive concentration of population and to prevent sparse and uncoordinated development.

The project will not result in an excessive concentration of population and the development is being coordinated and laid out in conjunction with the existing development.

d) To regulate and control the location and spacing of buildings on the lot and in relation to the surrounding property generally consistent with the policies of the Comprehensive Plan.

The project, through its design will maintain appropriate location and spacing of the buildings (3 of which already exist) so that it is generally consistent with the policies of the Comprehensive Plan.

e) To protect persons and property from damage and injury due to fire or flood.

The project will not result in any risks of injury due to flood and fire.

f) To assure that structure and land use arrangements are aesthetically harmonious with nearby areas and structures.

The proposed project has been designed to be aesthetically harmonious with nearby areas and structures.

g) To regulate the location of buildings and intensity of uses in relation to streets according to plans so as to cause the least interference with and be damaged least by traffic movements and hence result in lessened street congestion and improved public safety.

The proposed project utilizes the existing roadway system and will not result in any increased congestion.

h) To establish zoning patterns that insure economical extensions for sewers, water supply, waste disposal and other public utilities, as well as development of recreation, schools and other public facilities.

Utilities exist and are currently available at the project site

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

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B. Adequate Services and Utilities are available or are proposed to be made available with the construction of the development:

1. Sanitary Sewer: Sanitary sewer currently exists on-site and facilities will be upgraded as needed for the project.
2. Storm Sewer/Drainage: Storm Sewer/Drainage facilities exist on -site and facilities will be upgraded as needed for the project.
3. Water: Water currently exists at the project site and facilities will be upgraded as needed for the project.
4. Other: Gas, Electric and internet also currently exist at the project site.

C. Compatibility with the present zoning and conforming uses of nearby property and the character of the neighborhood.

The surrounding area is developed with several commercial uses, including restaurant, retail, warehouse and manufacturing. There are existing residential uses along Meyer Road that have recently been rezoned. The project and its zoning are compatible with the CTR-8 zoning. The design of the project is compatible with the surrounding zoning and uses. Further, the project will provide employment opportunities which will bring people to the area to support the abutting commercial uses.

D. Suitability of the subject property for the uses permitted by the current versus the proposed district.

This is a unique request as it seeks to return the property to the prior zoning. The proposed use – a Delta Sonic warehouse and manufacturing campus is very suitable for the proposed property. There is significant property for the development and for appropriate buffers. Further, the road network is in place and provide quick access to the Thruway system. Finally, the proposed uses will integrate well into the future development of the abutting properties under the CTR-8 zoning.

E. Whether the proposed change tends to improve the balance of uses or meets a specific Town demand.

As noted above, the proposed change and project will improve the balance of uses and meets a specific Town demand. Comprehensive Plans section 3.3 at Tables 1 and 2 provide that the for the existing land use, industrial accounts for 1.0% (Table 1) and that the plan seeks to have industrial-office land use account for 3.2%. This project helps achieve that goal.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

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Conclusion

We look forward to working with the Town on this project. We believe this project represents a great development opportunity for this area that is consistent with the previous development of the property. If there are any questions regarding this letter or the enclosed documentation, please feel free to contact me at (716) 878-9626 or jamesboglioli@benderson.com. .

Thank you,
BENDERSON DEVELOPMENT COMPANY, LLC

James A. Boglioli

James A. Boglioli, Esq.
Director, Right to Build – Northeast US

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

SRF ASSOCIATES
Transportation Planning / Engineering / Design

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

(585) 272-4660
www.srfa.net

Mr. Matt Oates, P.E.
Director, Engineering
Benderson Development Company, LLC
570 Delaware Avenue
Buffalo, New York 14202

February 14, 2022

RE: Proposed Warehouse Development Amherst Commerce Center, Town of Amherst, NY
Trip Generation and Distribution Assessment

Dear Mr. Oates:

This technical letter provides a trip generation and distribution assessment related to the proposed Amherst Commerce Center Warehouse project located at 4224-4256 Ridge Lea Road in the Town of Amherst, NY for informational purposes and to understand the possible traffic impacts resulting from the proposed project. Additionally, this letter discusses the thresholds for completing a Traffic Impact Study (TIS). All figures and supporting materials are included in the attachments.

PROJECT DESCRIPTION

The proposed project consists of constructing a ±108,000 square feet (SF) warehouse, converting an existing building (±21,736 SF) to warehouse, and constructing a ±1,500 SF connection between the two buildings.

The proposed project will utilize existing access connections onto North Bailey Avenue. The concept site plan is included in the attachments.

TRIP GENERATION

Data contained in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition) was used to project the volume of the traffic generated by the proposed project. Data published by the ITE is the nationally accepted standard for generating trips for new uses. Given the functional characteristics of the nearby corridors, surrounding land uses, and the land use proposed for the site, the peak hours selected for analysis are the weekday commuting AM and PM peak periods. These peak periods typically range from 7:00-9:00 AM and 4:00-6:00 PM, respectively, depending on local conditions. The combination of site traffic and adjacent street traffic produces the greatest demand during these peak periods.

Table 1 shows the total site generated trips for the peak hours of study.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

TABLE 1: SITE GENERATED TRIPS

DESCRIPTION	ITE LUC	SIZE	AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Building 1 – Warehouse	150	±108,000 SF	28	9	11	28
Building 2 – Warehouse	150	±21,736 SF	20	6	8	21
Total Site Generated Trips			**48**	**15**	**19**	**49**

Notes:
1. ITE LUC = ITE Land Use Code.

The proposed project is projected to generate 48 entering/15 exiting vehicle trips during the AM peak hour and 19 entering/49 exiting vehicle trips during the PM peak hour.

TRIP DISTRIBUTION

The cumulative effect of site-generated traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the driveways serving the site. The proposed arrival/departure distribution of traffic generated by the proposed project is considered a function of several parameters, including:

- Site access locations and proximity and access to I-290
- Hourly traffic patterns using most recent available Annual Average Daily Traffic (AADT) data obtained from the New York State Department of Transportation (NYSDOT)

Figure 1 shows the anticipated trip distribution pattern percentages for the traffic from the proposed project. **Figure 2** illustrates the peak hour site generated traffic based on those percentages. The roads anticipated to be used by the additional trips generated by the proposed project are listed in **Table 2**.

Functional classification of highways within the study area is determined by the NYSDOT and the Federal Highway Administration (FHWA). Definitions of the functional classifications shown in Table 2 are provided after the table.

TABLE 2: EXISTING HIGHWAY SYSTEM

ROADWAY	CLASS[1]	AGENCY[2]	SPEED LIMIT[3]	TRAVEL LANES[4]	TRAVEL PATTERN/ DIRECTION	EST. AADT & SOURCE[5]
North Bailey Avenue	16	Town	35	2	Two-way/ North-South	15,752- NYSDOT (2018)

Notes:
1. State Functional Classification of Roadway.
2. Jurisdictional Agency of Roadway.
3. Posted or Statewide Limit in Miles per Hour (mph).
4. Number of travel lanes. Excludes turning/auxiliary lanes developed at intersections.
5. Estimated AADT in Vehicles per Day (vpd). AADT Source (Year).

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

Urban Minor Arterial (Class 16)

An urban minor arterial provide service for trips of moderate length, serve geographic areas that are smaller than higher arterial roadways, and offer connectivity to higher arterial systems. These roadways distribute traffic to smaller geographic areas and provide more land access without disrupting neighborhood access.

THRESHOLDS FOR THE REQUIREMENT OF A TRAFFIC IMPACT STUDY

Many reviewing agencies, including the New York State Department of Transportation, use a guideline in determining whether a project warrants the preparation of a TIS. The applicable guideline is that if a proposed project is projected to add 100 or more site generated vehicles per hour (vph) to an adjacent intersection during either peak study period, then that intersection should be studied for potential traffic impacts.

Based upon the ITE trip generation projections and the resulting traffic assignment estimates shown in **Figure 2**, 40 or fewer site generated peak hour trips are added to a single adjacent intersection during the peak hours studied.

CONCLUSIONS AND RECOMMENDATIONS

Given the projected site generated traffic; the projected site traffic distribution; the thresholds for completing a TIS; and the roadway characteristics previously described, a full TIS report is not warranted.

If you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
SRF Associates, D.P.C.



David Kruse, AICP, PTP
Senior Transportation Planner

Attachments

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

ATTACHMENT

February 14, 2022

Letter to
Mr. Matt Oates, P.E.
Benderson Development Company, LLC

Proposed Amherst Commerce Center Warehouse
4224-4256 Ridge Lea Road

Trip Generation and Distribution Assessment

Town of Amherst
Erie County, New York

SRF ASSOCIATES

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

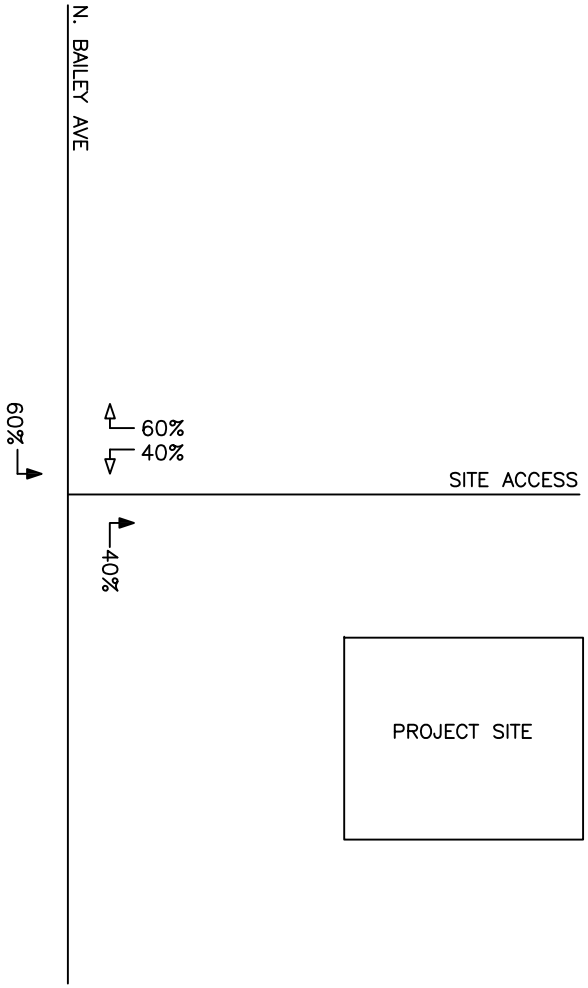


FIGURE 1

TRIP DISTRIBUTION

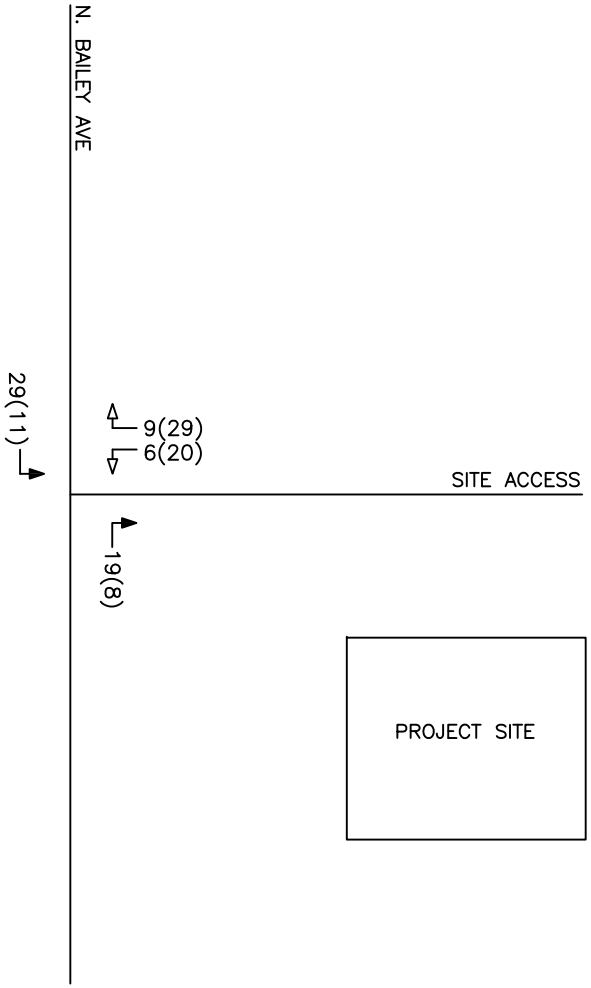


FIGURE 2

TOTAL SITE GENERATED TRIPS

SRF ASSOCIATES
Transportation Planning / Engineering / Design

N
NOT TO SCALE

PROPOSED AMHERST COMMERCE CENTER
WAREHOUSE

TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

ENTERING TRIP

EXITING TRIP

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

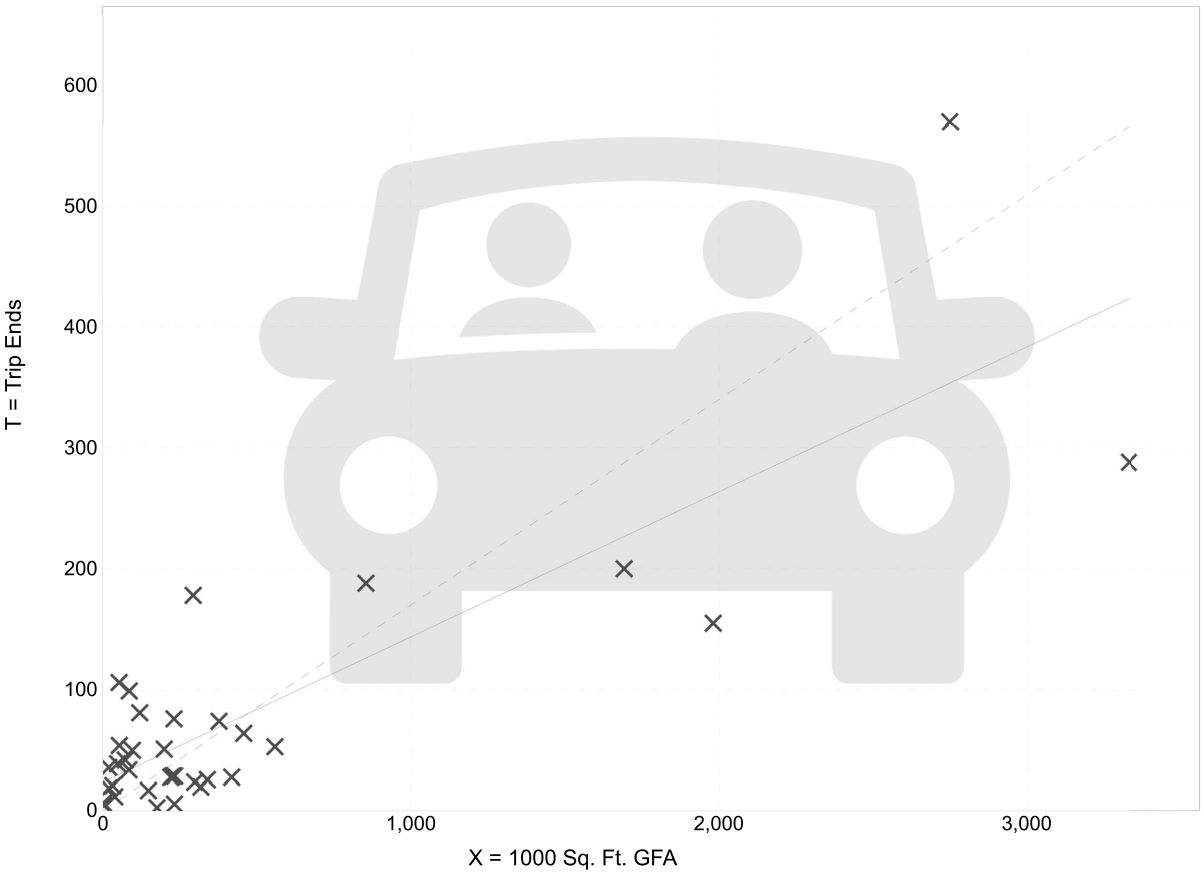
Warehousing
(150)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 36
Avg. 1000 Sq. Ft. GFA: 448
Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.19

Data Plot and Equation



Fitted Curve Equation: T = 0.12(X) + 23.62 **R^2= 0.69**

Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

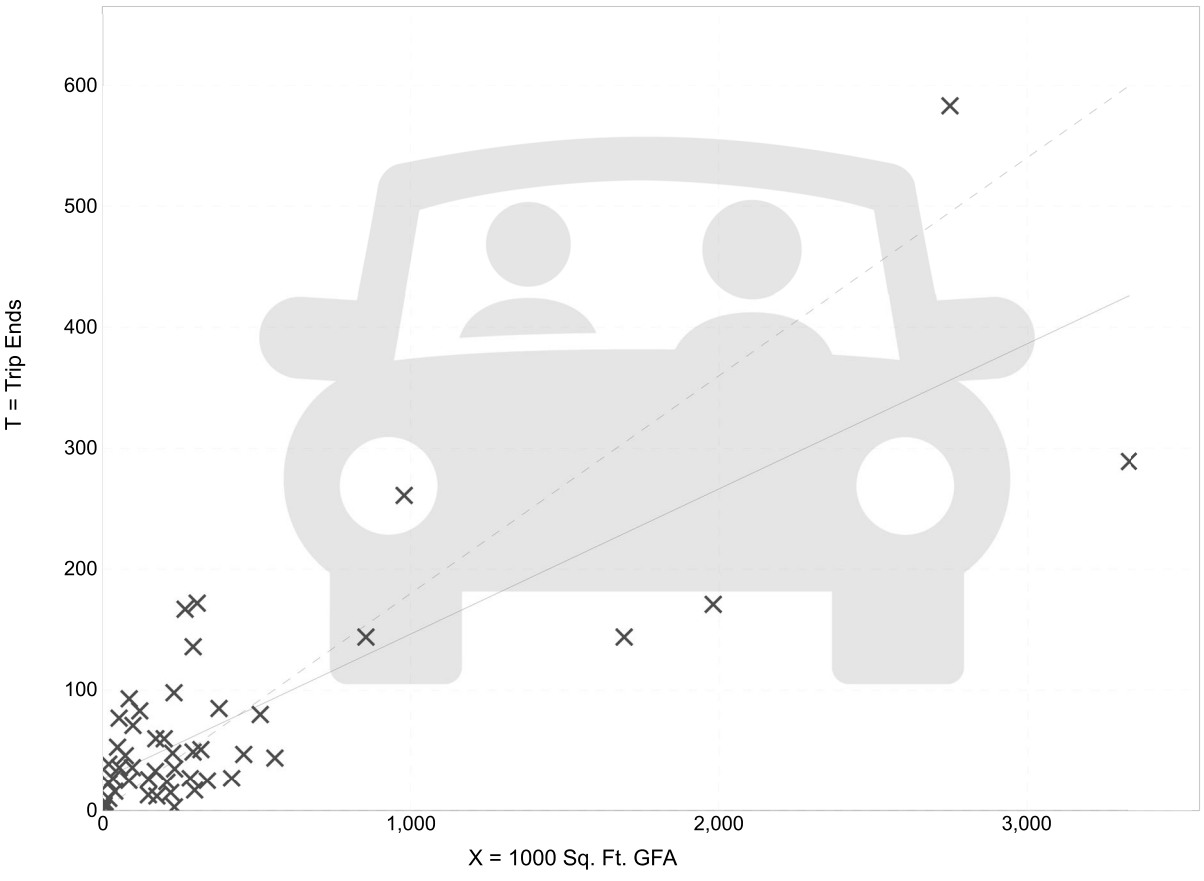
Warehousing
(150)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 49
Avg. 1000 Sq. Ft. GFA: 400
Directional Distribution: 28% entering, 72% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.18	0.01 - 1.80	0.18

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

BENCHMARK

January 26, 2022

Mr. Michael Yount
Director of Construction Development
Delta Sonic Car Wash Systems, Inc.
570 Delaware Avenue
Buffalo, NY 14202

Re: Categorical Pretreatment Evaluation
Warehouse and Production Operation
Amherst, New York

Dear Mr. Yount,

Benchmark Civil/Environmental Engineering and Geology, PLLC (Benchmark) has prepared this correspondence to present our evaluation of the applicability of Categorical Pretreatment Standards for New Sources (PSNS) as they may pertain to your planned warehouse and production operation in Amherst, New York.

We understand that the proposed operations in Amherst will include blending of soap and related products from concentrate and machining of metal parts for various uses in Delta Sonic's car wash/service station facilities. We further understand that none of these operations will have discharges to the sanitary sewer with the exception of a waterjet cutting table, which will be used to cut metal parts. The discharges from the waterjet cutting table will be settled and filtered through a bag filter to remove metal fines prior to discharge to the sanitary sewer consistent with current practice. Waterjet cutting is expected to yield less than 50 gallons per day of filtered effluent. The only other discharges will be sanitary wastewaters from employee restrooms. In addition, no metal finishing operations will take place on site (plating, coating, etc.).

The list of industrial categories subject to USEPA PSNS requirements, per 40 CFR Parts 405-471, is presented as Attachment 1. As discussed above, the only proposed production-related discharges to the sanitary sewer are from waterjet metal cutting. Accordingly, we have evaluated this process against the potentially applicable categories listed in Attachment 1 as detailed below:

- **PART 420 - IRON AND STEEL MANUFACTURING POINT SOURCE CATEGORY**
  This category is reserved for discharges from raw iron and steel production facilities; Delta Sonic is not engaged in such operations.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

2558 Hamburg Turnpike, Suite 300 | Buffalo, NY 14218
phone: (716) 856-0599 | fax: (716) 856-0583

- **PART 421 - NONFERROUS METALS MANUFACTURING POINT SOURCE CATEGORY**
  This category applies to facilities producing primary metals from ore concentrates and recovering secondary metals from recycle wastes; it also applies to alloying or casting of nonferrous metals hot metal directly from the nonferrous metals manufacturing process without cooling. Delta Sonic is not engaged in such operations.

- **PART 424 - FERROALLOY MANUFACTURING POINT SOURCE CATEGORY**
  This category generally applies to smelting and slag processing operations. Delta Sonic is not engaged in such operations.

- **PART 433 - METAL FINISHING POINT SOURCE CATEGORY**
  This category applies to plants which perform any of the following six metal finishing operations on any basis material: Electroplating, Electroless Plating, Anodizing, Coating (chromating, phosphating, and coloring), Chemical Etching and Milling, and Printed Circuit Board Manufacture. Delta Sonic is not engaged in such operations.

- **PART 438 - METAL PRODUCTS AND MACHINERY POINT SOURCE CATEGORY**
  This category applies to process wastewater discharges from oily operations to surface waters from existing or new industrial facilities engaged in manufacturing, rebuilding, or maintenance of metal parts, products, or machines for use in the certain industrial sectors, which do not include commercial applications. In addition, it does not apply to wastewater discharges introduced into a Publicly Owned Treatment Works (POTW). Accordingly, this part is not applicable to Delta Sonics planned Amherst operations.

- **PART 471 - NONFERROUS METALS FORMING AND METAL POWDERS POINT SOURCE CATEGORY**
  This category applies to process wastewater discharges from metal Forming operations, including rolling (both hot and cold), extruding, forging, drawing, swaging, cladding, and tube reducing, and ancillary operations performed as an integral part of the forming of these metals. Delta Sonic is not engaged in such operations.

Based upon the above evaluation, we do not believe your proposed operations at the Amherst facility are subject to categorical pretreatment standards.

Please feel free to contact us with any questions or concerns.

Sincerely,
Benchmark Environmental Engineering and Science, PLLC



Thomas H. Forbes, P.E.
President

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

ATTACHMENT 1

LIST OF INDUSTRIAL CATEGORIES SUBJECT TO PRETREATMENT STANDARDS FOR NEW SOURCES PER 40CFR PARTS 405-471

1. PART 405 - DAIRY PRODUCTS PROCESSING POINT SOURCE CATEGORY (§§ 405.10 - 405.127)
2. PART 406 - GRAIN MILLS POINT SOURCE CATEGORY (§§ 406.10 - 406.107)
3. PART 407 - CANNED AND PRESERVED FRUITS AND VEGETABLES PROCESSING POINT SOURCE CATEGORY (§§ 407.10 - 407.87)
4. PART 408 - CANNED AND PRESERVED SEAFOOD PROCESSING POINT SOURCE CATEGORY (§§ 408.10 - 408.337)
5. PART 409 - SUGAR PROCESSING POINT SOURCE CATEGORY (§§ 409.10 - 409.87)
6. PART 410 - TEXTILE MILLS POINT SOURCE CATEGORY (§§ 410.00 - 410.97)
7. PART 411 - CEMENT MANUFACTURING POINT SOURCE CATEGORY (§§ 411.10 - 411.37)
8. PART 412 - CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFO) POINT SOURCE CATEGORY (§§ 412.1 - 412.47)
9. PART 413 - ELECTROPLATING POINT SOURCE CATEGORY (§§ 413.01 - 413.84)
10. PART 414 - ORGANIC CHEMICALS, PLASTICS, AND SYNTHETIC FIBERS (§§ 414.10 - 414.111)
11. PART 415 - INORGANIC CHEMICALS MANUFACTURING POINT SOURCE CATEGORY (§§ 415.01 - 415.677)
12. PART 416 [RESERVED]
13. PART 417 - SOAP AND DETERGENT MANUFACTURING POINT SOURCE CATEGORY (§§ 417.10 - 417.196)
14. PART 418 - FERTILIZER MANUFACTURING POINT SOURCE CATEGORY (§§ 418.10 - 418.77)
15. PART 419 - PETROLEUM REFINING POINT SOURCE CATEGORY (§§ 419.10 - 419.57)
16. PART 420 - IRON AND STEEL MANUFACTURING POINT SOURCE CATEGORY (§§ 420.01 - 420.137)
17. PART 421 - NONFERROUS METALS MANUFACTURING POINT SOURCE CATEGORY (§§ 421.1 - 421.337)
18. PART 422 - PHOSPHATE MANUFACTURING POINT SOURCE CATEGORY (§§ 422.10 - 422.67)
19. PART 423 - STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY (§§ 423.10 - 423.17)
20. PART 424 - FERROALLOY MANUFACTURING POINT SOURCE CATEGORY (§§ 424.10 - 424.77)
21. PART 425 - LEATHER TANNING AND FINISHING POINT SOURCE CATEGORY (§§ 425.01 - 425.96)
22. PART 426 - GLASS MANUFACTURING POINT SOURCE CATEGORY (§§ 426.10 - 426.137)
23. PART 427 - ASBESTOS MANUFACTURING POINT SOURCE CATEGORY (§§ 427.10 - 427.116)
24. PART 428 - RUBBER MANUFACTURING POINT SOURCE CATEGORY (§§ 428.10 - 428.116)

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

25. PART 429 - TIMBER PRODUCTS PROCESSING POINT SOURCE CATEGORY (§§ 429.10 - 429.176)
26. PART 430 - THE PULP, PAPER, AND PAPERBOARD POINT SOURCE CATEGORY (§§ 430.00 - 430.127)
27. PART 431 [RESERVED]
28. PART 432 - MEAT AND POULTRY PRODUCTS POINT SOURCE CATEGORY (§§ 432.1 - 432.127)
29. PART 433 - METAL FINISHING POINT SOURCE CATEGORY (§§ 433.10 - 433.17)
30. PART 434 - COAL MINING POINT SOURCE CATEGORY BPT, BAT, BCT LIMITATIONS AND NEW SOURCE PERFORMANCE STANDARDS (§§ 434.10 - 434.85)
31. PART 435 - OIL AND GAS EXTRACTION POINT SOURCE CATEGORY (§§ 435.10 - 435.70)
32. PART 436 - MINERAL MINING AND PROCESSING POINT SOURCE CATEGORY (§§ 436.20 - 436.382)
33. PART 437 - THE CENTRALIZED WASTE TREATMENT POINT SOURCE CATEGORY (§§ 437.1 - 437.47)
34. PART 438 - METAL PRODUCTS AND MACHINERY POINT SOURCE CATEGORY (§§ 438.1 - 438.15)
35. PART 439 - PHARMACEUTICAL MANUFACTURING POINT SOURCE CATEGORY (§§ 439.0 - 439.52)
36. PART 440 - ORE MINING AND DRESSING POINT SOURCE CATEGORY (§§ 440.10 - 440.148)
37. PART 441 - DENTAL OFFICE POINT SOURCE CATEGORY (§§ 441.10 - 441.50)
38. PART 442 - TRANSPORTATION EQUIPMENT CLEANING POINT SOURCE CATEGORY (§§ 442.1 - 442.44)
39. PART 443 - EFFLUENT LIMITATIONS GUIDELINES FOR EXISTING SOURCES AND STANDARDS OF PERFORMANCE AND PRETREATMENT STANDARDS FOR NEW SOURCES FOR THE PAVING AND ROOFING MATERIALS (TARS AND ASPHALT) POINT SOURCE CATEGORY (§§ 443.10 - 443.46)
40. PART 444 - WASTE COMBUSTORS POINT SOURCE CATEGORY (§§ 444.10 - 444.18)
41. PART 445 - LANDFILLS POINT SOURCE CATEGORY (§§ 445.1 - 445.24)
42. PART 446 - PAINT FORMULATING POINT SOURCE CATEGORY (§§ 446.10 - 446.16)
43. PART 447 - INK FORMULATING POINT SOURCE CATEGORY (§§ 447.10 - 447.16)
44. PART 449 - AIRPORT DEICING POINT SOURCE CATEGORY (§§ 449.1 - 449.20)
45. PART 450 - CONSTRUCTION AND DEVELOPMENT POINT SOURCE CATEGORY (§§ 450.10 - 450.24)
46. PART 451 - CONCENTRATED AQUATIC ANIMAL PRODUCTION POINT SOURCE CATEGORY (§§ 451.1 - 451.24)
47. PART 454 - GUM AND WOOD CHEMICALS MANUFACTURING POINT SOURCE CATEGORY (§§ 454.10 - 454.62)
48. PART 455 - PESTICIDE CHEMICALS (§§ 455.10 - 455.67)
49. PART 457 - EXPLOSIVES MANUFACTURING POINT SOURCE CATEGORY (§§ 457.10 - 457.32)
50. PART 458 - CARBON BLACK MANUFACTURING POINT SOURCE CATEGORY (§§ 458.10 - 458.46)
51. PART 459 - PHOTOGRAPHIC POINT SOURCE CATEGORY (§§ 459.10 - 459.12)
52. PART 460 - HOSPITAL POINT SOURCE CATEGORY (§§ 460.10 - 460.12)
53. PART 461 - BATTERY MANUFACTURING POINT SOURCE CATEGORY (§§ 461.1 - 461.75)

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

54. PART 463 - PLASTICS MOLDING AND FORMING POINT SOURCE CATEGORY (§§ 463.1 - 463.37)
55. PART 464 - METAL MOLDING AND CASTING POINT SOURCE CATEGORY (§§ 464.01 - 464.47)
56. PART 465 - COIL COATING POINT SOURCE CATEGORY (§§ 465.01 - 465.46)
57. PART 466 - PORCELAIN ENAMELING POINT SOURCE CATEGORY (§§ 466.01 - 466.45)
58. PART 467 - ALUMINUM FORMING POINT SOURCE CATEGORY (§§ 467.01 - 467.67)
59. PART 468 - COPPER FORMING POINT SOURCE CATEGORY (§§ 468.01 - 468.20)
60. PART 469 - ELECTRICAL AND ELECTRONIC COMPONENTS POINT SOURCE CATEGORY (§§ 469.10 - 469.43)
61. PART 471 - NONFERROUS METALS FORMING AND METAL POWDERS POINT SOURCE CATEGORY (§§ 471.01 - 471.106)

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

ERIE COUNTY CLERK'S OFFICE

County Clerk's Recording Page

Return to:
BOX 286

Party 1:
4512 MAIN STREET INC

Party 2:
BENDERSON 85-1 TRUST 101485 TR

Book Type: D Book: 11286 Page: 8548
Page Count: 5
Doc Type: DEED
Rec Date: 10/20/2015
Rec Time: 01:08:09 PM
Control #: 2015214686
UserID: Faith
Trans #: 15170346
Document Sequence Number
TT2015006093

Recording Fees:

RECORDING	$45.00
COE CO $1 RET	$1.00
COE STATE $14.25 GEN	$14.25
COE STATE $4.75 RM	$4.75
RP5217 CNTY $9	$9.00
RP5217 ST-NON RES $241	$241.00
TP584	$10.00

Consideration Amount: 34000.00

BASIC MT	$0.00
SONYMA MT	$0.00
ADDL MT/NFTA	$0.00
SP MT/M-RAIL	$0.00
NY STATE TT	$136.00
ROAD FUND TT	$170.00

Total: $631.00

STATE OF NEW YORK
ERIE COUNTY CLERK'S OFFICE

WARNING – THIS SHEET CONSTITUTES THE CLERK'S ENDORSEMENT REQUIRED BY SECTION 319&316-a (5) OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH. THIS IS NOT A BILL.

Christopher L. Jacobs
County Clerk

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

Box 286

BARGAIN AND SALE DEED

THIS BARGAIN AND SALE DEED, made this 15th day of October, 2015

Between:

4512 MAIN STREET, INC.,
a New York corporation
1140 SW 11th Avenue, Suite 500
Portland, Oregon 97205
(hereinafter referred to as the "Grantor")

and

Ronald Benderson, Randall Benderson and David H. Baldauf as Trustees under a trust agreement dated October 14, 1985 known as the Benderson 85-1 Trust as to an undivided 39.2% interest as tenant in common; 570 Associates I, LLC, a New York limited liability company, as to an undivided 19.6687% interest as tenant in common; 570 Associates II, LLC, a New York limited liability company, as to an undivided 32% interest as tenant in common; Blvdcon-1 LLC, a New York limited liability company, as to an undivided 2.8% interest as tenant in common; Trahwen-A, LLC, a New York limited liability company as to an undivided 6.3313% as tenant in common, all with offices at 7978 Cooper Creek Boulevard, Suite 100, University Park, Florida 34201
(hereinafter referred to as the "Grantee")

WITNESSETH, that the Grantor for and in consideration of the sum of ONE DOLLAR and MORE ($1.00 and MORE), lawful money of the United States, paid by the Grantee, does hereby convey, grant and release unto the Grantee and its assigns forever:

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Amherst, County of Erie and State of New York, more particularly described in **Exhibit "A"** attached hereto and made a part hereof,

TOGETHER with all of the appurtenances and all of the estate and rights of the Grantor in and to the said premises.

SUBJECT TO easements, restrictions and rights of way of record.

TO HAVE AND TO HOLD the above granted premises unto the Grantee and its assigns forever.

AND THE GRANTOR COVENANTS that, except as otherwise set forth in **Exhibit "B"** attached hereto and made a part hereof with respect to permitted encumbrances, it has not done or suffered anything whereby the said premises have been encumbered in any way whatever. The Grantor covenants further that, in compliance with Section 13 of the Lien Law, the Grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement before using any part of the total of the same for any other purpose.

214686 Town 34200 Deed — 4 Amh

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

THIS CONVEYANCE which does not constitute all or substantially all of the assets of the Grantor, will not render the Grantor insolvent and is not made to defraud creditors. This conveyance has been authorized by Grantor in compliance with the Limited Liability Company Law of the State of New York

IN WITNESS WHEREOF, the Grantor has caused this instrument to be executed and delivered as of the day and year first above written.

4512 MAIN STREET, INC.,
a New York corporation

By: _____
Douglas L. Obletz, President

STATE OF Oregon)
) ss:
COUNTY OF Multnomah)

On the 15th day of October in the year 2015, before me, the undersigned, a notary public in and for said state, personally appeared Douglas L. Obletz, President, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

OFFICIAL STAMP
JENNIFER MAY WEST
NOTARY PUBLIC-OREGON
COMMISSION NO. 927430
MY COMMISSION EXPIRES APRIL 14, 2018

_____
Notary Public

709286.0006/6439022.4

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

Exhibit "A" to Bargain and Sale Deed

Grantor: **4512 MAIN STREET, INC.**

Grantee: **Ronald Benderson, Randall Benderson and David H. Baldauf as Trustees under a trust agreement dated October 14, 1985 known as the Benderson 85-1 Trust as to an undivided 39.2% interest as tenant in common; 570 Associates I, LLC, a New York limited liability company, as to an undivided 19.6687% interest as tenant in common; 570 Associates II, LLC, a New York limited liability company, as to an undivided 32% interest as tenant in common; Blvdcon-1 LLC, a New York limited liability company, as to an undivided 2.8% interest as tenant in common; Trahwen-A, LLC, a New York limited liability company as to an undivided 6.3313% as tenant in common**

Legal Description

All that Tract or Parcel of Land, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 85, Township 12, Range 7 of the Holland Land Company Survey, bounded and described as follows:

BEGINNING at a point in the northwesterly line of Meyer Road, distant 347.40 feet westerly from the intersection of the northwesterly line of Meyer Road with the east line of said Lot No. 85; thence northerly parallel with the east line of said Lot No. 85, 538.14 feet to the northerly line of lands conveyed to Howard D. Bogner and Laura L. Bogner, his wife, by deed recorded in Liber 4203 of Deeds at Page 273; thence westerly along the northerly line of said Bogners' lands, 218.17 feet ± to the easterly line of lands conveyed to Charles Andrea and Violet Agnes Andrea, his wife, by deed recorded in Liber 4347 of Deeds at page 314; thence southerly along the easterly line of said Andrea lands, 558.54 feet to the northwesterly line of Meyer Road; thence northeasterly along the northwesterly line of Meyer Road 85.99 feet; thence northerly at an interior angle of 90° 00' 26", 165 feet to the northerly line of lands conveyed to Robert D. Berk and Carolyn J., his wife, by liber 8370 of Deeds at Page 507 extended westerly; thence parallel with Meyer Road and along the extension westerly of the northerly line of Berks' lands and along the northerly line of Berks' lands, 95.43 feet to the easterly line of said Berks' lands; thence southerly along the easterly line of said Berks' lands, 165 feet to the northwesterly line of Meyer Road; thence easterly along the northwesterly line of Meyer Road, 37.82 feet to the point or place of beginning.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

Exhibit "B" to Bargain and Sale Deed

Grantor: **4512 MAIN STREET, INC.**

Grantee: **Ronald Benderson, Randall Benderson and David H. Baldauf as Trustees under a trust agreement dated October 14, 1985 known as the Benderson 85-1 Trust as to an undivided 39.2% interest as tenant in common; 570 Associates I, LLC, a New York limited liability company, as to an undivided 19.6687% interest as tenant in common; 570 Associates II, LLC, a New York limited liability company, as to an undivided 32% interest as tenant in common; Blvdcon-1 LLC, a New York limited liability company, as to an undivided 2.8% interest as tenant in common; Trahwen-A, LLC, a New York limited liability company as to an undivided 6.3313% as tenant in common**

Permitted Encumbrances

1. Right of Way granted by Robert L. Tennis Corporation to Buffalo Pipeline Corporation, dated August 18, 1937 and recorded September 11, 1937 in Liber 2703 of Deeds, page 126.

2. Easement granted by Howard D. Bogner and Laura L. Bogner, his wife to Town of Amherst, dated February 27, 1963 and recorded April 3, 1963 in Liber 6873 of Deeds, page 227.

3. Any state of facts a currently dated survey may reveal.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

ERIE COUNTY CLERK'S OFFICE

County Clerk's Recording Page

Return to:
BOX 286

Party 1:
RIDGE LEA ASSOCIATES LLC

Party 2:
BENDERSON 85-1 TRUST 101485 TR

Book Type: D Book: 11286 Page: 8553
Page Count: 10
Doc Type: DEED
Rec Date: 10/20/2015
Rec Time: 01:08:09 PM
Control #: 2015214687
UserID: Faith
Trans #: 15170346
Document Sequence Number
TT2015006094

Recording Fees:

RECORDING	$70.00
COE CO $1 RET	$1.00
COE STATE $14.25 GEN	$14.25
COE STATE $4.75 RM	$4.75
RP5217 CNTY $9	$9.00
RP5217 ST-NON RES $241	$241.00
TP584	$10.00

Consideration Amount: 12569224.17

BASIC MT	$0.00
SONYMA MT	$0.00
ADDL MT/NFTA	$0.00
SP MT/M-RAIL	$0.00
NY STATE TT	$50,278.00
ROAD FUND TT	$62,847.50

Total: $113,475.50

STATE OF NEW YORK
ERIE COUNTY CLERK'S OFFICE

WARNING – THIS SHEET CONSTITUTES THE CLERK'S ENDORSEMENT REQUIRED BY SECTION 319&316-a (5) OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH. THIS IS NOT A BILL.

Christopher L. Jacobs
County Clerk

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

BARGAIN AND SALE DEED

Box 286

THIS BARGAIN AND SALE DEED, made this 15th day of October, 2015

Between:

RIDGE LEA ASSOCIATES L.L.C.,
a New York limited liability company
1140 SW 11th Avenue, Suite 500
Portland, Oregon 97205
(hereinafter referred to as the "Grantor")

and

Ronald Benderson, Randall Benderson and David H. Baldauf as Trustees under a trust agreement dated October 14, 1985 known as the Benderson 85-1 Trust as to an undivided 39.2% interest as tenant in common; 570 Associates I, LLC, a New York limited liability company, as to an undivided 19.6687% interest as tenant in common; 570 Associates II, LLC, a New York limited liability company, as to an undivided 32% interest as tenant in common; Blvdcon-1 LLC, a New York limited liability company, as to an undivided 2.8% interest as tenant in common; Trahwen-A, LLC, a New York limited liability company as to an undivided 6.3313% as tenant in common, all with offices at 7978 Cooper Creek Boulevard, Suite 100, University Park, Florida 34201
(hereinafter referred to as the "Grantee")

WITNESSETH, that the Grantor for and in consideration of the sum of ONE DOLLAR and MORE ($1.00 and MORE), lawful money of the United States, paid by the Grantee, does hereby convey, grant and release unto the Grantee and its assigns forever:

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Amherst, County of Erie and State of New York, more particularly described in **Exhibit "A"** attached hereto and made a part hereof,

TOGETHER with all of the appurtenances and all of the estate and rights of the Grantor in and to the said premises.

SUBJECT TO easements, restrictions and rights of way of record.

TO HAVE AND TO HOLD the above granted premises unto the Grantee and its assigns forever.

AND THE GRANTOR COVENANTS that, except as otherwise set forth in **Exhibit "B"** attached hereto and made a part hereof with respect to permitted encumbrances, it has not done or suffered anything whereby the said premises have been encumbered in any way whatever. The Grantor covenants further that, in compliance with Section 13 of the Lien Law, the Grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement before using any part of the total of the same for any other purpose.

214687

Comm 12,569,224.17 Deed-9 2 pAmt

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

THIS CONVEYANCE which does not constitute all or substantially all of the assets of the Grantor, will not render the Grantor insolvent and is not made to defraud creditors. This conveyance has been authorized by Grantor in compliance with the Limited Liability Company Law of the State of New York

IN WITNESS WHEREOF, the Grantor has caused this instrument to be executed and delivered as of the day and year first above written.

RIDGE LEA ASSOCIATES L.L.C.,
a New York limited liability company

By: _____
Douglas L. Obletz, Manager

STATE OF Oregon)
) ss:
COUNTY OF Multnomah)

On the 15th day of October in the year 2015, before me, the undersigned, a notary public in and for said state, personally appeared Douglas L. Obletz, Manager, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

OFFICIAL STAMP
JENNIFER MAY WEST
NOTARY PUBLIC-OREGON
COMMISSION NO. 927430
MY COMMISSION EXPIRES APRIL 14, 2018

Jennifer May West
Notary Public

709286.0006/6295300.3

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

EXHIBIT "A" TO BARGAIN AND SALE DEED

Grantor: **RIDGE LEA ASSOCIATES L.L.C.**

Grantee: **Ronald Benderson, Randall Benderson and David H. Baldauf as Trustees under a trust agreement dated October 14, 1985 known as the Benderson 85-1 Trust as to an undivided 39.2% interest as tenant in common; 570 Associates I, LLC, a New York limited liability company, as to an undivided 19.6687% interest as tenant in common; 570 Associates II, LLC, a New York limited liability company, as to an undivided 32% interest as tenant in common; Blvdcon-1 LLC, a New York limited liability company, as to an undivided 2.8% interest as tenant in common; Trahwen-A, LLC, a New York limited liability company as to an undivided 6.3313% as tenant in common**

Legal Description for 4224 to 4256 Ridge Lea Road, Amherst property

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Amherst, County of Erie and State of New York being part of Lots 79 and 85, Township 12, Range 7 of the Holland Land Survey (so-called), bounded and described as follows:

Beginning at the intersection of the east line of lands appropriated by the People of the State of New York, Map No. 78, Parcel No. 102 with the north line of lands conveyed by Deed to Howjohn Realty Co. recorded in the Erie County Clerk's Office in Liber 6894 of Deeds at page 373;
THENCE Easterly along said north line a distance of 155.60 feet;
THENCE Northerly parallel with the east line of Lot 85 a distance of 747.08 feet to the southerly line of Ridge Lea Road (66.0 feet wide);
THENCE along the southerly line of Ridge Lea Road the following three (3) courses and distances:

1) Easterly a distance of 265.33 feet to a point of curvature;

2) Southeasterly on a curve to the right having a radius of 541.47 feet an arc distance of 358.48 feet to a point of tangency;

3) Southeasterly a distance of 159.02 feet to the westerly line of lands appropriated by the People of the State of New York recorded in Liber 9007 of Deeds at page 77, Map No. 2, Parcel No. 2.

THENCE along said southwesterly line and the northeasterly line of lands conveyed by Deed to Ridge Lea Associates, LLC recorded in Liber 10923 of Deeds at page 9214, a distance of 1,137.95 feet to an angle point;
THENCE continuing southeasterly forming an exterior angle of 171° 59' 35", with the last course and along the northeasterly line of said Ridge Lea Associates, LLC lands and the southwesterly line of land appropriated by the People of the State of New York recorded in Liber 9007 of Deeds at Page 77, Map No. 2, Parcel No. 4, a distance of 761.41 to the east line of lands described in Liber 4616 of Deeds at page 302;
THENCE Southerly along the said east line having an interior angle of 137° 08' 44" a distance of 74.95 feet to the northwest line of lands appropriated by the People of the State of New York in Liber 9007 of Deeds at page 77, Map No. 2, Parcel No. 5;

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

THENCE Southwesterly along said northwest line having an interior angle of 117° 43' 03" a distance of 160.67 feet to the north line of Meyer Road (49.5 feet wide)
THENCE Westerly along said north line having an interior angle of 151° 21' 36" a distance of 353.17 feet;
THENCE Northerly an at interior angle of 90° 02' a distance of 125.00 feet;
THENCE Westerly, parallel with the north line of Meyer Road a distance of 547.21 feet to the west line of Lot 79;
THENCE Northerly along the west line of Lot 79 having an interior angle of 89° 36' 38" a distance of 395.91 feet;
THENCE Westerly having an interior angle of 270°-28' a distance of 100.00 feet
THENCE West at an exterior angle to the right of 178° 28' 40", 243.42 feet to the west line of lands conveyed to George Roetzer;
THENCE South along the west line of lands conveyed to George Roetzer, 4.43 feet to the south line of land conveyed to Stephen Luczak
THENCE West along the last mentioned lands, 341.86 feet;
THENCE South at an exterior angle of 90° 24' 00", 336.13 feet;
THENCE, West at an interior angle of 90° 00' 00", 142.11 feet
THENCE South at an exterior angle of 90° 00' 00", 181.46 feet;
THENCE West at an interior angle of 90° 00' 00", 152.40 feet;
THENCE Southwest at an exterior angle of 135° 00' 00", 33.70 feet to the east boundary of North Bailey Avenue as now laid out and the east line of Map No. 78, Parcel No. 102;
THENCE North along the last mentioned boundary 1,202 feet to the POINT OF BEGINNING

The above premises is being and intended to be the same premises conveyed by Deeds recorded in Liber 10923 of Deeds, page 9412; Liber 10923 of Deeds, page 9214; Liber 10930 of Deeds, page 632; Liber 10930 of Deeds, page 646; Liber 10930 of Deeds, page 665; Liber 10930 of Deeds, page 672; Liber 10930 of Deeds, page 679; Liber 10930 of Deeds, page 689; Liber 10930 of Deeds, page 694; Liber 10958 of Deeds, page 6753; Liber 11127 of Deeds, page 1933; and Liber 11127 of Deeds, page 1921.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

Legal Description For 256 Meyer Road, Amherst Property:

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 85, Township 12, Range 7 of the Holland Land Company's Survey, described as follows:

BEGINNING AT A POINT in the northerly line of Meyer Road 687.24 feet westerly of the east line of Lot No. 85; running thence northerly and parallel with the east line of Lot No. 85, a distance of 224.88 feet; running thence westerly a distance of 70 feet; running thence southerly and parallel to the east line of Lot No. 85, a distance of 260.09 feet to the northerly line of Meyer Road a distance of approximately 81.54 feet to the point or place of beginning.

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 85, Township 12, Range 7 of the Holland Land Company's Survey, described as follows:

BEGINNING at a point in the northerly line of Meyer Road a distance of 858.64 feet westerly from the east line of Lot No. 85 as measured along the northerly line of Meyer Road; running thence northerly and parallel with the east line of Lot No. 85, a distance of 316.43 feet; running thence easterly a distance of 70 feet; running thence southerly and parallel to the east line of Lot No. 85, a distance of 260.09 feet to the northerly line of Meyer Road; running thence southwesterly along the northerly line of Meyer Road a distance of 89.86 feet to the point or place of beginning.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

EXHIBIT "B" TO BARGAIN AND SALE DEED

Grantor: **RIDGE LEA ASSOCIATES L.L.C.**

Grantee: **Ronald Benderson, Randall Benderson and David H. Baldauf as Trustees under a trust agreement dated October 14, 1985 known as the Benderson 85-1 Trust as to an undivided 39.2% interest as tenant in common; 570 Associates I, LLC, a New York limited liability company, as to an undivided 19.6687% interest as tenant in common; 570 Associates II, LLC, a New York limited liability company, as to an undivided 32% interest as tenant in common; Blvdcon-1 LLC, a New York limited liability company, as to an undivided 2.8% interest as tenant in common; Trahwen-A, LLC, a New York limited liability company as to an undivided 6.3313% as tenant in common**

Listed Permitted Encumbrances for 4224 to 4256 Ridge Lea Road, Amherst property

1. Easement granted by George N. Roetzer, Jr. to Niagara Mohawk Power Corporation and New York Telephone Company, dated April 19, 1966 and recorded May 3, 1966 in Liber 7227 of Deeds, page 224.

2. Right of Way granted by the Estate of Jacob Allenbach by Jacob C. Allenbach, Administrator and Lena Allenbach to Buffalo Pipe Line Corporation, dated August 7, 1937 and recorded November 22, 1937 in Liber 2725 of Deeds, page 476.

3. Option granted by Stephen Luczak and Lucy Luczak, his wife and Frances Zajac to Lakehead Pipe Line Company, Inc., dated October 5, 1961 and recorded December 26, 1961 in Liber 6729 of Deeds, page 692.

4. Right of Way granted by Robert L. Tennis Corporation to Buffalo Pipe Line Corporation, dated August 18, 1937 and recorded September 11, 1937 in Liber 2703 of Deeds, page 126. Assigned to Atlantic Pipeline Corp. on October 16, 1985 in Liber 9498 of Deeds, page 524.

5. Option granted by Edwin J. Cudney and Eugenia A Cudney, his wife to Lakehead Pipe Line Company, Inc., dated November 21, 1961 and recorded December 26, 1961 in Liber 6729 of Deeds, page 697.

6. Right of Way granted by The Estate of Elizabeth Muck, by Hattie L. Neumann, executrix and Lauretta M. Krueger to Buffalo Pipe Line Corporation, dated July 10, 1937 and recorded November 22, 1937 in Liber 2725 of Deeds, page 480. Assigned to Atlantic Pipeline Corp. on October 16, 1985 in Liber 9498 of Deeds, page 524.

7. Right of Way granted by Hattie L. Neumann and Lauretta M. Krueger to Buffalo Pipe Line Corporation, dated December 3, 1937 and recorded January 10, 1938 in Liber 2736 of Deeds, page 451. Assigned to Atlantic Pipeline Corp. on October 16, 1985 in Liber 9498 of Deeds, page 524.

8. Right of Way granted by David J. Siegel and Anna Siegel, his wife to Buffalo Pipe Line Corporation, dated July 10, 1937 and recorded September 11, 1937 in Liber 2703 of Deeds, page 212. Assigned to Atlantic Pipeline Corp. on October 16, 1985 in Liber 9498 of Deeds, page 524.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

9. Easement granted by Ellsworth Morey to Town of Amherst, dated January 19, 1963 and recorded March 6, 1963 in Liber 6866 of Deeds, page 208.

10. Easement granted by Lillian Ippolito to Niagara Mohawk Power Corporation and New York Telephone Company, dated September 11, 1962 and recorded September 24, 1962 in Liber 6817 of Deeds, page 585.

11. Easement granted by Maret Development Corporation of New York to Niagara Mohawk Power Corporation, dated July 17, 1967 and recorded September 11, 1967 in Liber 7392 of Deeds, page 474.

12. Right of Way granted by Maret Development Corporation of New York to Iroquois Gas Corporation, dated June 12, 1967 and recorded September 29, 1967 in Liber 7399 of Deeds, page 98.

13. Easement granted by Maret Development Corp. of N.Y. to Town of Amherst, dated December 2, 1966 and recorded October 30, 1967 in Liber 7410 of Deeds, page 323.

14. Easement granted by Maret Development Corp. of N.Y to Town of Amherst, dated December 2, 1966 and recorded October 30, 1967 in Liber 7410 of Deeds, page 325.

15. Easement granted by Maret Development Corp. of New York to Town of Amherst, dated April 29, 1968 and recorded September 19, 1968 in Liber 7514 of Deeds, page 87.

16. Easement granted by John Hancock Mutual Life Insurance Company to New York Telephone Company, dated January 20, 1971 and recorded February 4, 1971 in Liber 7767 of Deeds, page 581.

17. Easement granted by Amherst Commerce Park to New York Telephone Company, dated March 8, 1983 and recorded March 22, 1983 in Liber 9211 of Deeds, page 164.

18. Easement granted by Bernard L Obletz, individually and as agent for Frank.J. Zappala, Jr., Frank J. Nascone, David Spatz and Orchard Park Associates, a joint venture consisting of David Spatz and Howard R. Slater to Niagara Mohawk Power Corporation and New York Telephone Company, dated ----- and recorded April 17, 1984 in Liber 9323 of Deeds, page 121.

19. Easement granted by Ridge Lea Associates, a New York partnership to Niagara Mohawk Power Corporation and New York Telephone Company d/b/a NYNEX, dated June 15, 1996 and recorded August 13, 1997 in Liber 10919 of Deeds, page 9198.

20. Declaration of Cross Easements made by Bernard I. Obletz Grantor Trust U/A dated October 3, 1996 by Douglas L. Obletz, Trustee; Frank J. Zappala, Jr.; The Estate of Frank J. Nascone, National City Bank of Pennsylvania, executor; David Spatz; and Orchard Park Associates, a joint venture consisting of David Spatz, Paul E. Slater, Jan Barnow and Elizabeth Slater with Ridge Lea Associates, L.L.C., dated March 15, 1998 and recorded April 1, 1998 in Liber 10930 of Deeds, page 718.

21. Easement granted by Ridge Lea Associates, LLC to New York Telephone Company, dated January 14, 2000 and recorded February 17, 2000 in Liber 10963 of Deeds, page 3506.

22. Easement granted by Ridge Lea Associates, LLC to Verizon New York, Inc., dated February 7, 2002 and recorded March 21, 2002 in Liber 11002 of Deeds, page 8754.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

23. Declaration of Restrictions made by FJF Associates d/b/a Amherst Commerce Park, dated ------- and recorded August 14, 1998 in Liber 10937 of Deeds, page 2945.

24. Easement granted by Bernard I. Obletz, individually and as agent for Frank J. Zappala, Jr., Frank J. Nascone, David Spatz, Orchard Park Associates, a joint venture organized under the laws of New York State consisting of David Spatz and Howard R. Slater to Niagara Mohawk Power Corporation and New York Telephone Company, dated April 9, 1984 and recorded April 17, 1984 in Liber 9323 of Deeds, page 121.

25. Easement granted by Lillian Ippolito to Andrew L. Coppolla and Janet Coppolla, his wife, dated April 10, 1962 and recorded April 10, 1962 in Liber 6757 of Deeds, page 434.

26. Memorandum of Lease made by Amherst Commerce Park to Upstate Cellular Network, dated March 22, 1996 and recorded April 23, 1996 in Liber 10900 of Deeds, page 4011. Assigned to Crown Atlantic Company LLC by Memorandum of Assignment and Assumption Agreement recorded March 9, 2001 in Liber 10977 of Deeds, page 9311.

27. ALTA/ASCM Land Title Survey map made by GPI Engineering & Surveying, LLP, dated February 2, 2015, Job No. 96020-ALTA discloses:

a. 25' wide sanitary sewer easement area running along the southerly line of Ridge Lea, also being the north line of premises. See Liber 7514 of Deeds, page 87 and Liber 7410 of Deeds, page 325.

b. Sunoco Pipeline Marker(s) located on and along the southerly line of Ridge Lea, also being the north line of premises. See Liber 2703 of Deeds, pages126 & 212, Liber 2725 of Deeds, pages 476 & 480, Liber 2736 of deeds, page 451 as assigned by Liber 9498 of Deeds, page 524.

c. New York Telephone Easement area running along the southerly line of Ridge Lea, also being the north line of premises. See Liber 7767 of Deeds, page 581.

d. Enbridge Pipe Line marker(s) located on and along the southerly line of Ridge Lea, also being the north line of premises. See Liber 6729 of Deeds, pages 692 & 697.

e. Town of Amherst 25' wide easement area running along the north line of premises. See Liber 7410 of Deeds, page323.

f. Fences easement area surrounding Antenna Tower located near the southeasterly corner of premises. See Liber 10090 of Deeds, page 4001 as assigned by Liber 10977 of Deeds, page 9311.

g. 10' wide Verizon easement area located near the southeasterly corner of premises. See Liber 11002 of Deeds, page 8754.

h. 5' wide NY Telephone easement area located near the southeasterly corner of premises. See Liber 10963 of Deeds, page 3506.

i. 10' wide sanitary sewer easement area running along the southerly line of premises, also being the north line of Meyer Road. See Liber 6866 of Deeds, page 208.

j. Utility poles running along the southerly line of premises, also being the north line of residential lots fronting on Meyer Road, See Liber 6817 of Deeds, page 585.

k. 10' wide easement area running along the west line of Lot No. 79 and traverses easterly into Lot No. 79. See Liber 10919 of Deeds, page 9198.

l. Shed encroaches up to 5.7' north from a residential lot fronting on Meyer Road.

m. Stone parking area encroaches from 34.5' to 55' easterly from lot owned now or formerly by Scott Roetzer and Kimberly Discipio by deed recorded in Liber 11180 of Deeds, page 2331.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

n. Concrete area encroaches up to 2.3' east onto premises from property fronting on Meyer Road owned now of formerly by Gary and Rebecca Smith by deed recorded in Liber 10867 of Deeds, page 6726.

o. Iroquois Gas easement area traversing that part of premises located in Lot No. 85. See Liber 7399 of Deeds, page 98 as assigned by Liber 8189 of Deeds, page 13.

p. 10' wide Niagara Mohawk easement area traversing that part of premises located in Lot No. 85. See Liber 7392 of Deeds, page 474.

q. 10'x75' Niagara Mohawk easement area located east of Building No. 4226. See Liber 9323 of Deeds, page 121.

r. 40' wide ingress/egress parking area traverses part of premises located in Lot No. 85. See Liber 10930 of Deeds, page 718.

s. Pavement area located south of Building No. 4230 encroaches up to 8.0' onto premises next west.

t. Various light standards, man holes and drainage recepticals located within the title lines of premises.

u. Pond located within the title lines of premises.

v. Fence lines are at variance.

w. Billboard located near the southerly line of Ridge Lea, also being the north line of premises.

28. Access Restrictions contained in Deed recorded in Liber 10923 of Deeds at page 9214.

Listed Permitted Encumbrances for 256 Meyer Road, Amherst property

29. Right of Way granted by Robert L. Tennis Corporation to Buffalo Pipeline Corporation, dated August 18, 1937 and recorded September 11, 1937 in Liber 2703 of Deeds, page 126.

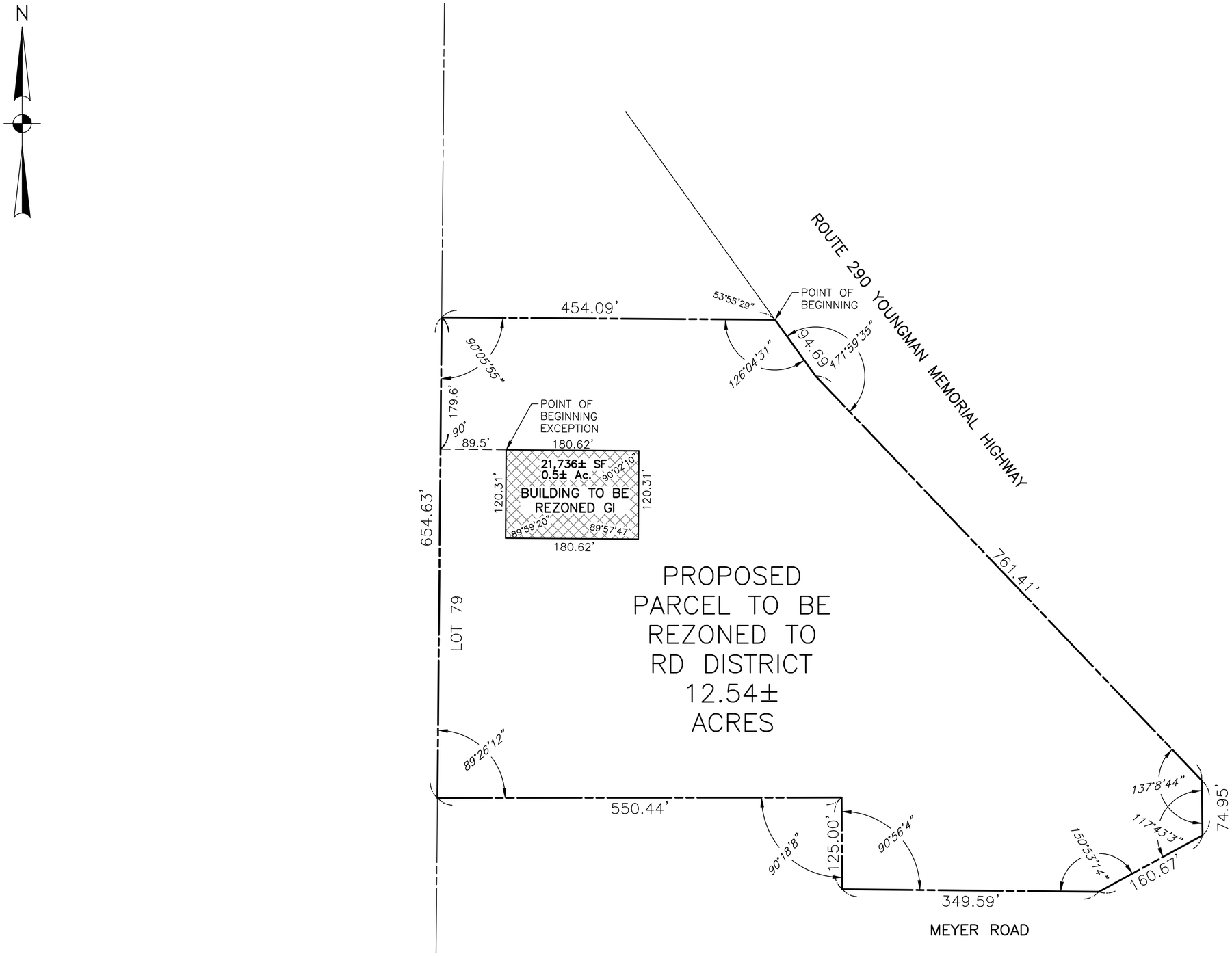
30. Easement granted by Charles Villa Reale and Mabel J. Reale, his wife to Town of Amherst, dated February 9, 1963 and recorded April 3, 1963 in Liber 6873 of Deeds, page 207.

31. Easement granted by John D'Andrea and Maxine D'Andrea, his wife to Town of Amherst, dated February 9, 1963 and recorded April 3, 1963 in Liber 6873 of Deeds, page 220.

32. Any state of facts a currently dated survey may reveal.

Attachment: Z-2021-07 application 042122 (25497 : Z-2021-07)

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED BY AN EXAMINATION OF SUCH.



REZONING EXHIBIT MAP

PART OF L 79 S – T 12 R 7 OF THE HOLLAND LAND COMPANY'S SURVEY
VILLAGE OF – ; ~~CITY~~/TOWN OF AMHERST ; COUNTY OF ERIE ; STATE OF NEW YORK

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO ANY SURVEY, DRAWING, DESIGN SPECIFICATION PLAN OR REPORT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

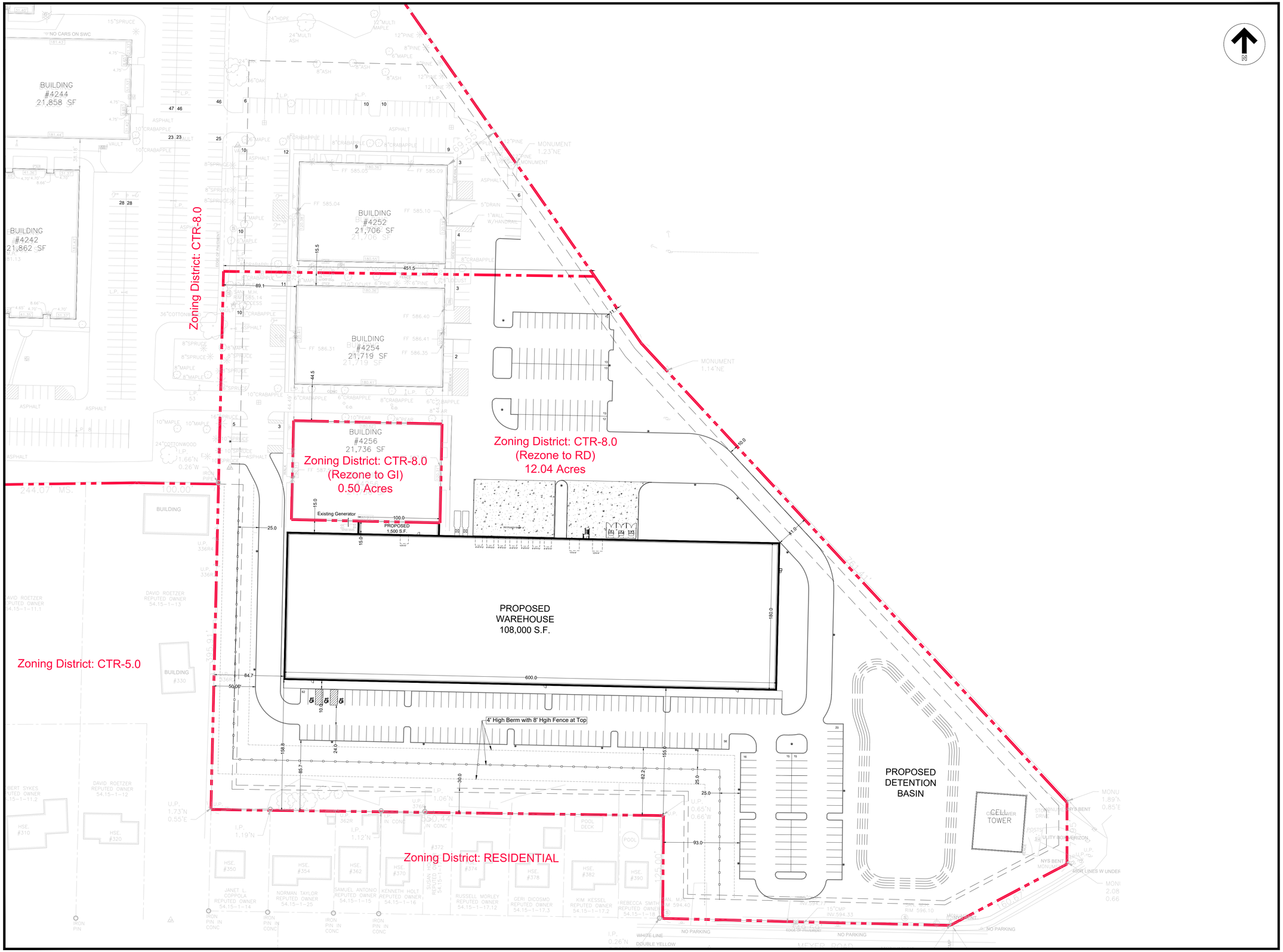
REVISION	
DATE	DESCRIPTION
9-20-21	REVISED PER REQUEST
3-21-22	REVISED PER REQUEST

KHEOPS Architecture, Engineering & Survey, DPC
300 Pearl Street, Suite 500
Buffalo, New York 14202
P. 716.849.8739
F. 716.856.0981
WWW.KHAFRA.COM

DRAWN BY DMZ SCALE 1"=50'
CHECKED BY DRH JOB NO. 21NY060
CAD FILE PROPOSED - REZONE SURVEY FIELD/OFFICE DATE 4/19/21

SBL No. – BOOK – PAGE – MAP –

Attachment: Z-2021-07 drawings 042122 (25497 : Z-2021-07)



DRAWING REVISIONS:

No.	DATE	BY	REMARKS
1.	11/21/2021	MAO	UPDATED TO MATCH
			REDUCED AREA OF
			REZONING
2.	03.10.2022	DMZ	Internal Comments

SPECIAL INFORMATION:

ALL CONTRACTORS SHALL GUARANTEE THEIR WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF OWNERS ACCEPTANCE.

SHOP DRAWING SUBMITTALS ARE REQUIRED FOR ANY AND ALL STRUCTURES.

NOTICE

UNAUTHORIZED ALTERATIONS OF THIS DOCUMENT ARE IN VIOLATION OF SECTION #7209 OF THE STATE EDUCATION LAW.

811 Know what's below. Call before you dig.

PROPERTY NUMBER: # 5077

AREA: - -

AMHERST COMMERCE CENTER
4224 - 4256 Ridge Lead Rd,
Amherst, NY

PROPOSED REZONE PLAN

CONSULTANT

JAMES ALLEN RUMSEY
ARCHITECT
PREPARED FOR
BENDERSON DEVELOPMENT
570 DELAWARE AVE., BUFFALO, NY 14202
(716) 886-0211

SEAL

REGISTERED ARCHITECT JAMES ALLEN RUMSEY 031109 STATE OF NEW YORK

TITLE:

REZONE SITE PLAN

SCALE: 1:50

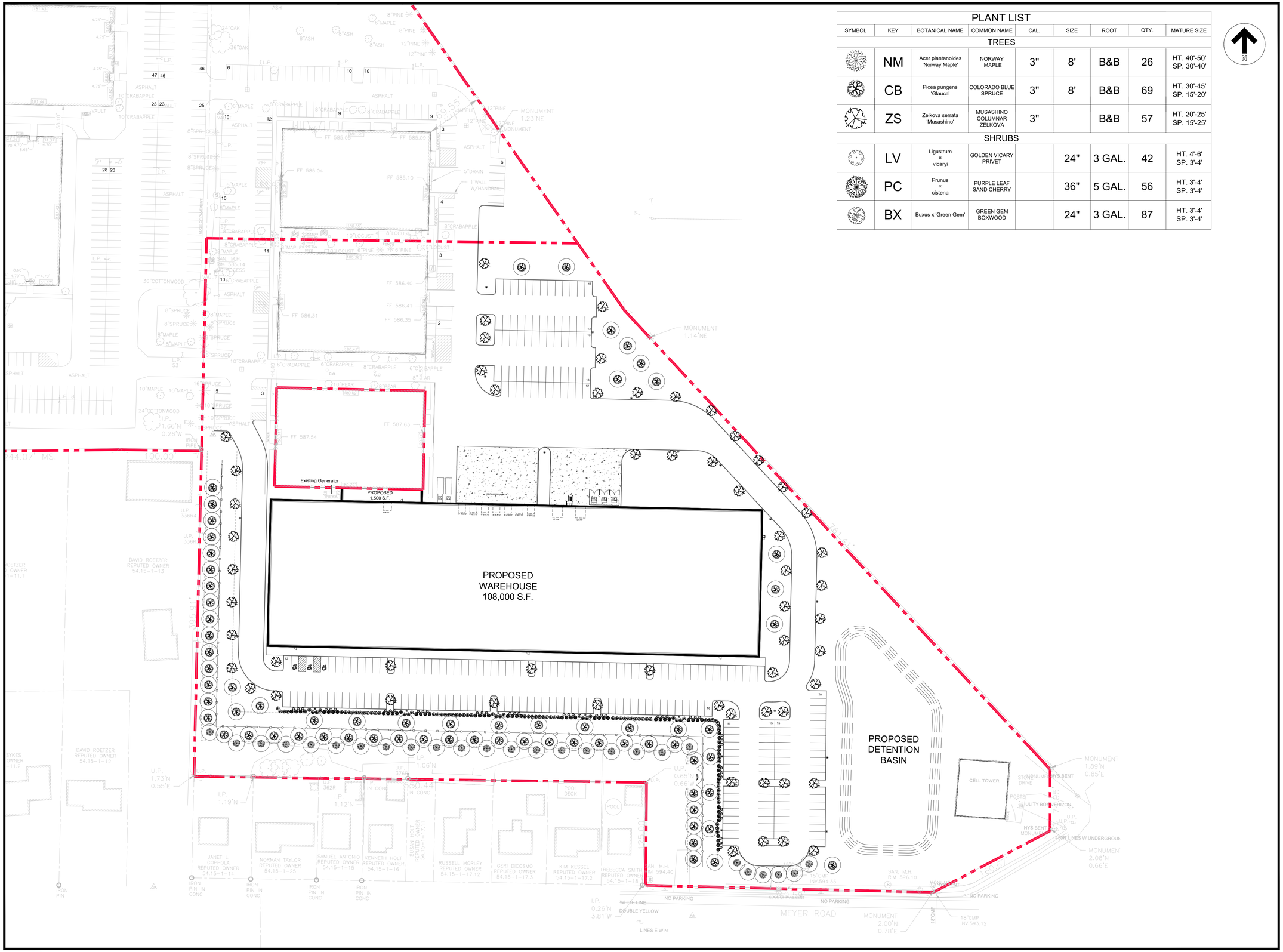
DRAWN BY: MAO

CHECKED BY: MAO

DATE: 04.16.2021

DRAWING NO.: RZ-2

Attachment: Z-2021-07 drawings 042122 (2549? : Z-2021-07)



PLANT LIST

SYMBOL	KEY	BOTANICAL NAME	COMMON NAME	CAL.	SIZE	ROOT	QTY.	MATURE SIZE
			TREES					
	NM	Acer plantanoides 'Norway Maple'	NORWAY MAPLE	3"	8'	B&B	26	HT. 40'-50' SP. 30'-40'
	CB	Picea pungens 'Glauca'	COLORADO BLUE SPRUCE	3"	8'	B&B	69	HT. 30'-45' SP. 15'-20'
	ZS	Zelkova serrata 'Musashino'	MUSASHINO COLUMNAR ZELKOVA	3"		B&B	57	HT. 20'-25' SP. 15'-25'
			SHRUBS					
	LV	Ligustrum × vicaryi	GOLDEN VICARY PRIVET		24"	3 GAL.	42	HT. 4'-6' SP. 3'-4'
	PC	Prunus × cistena	PURPLE LEAF SAND CHERRY		36"	5 GAL.	56	HT. 3'-4' SP. 3'-4'
	BX	Buxus x 'Green Gem'	GREEN GEM BOXWOOD		24"	3 GAL.	87	HT. 3'-4' SP. 3'-4'

DRAWING REVISIONS:

No.	DATE	BY	REMARKS

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SHOP DRAWING SUBMITTALS ARE REQUIRED FOR ANY AND ALL STRUCTURES.

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811 Know what's below. Call before you dig.

PROPERTY NUMBER: # 5077

AREA: - -

AMHERST COMMERCE CENTER

4224 - 4256 Ridge Lead Rd,
Amherst, NY

PROPOSED WAREHOUSE

CONSULTANT

JAMES ALLEN RUMSEY
ARCHITECT
PREPARED FOR

BENDERSON DEVELOPMENT
570 DELAWARE AVE., BUFFALO, NY 14202
(716) 886-0211

SEAL

REGISTERED ARCHITECT JAMES ALLEN RUMSEY STATE OF NEW YORK

TITLE:

LANDSCAPING PLAN

SCALE: 1:50

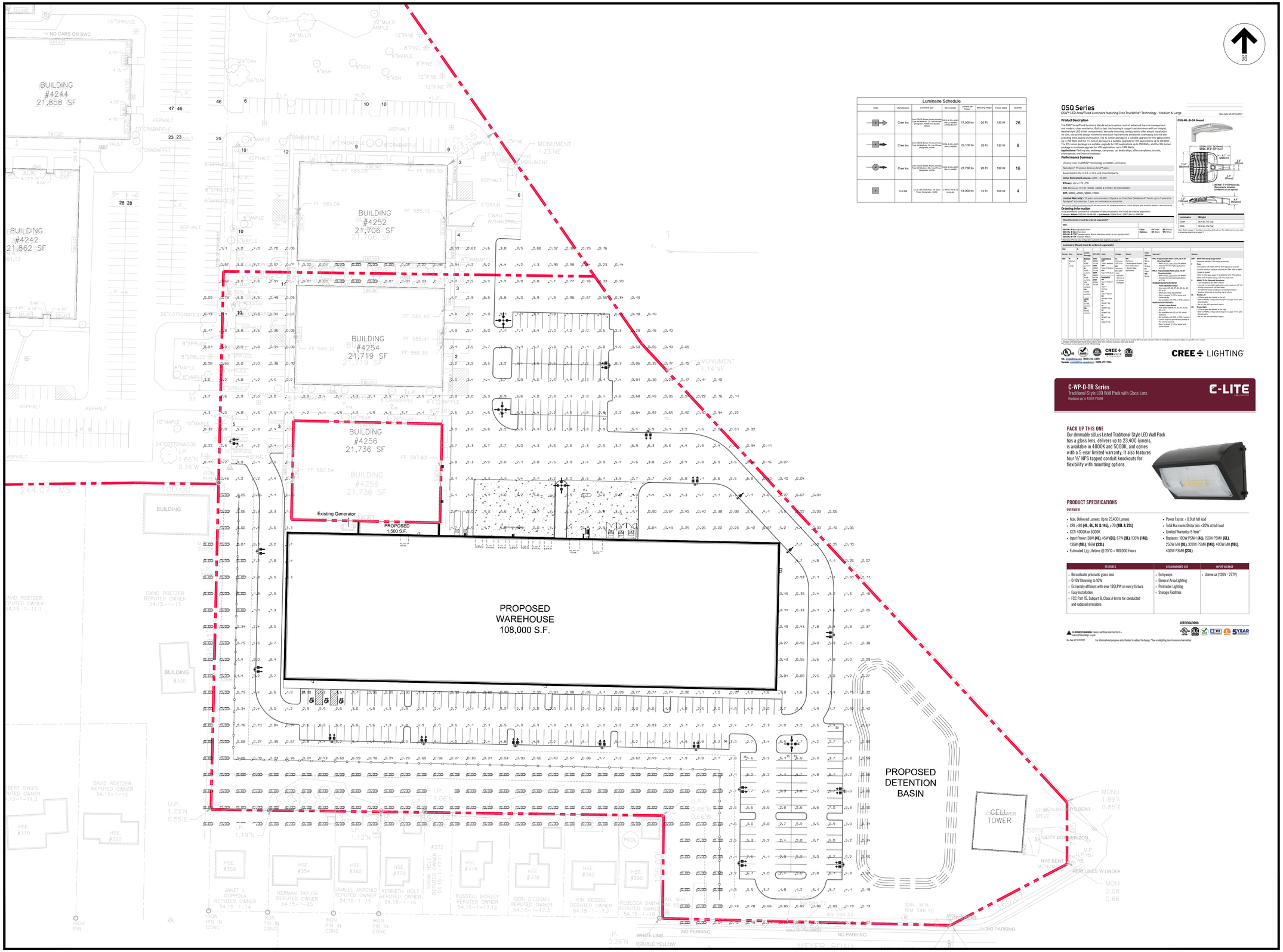
DRAWN BY: DMZ

CHECKED BY: MAO

DATE: 02.28.2022

DRAWING NO. LP-2

Attachment: Z-2021-07 drawings 042122 (25497 : Z-2021-07)



Luminaire Schedule

Index	Manufacturer	Luminaire type	Item number	Lumens per Fixture	Mounting Height	Fixture Watts	Quantity
A	Cree Inc	Cree OSQ-S Series Area Luminaire Type 4W Medium, LED, Direct Power Designated, 4000K with Backlit Shield	OSQ-AL-03-40K7-SM-UL-MA-WL-XXXXX-DLXT	17,000 lm	20 Ft	130 W	26
B	Cree Inc	Cree OSQ-S Series Area Luminaire Type 4W Medium, LED, Direct Power Designated, 4000K	OSQ-AL-03-40K7-SM-UL-MA-WL	22,100 lm	20 Ft	130 W	8
C	Cree Inc	Cree OSQ-S Series Area Luminaire Type 4W Medium, LED, Direct Power Designated, 4000K	OSQ-AL-03-40K7-SM-UL-MA-WL	21,700 lm	20 Ft	130 W	16
X	C-Lite	C-Lite LED Wall Pack, 4k Input Power Designated, 4000K	C-WP-D-TR-4L-40-MV-PC-BK	14,000 lm	15 Ft	106 W	4

OSQ Series

OSQ® LED AreaShoe Luminaire featuring Cree TrueWhite® Technology – Medium & Large

Rev. Date: V5.09/14/2021

Product Description

The OSQ® AreaShoe luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. The OSQ AreaShoe luminaire delivers long-lasting performance and unsurpassed visual comfort by providing even, quality illumination. The 4L lumen package is a suitable upgrade for HID applications up to 250 Watt, and the 11L lumen package is a suitable upgrade for HID applications up to 400 Watt. The 22L lumen package is a suitable upgrade for HID applications up to 750 Watts, and the 30L lumen package is a scalable upgrade for HID applications up to 1000 Watts.

Applications: Parking lots, walkways, campuses, car dealerships, office complexes, tunnels, underpasses, and internal roadways

Performance Summary

Utilizes Cree TrueWhite® Technology w/ 5000K Luminaires

NanoOptic® Precision Delivery Grid™ optic

Assembled in the U.S.A. of U.S. and imported parts

Initial Delivered Lumens: 4,000 - 30,000

Efficacy: Up to 173 LPW

CRI: Minimum 70 (5K (5000K, 4,000K & 3,700K), 90 CRI (5000K)

CCT: 3000K, 4,000K, 5000K, 5700K

Limited Warranty[1]: 10 years on luminaire; 10 years on ColorFast DetailGuard® finish; up to 5 years for certain configurations (see warranty terms for complete details)

[1] See Cree LED Luminaire Limited Warranty for complete terms. For luminaires in extreme ambient temperatures, consult factory.

Ordering Information

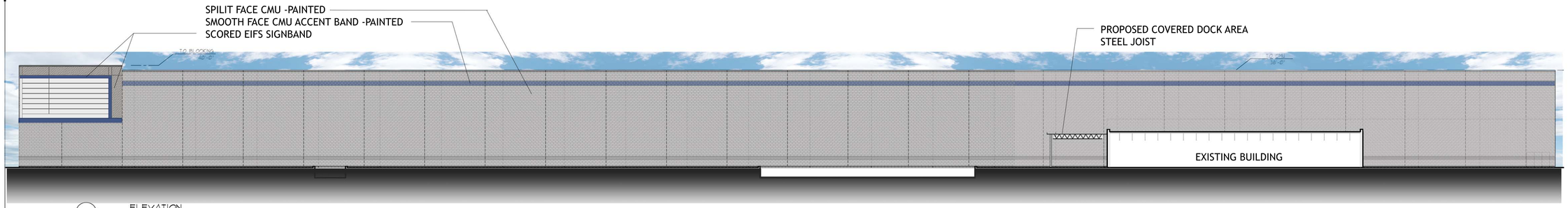
Fully assembled luminaire is comprised of two components that must be ordered separately:
Luminaire: **Mount:** OSQ-WL-A-DA-SM + **Luminaire:** OSQ-AL-03-40K7-SM-UL-MA-WL

Mount (Luminaire must be ordered separately)*

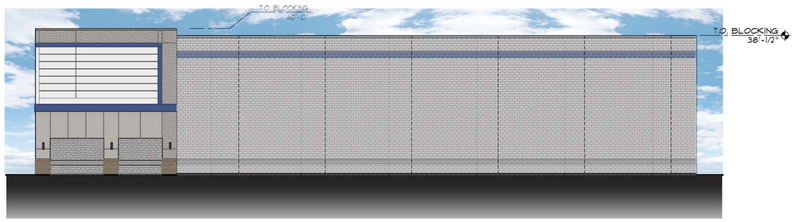
OSQ-			
OSQ-WL-A-AA Adjustable Arm **OSQ-WL-A-DA** Direct Arm **OSQ-WL-A-PA** Pendant Arm (Mount Interface steel, do not specify color) **OSQ-WL-A-TR** Trunnion Mount *Mounts ONLY pre-configured variants see options on page 3	**Color Options**	**BV** Silver **BK** Black	**BZ** Bronze **WH** White

Luminaire (Mount must be ordered separately)*

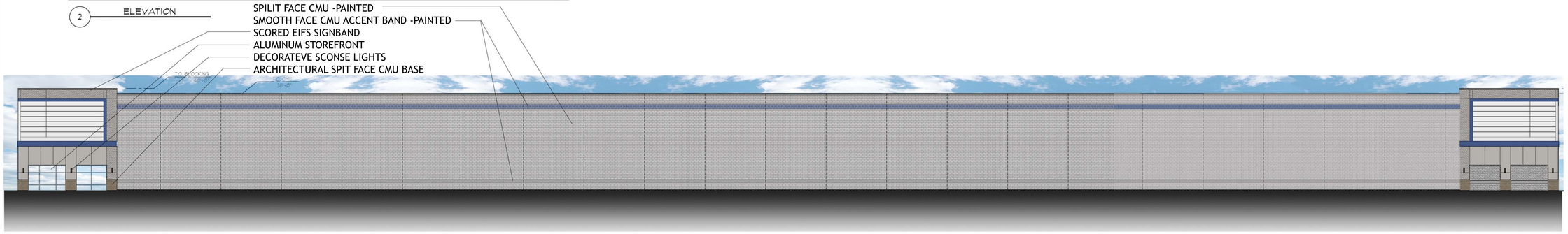
| OSQ- | | |



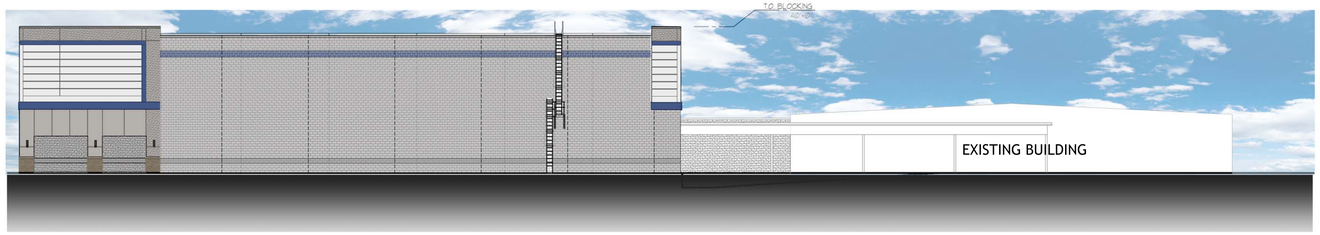
1 ELEVATION



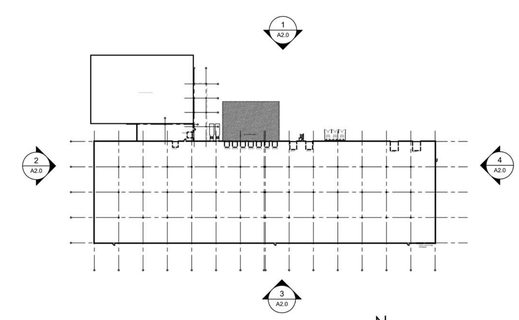
2 ELEVATION



3 ELEVATION



4 ELEVATION



KEY PLAN
N.T.S.

N

DRAWING REVISIONS:

No.	DATE	BY	REMARKS
-	-	-	-

SPECIAL INFORMATION:
THIS DRAWING PREPARED FOR TENANT IMPROVEMENTS TO AN EXISTING BUILDING OR BUILDING CONSTRUCTED BY OTHERS IT IS UNDERSTOOD THAT ANY WARRANTY INFORMATION CONCERNING EQUIPMENT INSTALLED MUST BE FORWARDED TO THE OWNER AND THAT ANY AND ALL CONTRACTORS SHALL GUARANTEE THEIR WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF OWNERS ACCEPTANCE.

NOTICE
UNAUTHORIZED ALTERATIONS OF THIS DOCUMENT ARE IN VIOLATION OF SECTION #7209 OF THE STATE EDUCATION LAW.

JAMES ALLEN RUMSEY
ARCHITECT

PREPARED FOR
BENDERSON DEVELOPMENT
570 DELAWARE AVE. BUFFALO, NY 14202
BUFFALO, NY 14202
(716) 886-0211

PROPERTY NUMBER: 5077
AREA: -

AMHERST COMMERCE CENTER
4224 - 4256 RIDGE LEA ROAD
AMHERST, NY

WAREHOUSE SHELL

SEAL:

TITLE
EXTERIOR ELEVATIONS

DRAWN BY: CAR
CHECKED BY: JAR
DATE: 1.30.21
DRAWING NO. A2.0

Attachment: Z-2021-07 drawings 042122 (25497 : Z-2021-07)

DRAFT (4/21/22)
TOWN OF AMHERST
PLANNING BOARD
ZONING RESOLUTION
Z-2021-07

PETITIONER

Benderson Development Company LLC
570 Delaware Avenue
Buffalo, NY 14202

PROPERTY LOCATION

4252-4256 Ridge Lea Road (portion, BCD)

WHEREAS the Town of Amherst Planning Board on Thursday, April 21, 2022 held a public hearing on the proposed rezoning of land from CTR-8 to RD & GI, and

WHEREAS the Planning Board has reviewed plans and other materials regarding the rezoning proposal, and

WHEREAS the materials and plans have been referred to the Town's various review agencies, and

WHEREAS in accordance with Section 8-3-5 of the Zoning Ordinance the Planning Board finds that:

A. The proposal is consistent with the Conceptual Land Use Plan which shows "Industrial-Office" use in this area of the Town.

B. There are adequate services and utilities available or proposed to be made available in the construction of the development.

C. The proposal is compatible with the present zoning and conforming uses of nearby property and with the character of the neighborhood.

D. The subject property is suitable for uses permitted by the current versus the proposed district.

E. The proposed change does tend to improve the balance of uses, and meets a specific demand in the Town.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

Pursuant to Local Law #3-82, as amended, the Planning Board recommends that the Town Board determine that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

Attachment: Z-2021-07_draft resolution_042122 (25497 : Z-2021-07)

DRAFT (4/21/22)
TOWN OF AMHERST
PLANNING BOARD
ZONING RESOLUTION
Z-2021-07

PETITIONER	PROPERTY LOCATION
Benderson Development Company LLC	4252-4256 Ridge Lea Road (portion, BCD)

NOW THEREFORE BE IT RESOLVED that the Planning Board recommends to the Town Board in accordance with Section 8-3-4 of the Zoning Ordinance, that the rezoning request be **approved** subject to the following conditions:

1. That the vehicle use area be no closer than 82 feet from the north property line of the properties addressed 350 through 390 Meyer Road and the east property line of the property addressed 390 Meyer Road.

2. That the petitioner install a berm a minimum of 4 feet in height and having a 6 foot high solid wood fence on top of the berm that is a minimum of 50 feet from the top of the berm to the north property line of the properties addressed 350 through 390 Meyer Road.

3. That the petitioner preserve the existing vegetation south of the berm indicated in condition number 2.

4. That any proposed building be a minimum of 150 feet from the north property line of the properties addressed 350 through 390 Meyer Road.

5. That no parking lot lights be more than 18 feet in height above finished grade and that dark sky compliant fixtures be used.

6. That there be no exterior public address system.

7. That emergency exists be alarm activated.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

TV/bf
X:\Current_Planning\Files\Rezonings\2021\Z-2021-07_(4252-4258_Ridge_Lea_Rd)_2021\Z-2021-07_draft resolution_042122.doc
Cc: Town Clerk
Commissioner of Building
Highway Superintendent
Town Engineer
Traffic/Safety Coordinator
James Boglioli, Benderson Development Co. LLC, 570 Delaware Ave., Buffalo, NY 14202

Attachment: Z-2021-07_draft resolution_042122 (25497 : Z-2021-07)

TOWN OF AMHERST
PLANNING BOARD
ZONING RESOLUTION
Z-2021-07

APR27'22 AM10:02

PETITIONER

Benderson Development Company LLC
570 Delaware Avenue
Buffalo, NY 14202

PROPERTY LOCATION

4252-4256 Ridge Lea Road (portion, BCD)

WHEREAS the Town of Amherst Planning Board on Thursday, April 21, 2022 held a public hearing on the proposed rezoning of 12.5± acres of land from CTR-8 to RD and 0.5 acres of land from CTR-8 to GI, and

WHEREAS the Planning Board has reviewed plans and other materials regarding the rezoning proposal, and

WHEREAS the materials and plans have been referred to the Town's various review agencies, and

WHEREAS in accordance with Section 8-3-5 of the Zoning Ordinance the Planning Board finds that:

A. The proposal is consistent with the Conceptual Land Use Plan which shows "Industrial-Office" use in this area of the Town.

B. There are adequate services and utilities available or proposed to be made available in the construction of the development.

C. The proposal is compatible with the present zoning and conforming uses of nearby property and with the character of the neighborhood.

D. The subject property is suitable for uses permitted by the current versus the proposed district.

E. The proposed change does tend to improve the balance of uses, and meets a specific demand in the Town.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

Pursuant to Local Law #3-82, as amended, the Planning Board recommends that the Town Board determine that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

NOW THEREFORE BE IT RESOLVED that the Planning Board recommends to the Town Board in accordance with Section 8-3-4 of the Zoning Ordinance, that the rezoning request be approved subject to the following conditions:

Attachment: Z-2021-07_signed_resolution_042122 (25497 : Z-2021-07)

TOWN OF AMHERST
PLANNING BOARD
ZONING RESOLUTION
Z-2021-07

APR27'22 AM10:02 RCVD

PETITIONER

Benderson Development Company LLC

PROPERTY LOCATION

4252-4256 Ridge Lea Road (portion, BCD)

1. That the vehicle use area be no closer than 82 feet from the north property line of the properties addressed 350 through 390 Meyer Road and the east property line of the property addressed 390 Meyer Road.

2. That the petitioner install a berm a minimum of 4 feet in height and having a minimum 6 foot high solid wood fence on top of the berm that is a minimum of 50 feet from the bottom of the berm to the north property line of the properties addressed 350 through 390 Meyer Road.

3. That the petitioner preserve the existing vegetation south of the berm indicated in condition number 2.

4. That any proposed building be a minimum of 150 feet from the north property line of the properties addressed 350 through 390 Meyer Road.

5. That no parking lot lights be more than 18 feet in height above finished grade south of the building wall as extended to the east and west property boundaries, and that all site lighting shall use dark sky compliant fixtures.

6. That there be no exterior public address system.

7. That emergency exists be alarm activated.

8. That any future access to Meyer Road be restricted to and for emergency vehicles and personnel only.

The foregoing resolution was adopted by the Town of Amherst Planning Board, April 21, 2022; moved by Penberthy; seconded by Gill; ayes 5, noes 0; abstain (1) Chmiel; absent (1) Gilmour.

For Robert J. Gilmour, Chair — 4-27-22 Date

TV/ac
X:\Current_Planning\Files\Rezonings\2021\Z-2021-07_(4252-4258_Ridge_Lea_Rd)_2021\Z-2021-07_resolution_042122.doc
Cc: Town Clerk
Commissioner of Building
Highway Superintendent
Town Engineer
Traffic/Safety Coordinator
James Boglioli, Benderson Development Co. LLC, 570 Delaware Ave., Buffalo, NY 14202

Attachment: Z-2021-07_signed_resolution_042122 (25497 : Z-2021-07)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

ADOPTED

Meeting: 04/21/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Bryan Fadel
Initiator: Dan Howard
Sponsors:
DOC ID: 25492

PLANNING BOARD ITEM (ID # 25492)

Request for Extension of Site Plan Approval, Office/Warehouse Building, SP-2019-19_A

Property located at 2425-2445 Wehrle Drive
Acquest Companies, Petitioner

ATTACHMENTS:

- SP-2021-24_A application 042122 (PDF)
- SP-2021-24_A drawings 042122 (PDF)
- SP-2019-19A draft resolution 042122 (PDF)
- SP-2019-19A_signed_resolution_042122 (PDF)

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Brittany Lee Penberthy, Board Member
SECONDER:	Carrie H. Kahn, Board Member
AYES:	Chmiel, Gill, Giuliani, Penberthy, Raffaele Jr., Kahn
ABSENT:	Robert J. Gilmour

Final Plat Plat Application - Proposed Eight Lot Subdivision - 520 Campbell Boulevard
Applicant: Ciminelli Muir Woods, LLC
Date: February 21, 2022

Prepared By: Sean W. Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 510-4338
E-mail: shopkins@hsmlegal.com

RECEIVED
FEB 22 2022
TOWN OF AMHERST
PLANNING DEPT.

TOWN OF AMHERST PLANNING DEPARTMENT

Application Subdivision Review

For Official Use

File # ~~SUB-~~ SP-2021-24 FP Acreage _____ Fee $ 450.00

Type of Subdivision Application (check one):

Sketch Plan	_____
Preliminary Plat	_____
Final Plat	X

Address Verified by Assessor's Office

_____ Verified By Date

		Fill In Applicable Fees
Sketch Plan	$1,150.00	_____
Preliminary Plat		
1 acre of less	$1,250.00	_____
Each Additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Subdivisions	$1,150.00	_____
Request for Relief of / or Change to Conditions of Subdivision Approval	$1,150.00	_____
Request for Extension of Subdivision Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	_____
5-10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
Final Plat	$ 450.00	$450.00
	TOTAL FEE:	$ $450.00

Materials Received by Planning Department

TJV 2/22/22
RECEIVED BY DATE

Materials Accepted by Town Clerk & Fee Paid

_____
RECEIVED BY DATE

To Be Completed By Applicant

Petitioner:
Name: Ciminelli Muir Woods, LLC c/o Sean Hopkins, Esq.
Address: 5500 Main Street, Suite 343
Williamsville, New York 14221
city state zip code
Phone: 510-4338 Fax: _____ E Mail: shopkins@hsm-legal.com

Rev. 12/08
P/Corrplan/Application Forms Working Document/Subdivision App.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

SUBDIVISION REVIEW AND APPROVAL PROCEDURE con't.

Representative: (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Address: Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC

5500 Main Street, Suite 343

Williamsville, New York 14221

city state zip code

Phone: 510-4338 Fax: _____

E Mail: shopkins@hsm-legal.com

Subdivision Name: Phase IV of the Preserve at Muir Woods Subdivision

Subdivision Location & Address: 520 Campbell Boulevard

Town of Amherst, Erie County, New York

Number of Sublots: 8 Lots for Detached Single-Family Homes

Land is Presently Zoned New Community Ditrict - Neighborhood District ("NCD-ND)"

A full size copy of the Subdivision Map as prepared by Mark Andrews, PLC of GPI Engineering, Landscape Architecture & Surveying, LLP is attached and a reduced size copy is also attached as Exhibit "1". The Planning Board granted Site Plan Approval for the proposed residential subdivision during its meeting on February 17, 2022.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

TOWN OF AMHERST

ENGINEERING DEPARTMENT

ERIE COUNTY – NEW YORK

JEFFREY S. BURROUGHS, P.E. – TOWN ENGINEER

March 25, 2022

Ms. Rebecca A. Wightman, P.E.
Erie County Department of Health
503 Kensington Avenue, BB 173
Buffalo, NY 14214

Re: Downstream Sanitary Sewer Capacity
Proposed "Muir Woods Subdivision – Phase 4" – 8 Additional Lots
Town of Amherst Job No. 2005.008A

Dear Ms. Wightman;

We have reviewed the above referenced project for impact on the downstream sanitary sewer capacity. The proposed connections will service eight (8) additional lots within the existing subdivision.

The subject eight (8) additional lots will be serviced by direct lateral connections into the existing 8-inch gravity sewer along Sierra Drive flowing easterly to existing 30-inch gravity sewer flowing northerly along the west side of Campbell Blvd to the north side of North French Rd. Just west of that point, both downstream routings combine and continue westerly along North French Road by 36-inch, 48-inch trunk sewer to the 48-inch trunk sewer west of Sundridge Drive; thence northerly by 48-inch trunk sewer parallel with Sundridge Drive to the Town of Amherst WWTP #16 on Tonawanda Creek Road.

The daily average and peak sanitary sewer flows from these eight (8) additional lots of 0.0028 MGD and 0.0122 MGD respectively, will not adversely impact the downstream sewers. Our records do not indicate that there are any existing back-up or overflow problems in the downstream sewers that will service this project.

In addition and associated with the above project, please note that the subject developer has committed to making the required contribution into the Town's I/I Mitigation Trust-in-Agency Trust Account in an amount equal to $8,476.73, which will be utilized by the Town to continue our I/I mitigation efforts to reduce flows.

If you have any questions regarding these conclusions, please call.

Very truly yours,

Brian J. Armstrong, EIT
Assistant Municipal Engineer

enc.
cc: Jeffrey Konsella, P.E. - NYSDEC Region 9
Sean Hopkins, Esq., 5500 Main St., Suite 343, Williamsville, NY 14221
Ken Zollitsch, GPI, 4950 Genesee St., Suite 100, Buffalo, 14225
Asher S. Pontikos, GIS Analyst

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER
FRENCH/DODGE TRUNK SEWER

TRANSIT ROAD TO PLANT #16
Revised: April 2017

Muir Woods - Amherst, NY

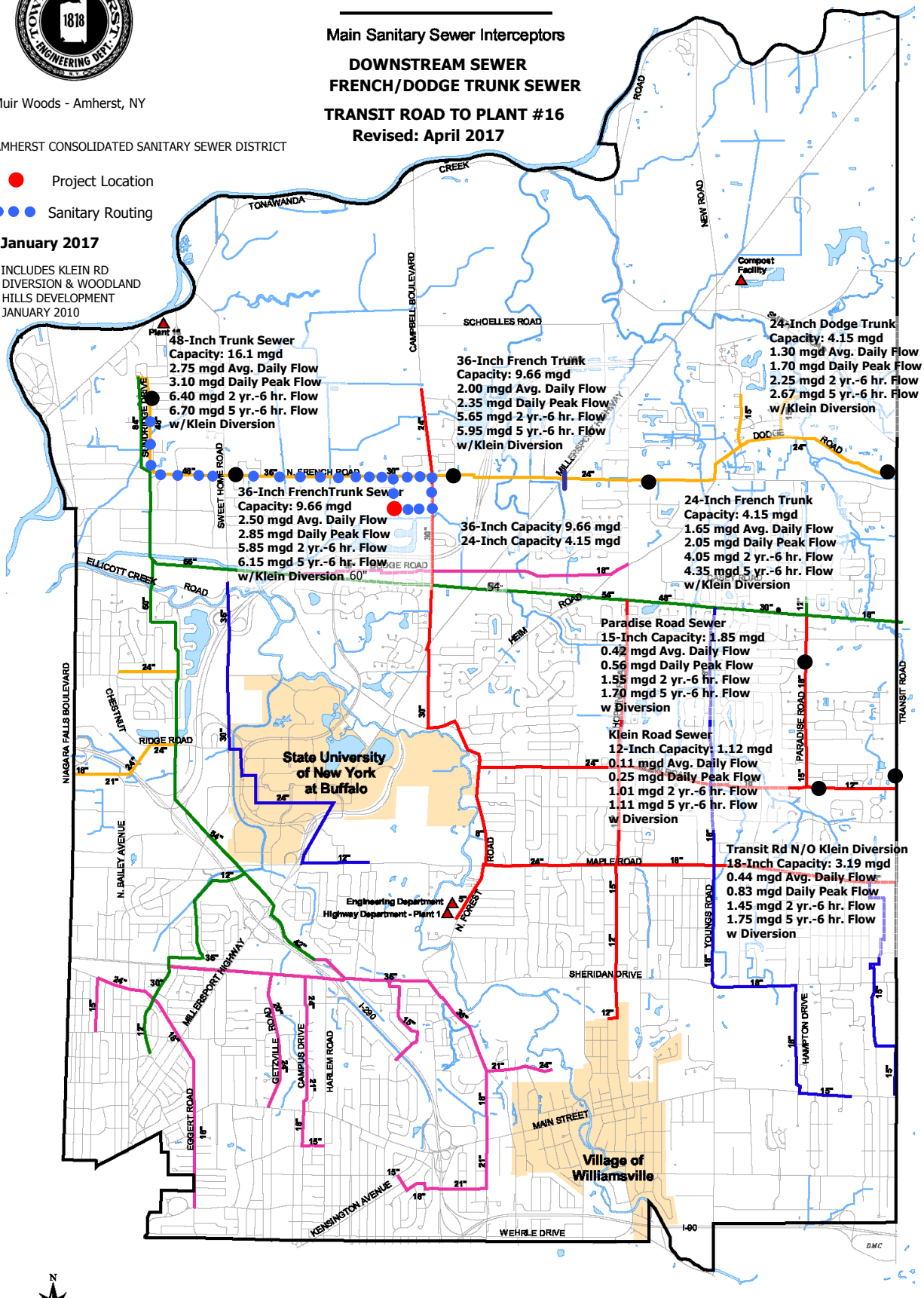
AMHERST CONSOLIDATED SANITARY SEWER DISTRICT

Project Location

Sanitary Routing

January 2017

* INCLUDES KLEIN RD DIVERSION & WOODLAND HILLS DEVELOPMENT JANUARY 2010



Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

ENGINEER'S REPORT

MUIR WOODS SUBDIVISION
PHASE 4
Town of Amherst, New York

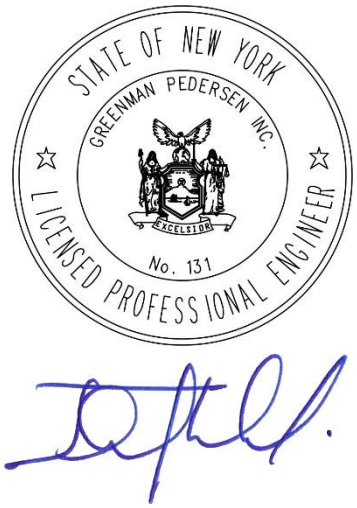
Prepared for:

Ciminelli Muir Woods, LLC
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Prepared by:

GPI

Greenman-Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, New York 14225



Job No. BUF-2013062.40

November 11, 2021
Revised March 2022

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

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II. DISCUSSION .....PAGE 4
A. SANITARY SEWERS.....PAGE 4
B. WATERMAINS .....PAGE 5
C. STORMWATER MANAGEMENT.....PAGE 5

APPENDIX A **SANITARY SEWER CALCULATIONS**

- SANITARY SEWER FLOW CALCULATIONS
- I/I COMMITMENT LETTER [SP-2021-24]
- DOWNSTREAM SANITARY CAPACITY ANALYSIS

APPENDIX B **STORMWATER MANAGEMENT**

- STORMWATER CALCULATIONS
- ORIGINAL DESIGN PONDPACK RESULTS
- PROPOSED DESIGN PONDPACK RESULTS
- STORM SEWER COMPUTATIONS
- DRAINAGE AREA MAP

APPENDIX C **ORIGINAL NOI AND SPDES**

STORMWATER EXHIBITS:

1. Site Location Map
2. Pre-Developed Watershed Delineation Map
3. Post Developed Watershed Delineation Map
4. Ellicott Creek Watershed Delineation Map
5. Site Soil Map

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

I. Introduction

The proposed development, Muir Woods Subdivision Phase Four, is located along the northern side of Sierra Drive near Campbell Boulevard in the Town of Amherst. The 1.75± development is part of the larger 118± acre Muir Woods Subdivision and will be constructed on a portion of an existing vacant parcel of land at 520 Campbell Boulevard (SBL: 27.19-1-34). The project site is bounded on the north and east by single family residential lots fronting Campbell Boulevard; bounded on the south by Sierra Drive; and bounded on the west by vacant land owned and controlled by the developer and Muir Woods Subdivision.

Muir Woods Subdivision Phase Four will consist of a total of eight (8) single family homes and was accounted for during the design of Muir Woods Subdivision. It is estimated that the population for the proposed development will be 28 persons (8 single family residences x 3.5 people/residence). The project is scheduled for a construction start in 2022.

Sanitary sewage service will be provided to the new homes by gravity sewers that were installed during the development of the earlier phases of the subdivision. The sanitary sewer laterals for each home will connect to the existing line along the north side of Sierra Drive and flow to the east to the existing Campbell Boulevard gravity sanitary sewer (owned, operated, and maintained by the Town of Amherst) which ties into the N. French Road Trunk Sewer and is tributary to the Town of Amherst Water Pollution Control Facility.

Water service for domestic use and firefighting will be provided by the water main located on the south side of Sierra Drive which was constructed during the earlier phases of the subdivision. The main was constructed by a private contractor, turned over to the Town of Amherst, and is operated and maintained under a lease management agreement with the Erie County Water Authority.

Storm drainage will be provided on site by rear yard drainage swales and storm sewers discharging into an existing ditch or an onsite retention pond, with both the pond and ditch ultimately discharge to the existing Muir Lake. Water quality, channel protection, and runoff reduction requirements were met during the design of the Muir Woods Subdivision per NYSDEC and Town requirements. Runoff reduction criteria was achieved by conserving natural areas and planting trees throughout the entire development.

Stormwater design of the Muir Woods Subdivision includes 133 single family lots and the additional 8 lots of Phase 4. Stormwater calculations that represent the entire site are provided in more detail within the Stormwater Pollution Prevention Plan (SWPPP) for the Muir Woods Development. A NYSDEC SPDES permit was obtained for SWPPP on 6/28/2018 under permit number NYR 11D909 and remains active.

Stormwater retention and detention facilities on site were designed in accordance with the New York State Stormwater Design Manual and the requirements of SPDES General Permit for Stormwater Discharges from Construction Activities, GP-0-15-002 and Town of Amherst stormwater standards.

The main text of this report summarizes the development of design. Detailed calculations and supplemental information, forms, etc., are located in the appendices.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

II Discussion

A. Sanitary Sewers

1. System Description and Design Flows

Each lot and single family house will be serviced by a 6-inch lateral service line which will connect to the existing 8-inch PVC (SDR-35) sanitary sewer pipe located along the northern side of Sierra Drive.

The estimated domestic sanitary sewer flow of 0.0028 mgd is expected from the 8 single family units (8 homes x 3.5 persons x 100 gpcd). The max flow is 0.01117 mgd (0.0028 mgd x a peaking factor of 3.99) and the minimum flow rate is 0.00056 mgd (0.0028 mgd x 20%).

2. Down Stream Routing of Flow and Capacity

The sanitary sewer flows to the existing 8-inch line along Sierra Drive to the existing Campbell Boulevard gravity sanitary sewer (owned, operated, and maintained by the Town of Amherst). The Campbell Boulevard systems flow north into the 36-inch Trunk Sewer along N. French Road. From there, sewage will flow westerly through the 36-inch Trunk Sewer along N. French Road to Sweet Home Road, at which point the Trunk Sewer becomes 48-inch and continues westerly to Sundridge Drive; the 48-inch Trunk Sewer flows to the north along Sundridge Drive and westerly into the Town of Amherst Water Pollution Control Facility (a.k.a. Plant #16) which has an average daily flow rate of 25.4 mgd and is designed for 36 mgd for the year 2006.

The downstream routing was analyzed during the initial design of the Muir Woods Subdivision and updated for the additional eight lots and indicated that when adding the 0.1981 MGD peak design flows from the overall Muir Woods project to the measured flows the system appears to be operating at 67% of its full flow capacity at Node 1; 34% of its full flow capacity at Node 2; and 57% of its full flow capacity at Node 3 therefore, indicating that there is sufficient downstream capacity in the existing system to support the proposed development. There will be no negative impact on the downstream sewer. The full results of the monitoring and detailed analysis can be found within the Muir Woods Subdivision Engineers Report.

Furthermore, to compensate for the proposed sanitary sewer flows associated with this project, the project owner will be required to comply with the Town of Amherst and New York State Department of Environmental Conservation (NYSDEC) Infiltration/Inflow Mitigation program. In accordance with Town Code, Chapter 160 Local Sewer Use Law, the project owner is required to make a financial contribution to the Town of Amherst Sewer Remediation Trust Fund at the current rate of Two Hundred Fifty Dollars ($250.00) per gallon of Inflow and Infiltration (I/I) mitigated flow (i.e. required I/I removal for the project). The mitigated flow is calculated as follows:

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

I/I Mitigated Flow = Four (4) x Projects Peak Design Flow

Peak Design Flow for this project: 0.0122 mgd = 8.48 gpm
I/I Mitigated Flow: 4 x 8.48 gpm = 33.91 gpm

Req'd Financial Contribution: 33.91 gpm x $250.00 = $8,476.73

The required financial contribution would be provided on a per phase basis dependent on the number of lots and equivalent flow installed per phase. A letter from the developer committing to this contribution is included in Appendix A.

3. Observation of construction will be performed by consultant services agreement operating under the provisions of the Town of Amherst Public Improvement Permit process, overseen by the Town of Amherst Engineering Department.

B. Watermains

1. System Description

Individual water services will be installed from the existing 8-inch PVC line on the south side of Sierra Drive. There is an existing hydrant located on the south side of Sierra Drive near the eastern portion of Phase 4 and an additional hydrant located on the east side of Sierra Drive near the western portion of Phase 4.

2. Design Flow

Erie County Water Authority (ECWA) standards require that design of new watermains be based on the following:

a. Design Population = 8 lots at 3.5 persons per lot = 28 persons
b. Average Daily Demand at 150 gallons per capita per day (gpcd) (28 persons x 150 gpcd)/1440 = 2.92 gpm
c. Maximum Daily Demand at two times average = 5.83 gpm
d. Peak Hourly Demand at three times average = 8.76 gpm

The required water demand for firefighting purposes are based on the Insurance Services Offices (ISO) Guide for Determination of Needed Fire Flow, Edition 05-2008. For One and Two-Family Dwellings not exceeding two stories in height, with a separation distance between structures of 11-30 feet, the fire flow required is 1000 gallons per minute.

Per Erie County Health Department, the system must be capable of supplying 3 gpm per single family home (3 gpm x 8 homes = 24 gpm) plus fire demand (1,000 gpm) which results in a peak flow of 1024 gpm.

Watermain sizing for the Muir Woods Subdivision was completed via

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

hydraulic model utilizing the WaterCad program by Bentley. The full results and detailed analysis can be found within the Muir Woods Subdivision Engineers Report.

C. Stormwater Management

The 1.75± acre Muir Woods Subdivision Phase Four will be converted from a brushed and wooded area to an eight (8) lot development with attendant infrastructure. Stormwater quality and runoff reduction requirements were anticipated and accounted for during the design of the Muir Woods Subdivision. The anticipated construction is permitted under NYSDEC SPDES permit number NYR 11D909 obtained on 6/28/2018 and remains active. Runoff reduction for the site was achieved with conservation of natural areas and tree plantings throughout the development. A downstream analysis was preformed and showed a less than 1% increase in the flow in Ellicott Creek. In accordance with the NYS Stormwater Design Manual peak flow attenuation was determined to not be necessary. The retention ponds onsite provide water quality and channel protection volume only.

The 1.75± acre Muir Woods Subdivision Phase Four storm drainage will be provided on site by new rear yard drainage systems discharging either to an existing culvert under Sierra Drive and south into an existing ditch or will flow to retention pond 1. Both the ditch and retention pond discharge to Muir Lake. Specific Phase 4 design calculations for storm sewer sizing are provided herein. No changes to the overall SWPPP and stormwater pond and ditch analysis were required for the final design of the current Phase 4 due to runoff from this phase being accounted for within the permitted design of the Muir Woods Subdivision.

The storm sewers are designed to flow full or in a non-surcharged state under future condition for a 10 year storm event. The storm retention facilities (wet ponds) were designed to temporarily store run-off from the post developed site, provide water quality enhancement, stream channel protection, and peak flow attenuation. Runoff reduction is being achieved through the use of conserved areas. See Appendix B for the storm sewer sizing calculations.

No portion of the proposed development lies within a 100 year flood plain as mapped on the Flood Insurance Rate Maps (FIRM's) for the Town of Amherst.

1. *Existing Conditions*

The area proposed for the Muir Woods Subdivision Phase 4 is divided into two sections. The eastern section is wooded and currently drains to the south toward a 12-inch HDPE culvert pipe that crosses Sierra Drive and flows to an existing ditch. This ditch flow southwest and discharges into the northeastern inlet of Muir Lake. The western section of Phase 4 is wooded and currently drains to the north into the conservation/wetland area. This area discharges into an existing ditch which flows west to the northwestern inlet of Muir Lake.

The full analysis of Muir Lake as well as the total flows in Ellicott Creek can be found within the original design of Muir Woods Subdivision.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

2. Post Developed Conditions

The 1.75± acres of the site will be converted from a brushed and wooded area to eight (8) lots. During the initial design and development of the Muir Woods Subdivision all associated infrastructure, which includes one (1) bioretention area, two (2) wet ponds, and three (3) pretreatment chambers for stormwater quality and runoff reduction requirements in accordance with Town Drainage Policy and the New York State Stormwater Design Manual in compliance with GP-0-15-002 were previously designed, permitted, and constructed. Additional runoff reduction is achieved with conservation of natural areas and tree plantings throughout the development.

The eastern portion of Phase 4 will consist of seven (7) lots. A drainage swale will capture offsite run-on from the north as well as runoff from the lots. This swale will discharge to a 12-inch HDPE pipe that will connect to the existing 12-inch culvert crossing Sierra Drive and flow into an existing ditch and ultimately to Muir Lake.

The western portion of Phase 4 will consist of one (1) lot. A drainage swale is proposed along the northern boundary of this lot to prevent runoff from flowing into the conservation/wetland area. The swale will discharge to retention pond 1 which was designed and constructed during earlier phases of the Muir Woods Subdivision. This pond discharges to an existing ditch which flows to Muir Lake.

Retention Pond 1:

The original design of retention pond 1 did not include the runoff from the 0.28± acre lot. Below are the updated calculations for the pond:

Two Stage Outlet: 1st Stage- 6-inch Orifice flow @ 571.0 2nd Stage – Weir Flow @ 572.50 discharging into 18-inch HDPE @ 0.74%	
Water Quality Volume Required	0.25 ac-ft
Water Quality Volume Provided	1.8455 ac-ft
Stream Channel Protection Volume Required	0.31 ac-ft
Stream Channel Protection Elevation	571.59
Stream Channel Protection Volume Provided	0.834 ac-ft
Stream Channel Protection Elevation Provided	572.50
Water Surface Elevation	571.0 ft.
Minimum Allowable Top of Bank	574.00 ft.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Routing of design storms through the wet pond results in the following:

Retention Pond 1:

1 YEAR - 24 HOUR STORM	
Peak Inflow Rate	6.54 cfs @ 12.10 hrs.
Volume of Inflow	0.507 ac-ft
Peak Discharge Rate	0.40 cfs @ 14.05 hrs.
Peak Elevation	571.54 ft
Peak Volume of Storage	2.122 ac-ft*

10 YEAR - 24 HOUR STORM	
Peak Inflow Rate	14.71 cfs @ 12.10 hrs.
Volume of Inflow	1.145 ac-ft
Peak Discharge Rate	0.81 cfs @ 14.00 hrs.
Peak Elevation	572.27 ft
Peak Volume of Storage	2.529 ac-ft*

100 YEAR - 24 HOUR STORM	
Peak Inflow Rate	28.85 cfs @ 12.05 hrs.
Volume of Inflow	2.291 ac-ft
Peak Discharge Rate	5.27 cfs @ 12.60 hrs.
Peak Elevation	573.13 ft
Peak Volume of Storage	3.061 ac-ft*

*Storage Volume includes 1.8455 ac-ft below normal water elevation

1 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	6.30 cfs	0.41 cfs	0.40 cfs

10 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	14.15 cfs	0.81 cfs	0.81 cfs

25 Year–24 Hour Storm

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	18.64 cfs	1.38 cfs	1.61 cfs

100 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	27.75 cfs	4.79 cfs	5.27 cfs

The computer modeling results and full calculations for the downstream analysis and onsite water quality ponds are contained in Appendix B.

Due to the original design of Muir Woods Subdivision accounting for the development of Phase 4, no additional analysis was completed. The full analysis of Muir Lake as well as the total flows in Ellicott Creek can be found within the original design of Muir Woods Subdivision.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

APPENDIX A

Sanitary Sewer Application and Calculations

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Sanitary Sewer Flow Calculations

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

GPI

Engineering | Design | Planning | Construction Management

Greenman-Pedersen, Inc. 4950 Genesee Street, Suite 100 Buffalo, NY 14225 t (716) 633-4844 f (716) 633-4940

Western New York Branches: Buffalo | Jamestown | Rochester

Project:	Muir Woods Subdivision Ph 4	By:	EJD	Date:	11/11/2021
Location:	Town of Amherst, New York	Checked:		Date:	

Sanitary Sewer Flow Calculations

** REFERENCE: NYSDEC Design Standards for Wastewater Treatment Works, 1988

No. of New Lots = 8

Total No. = 8

Design Population, p = 28

assumed no. of people per unit = 3.5

assumed no. of people per patio home = 3

Design Average Flow

Hydraulic Loading = 100 gpcd x design population = 2800 gpd = **0.0028 mgd

1.94 gpm

0.00 cfs

Peaking Factor, PF = [(18+((p/1000)^0.5)) / (4+((p/1000)^0.5))] = 4.3595

Peak Design Flow = Design Average Flow x Peaking Factor = 12206 gpd = **0.0122 mgd**

8.48 gpm

0.02 cfs

NOTE: Per the "Recommended Standards for Wastewater Facilities, 2014 Edition - Section 11.243, b.
"The 100 gpcd figure shall be used in conjunction with a peaking factor from Figure 1(as calculated above), is intended to cover normal infiltration for systems built with modern construction techniques."

Infiltration and Inflow: **(Remove 4 gallons of I&I from the existing sanitary sewer system per every 1 gallon of Peak Design Flow)**

Required I&I removal = 4 x the Peak Design Flow = 33.91 gpm

Example of I&I Mitigation Based On Repair or Replacement of Defective Residential Laterals:

Determine the number of Defective Residential Laterals to be repaired or replaced

I&I Contribution per each Defective Residential Lateral = 30 **gpm**

No. of Defective Residential Laterals to be repaired or replaced = **2 laterals**

Example of I&I Mitigation Based On Financial Contribution To The Town of Amherst's I&I Mitigation Trust Fund:

Required Financial Contribution = $ 250.00 per gallon of mitigated flow (i.e., required I&I removal)

X 33.91 gpm

Required Financial Contribution = $ 8,476.73

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Technical Review of Plans and Specifications For Sewage and Waste Treatment Systems (BMW-65)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

TECHNICAL REVIEW OF PLANS AND SPECIFICATIONS
FOR SEWAGE AND WASTE TREATMENT SYSTEMS

PROJECT DATA

1. Type of Facility: Extension of an Existing Sanitary Sewer System
(Treatment Plant, Interceptor, Pumping Station, Additions, etc.)

2. Location: Muir Woods Subdivision Ph 4
Town of Amherst, New York

3. Type of Sewer System: Separate
(Separate or Combined)

4. Population to be Immediately Served: 28

Design Population: 28

5. Design Period: 2021

6. Hydraulic Loading

	Present Flow (mgd)	Design Flow (mgd)
Sanitary Sewage	0	0.0028
Institutional Waste	0	0
Industrial Waste	0	0
Infiltration	0	0
Total	0	0.0028
Minimum Flow	0	0.00056
Maximum Flow	0	0.0122

Engineer's Signature and Seal:



92-15-8 (5/77)
Formerly
BMW-65 (11/73)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Downstream Sanitary Sewer Routing Map and Sewer Capacity Analysis

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

January 18, 2022

Jeffrey S. Burroughs, P.E., Town Engineer
Town of Amherst Engineering Department
1100 North Forest Road
Williamsville, NY 14221

Re: I/I Commitment Letter [SP-2021-24]
520 Campbell Boulevard
Proposed 8 Lot Residential Subdivision
Applicant/Project Sponsor: Ciminelli Muir Woods, LLC

Dear Mr. Burroughs:

On behalf of Ciminelli Muir Woods, LLC, the project sponsor with respect to the development of 520 Campbell Boulevard as an 8 lot residential subdivision in accordance with the pending Site Plan, this letter has been prepared to serve as our commitment to make the required contribution to the Town's Sewer Remediation Trust Fund pursuant to Article XVI of the Town Code of the Town of Amherst ("Sanitary Sewer Law").

To determine the I/I payment contribution, the 2,800 gallons per day ("gpd") of average daily sanitary sewer flow from the 8 lot subdivision as calculated by GPI, the project engineering firm, will result in a peak flow of 8.48 gallons per minute ("gpm"). The I/I contribution requirement to the Town's Sewer Remediation Fund per the Sanitary Sewer Law adopted in 2017 requires a payment of $250/gpm at a 4:1 ratio (4 times peak flow) of the total proposed peak sanitary flow. This results in the required payment into the Sewer Remediation Fund being $ 8,476.73.

We understand that the fee is to be provided following acceptance of the PIP applications. Please contact me at 631-8000 with any questions regarding this letter.

Sincerely,

CIMINELLI MUIR WOODS, LLC

Signature: _____

Print Name: Paul F. Ciminelli

Title: Managing Member

cc: Scott Marshall, Assistant Planning Director
Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC
Ken Zollitsch, Project Manager, GPI

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER
FRENCH/DODGE TRUNK SEWER

TRANSIT ROAD TO PLANT #16
Revised: April 2017

Muir Woods - Amherst, NY

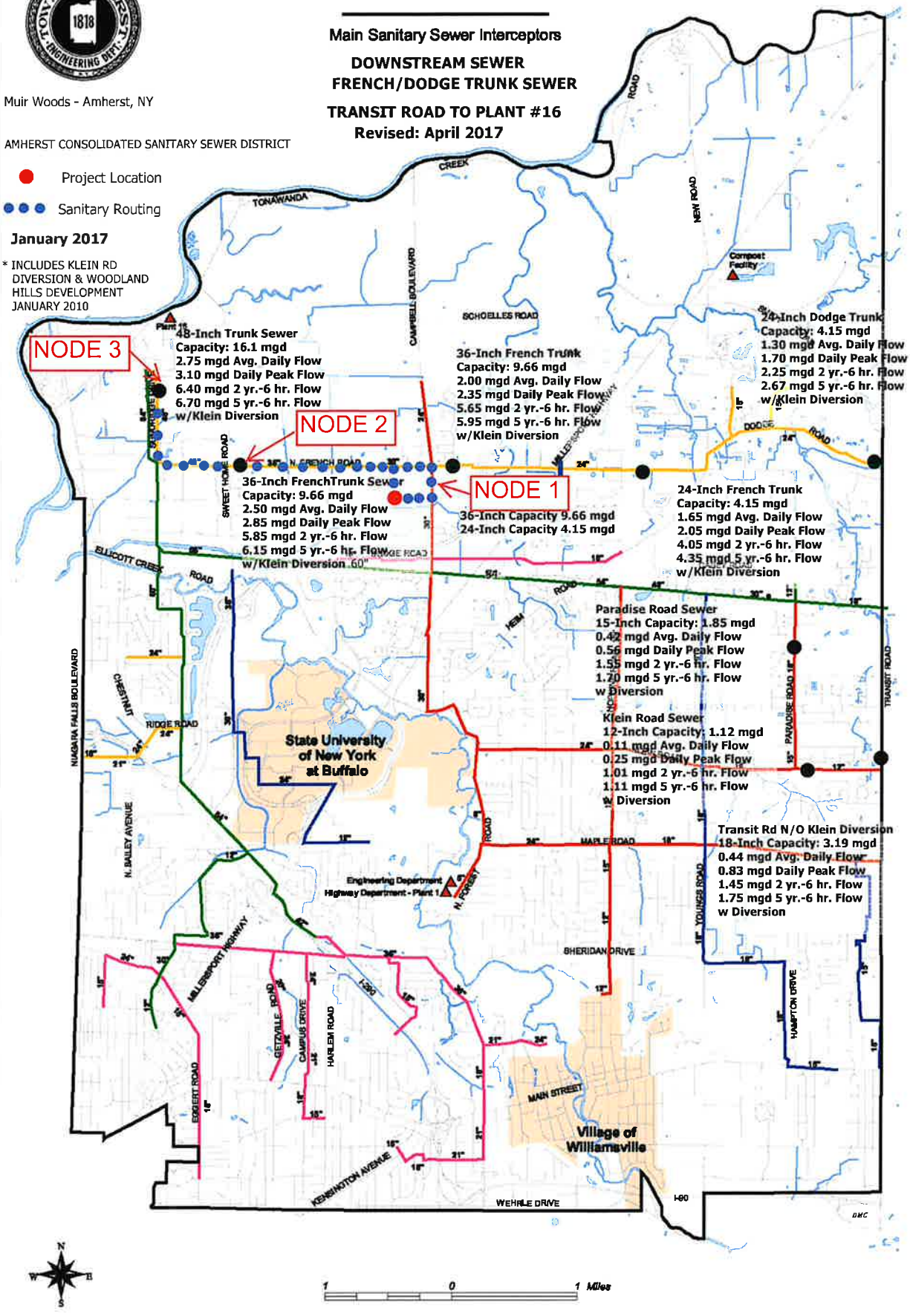
AMHERST CONSOLIDATED SANITARY SEWER DISTRICT

Project Location

Sanitary Routing

January 2017

* INCLUDES KLEIN RD DIVERSION & WOODLAND HILLS DEVELOPMENT JANUARY 2010



Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

GREENMAN-PEDERSEN, INC.

PREPARED BY: K. Zollitsch
DATE: 3/21/2022
REVISED:

PROJECT NO.: BUF-2013062.40
PROJECT: MUIR WOODS SUBDIVISION, PHASE 4
COUNTY / TOWN: ERIE / AMHERST

SANITARY SEWER PIPE CAPACITY

STRUCT. NO.	STRUCT. TYPE	LINE TYPE	LINE LENGTH (FT)	DIA. (IN.)	SLOPE (%)	V (FPS)	CAPACITY (CFS)	CAPACITY (MGD)	NOTES & REMARKS n (conc) = 0.013 n (pvc) = 0.012
									Formulas used for calculations herein are based on Rational Method, Q=CiA; Q=VA; and Manning's Equation
									V=Q/(3.1416*d^2/4); R=d/4 V=1.486/n*R^.6667*S^.5 d=(Q*4/V/3.1416)^.5 S=(V*n/1.486/(d/4)^.6667)^2
NODE 1	Exist. San MH	RCP		30					Location: Btwn. 640 and 644 Campbell Blvd.
					0.058	2.0	9.9	**6.38**	= Pipe Capacity (MGD)
								1.966	= Peak Flow Measured (MGD) on 2/7/17
								0.1674	+ Project Design Peak Flow (MGD) to Campbell Blvd System
								2.13	= Anticipated Peak Flows (MGD)
								33%	Operating Capacity with Anticipated Peak Flows
								67%	Available Capacity with Anticipated Peak Flows
NODE 2				36					Location: 36-inch French Rd. Trunk Sewer Town of Amherst, Just East of Sweet Home Road (see map)
								9.66	= Pipe Capacity (MGD) From T. Amherst
								6.15	= 5yr.-6hr. Flow (MGD) From T. Amherst w/ Klein Diversion
								0.1981	+ Total Project Design Peak Flow (MGD)
								6.35	= Anticipated Peak Flows (MGD)
								66%	Operating Capacity with Anticipated Peak Flows
								34%	Available Capacity with Anticipated Peak Flows
NODE 3				48					Location: 48-inch Trunk Sewer Town of Amherst, Sundridge Drive (see Map)
								16.10	= Pipe Capacity (MGD) From T. Amherst
								6.70	= 5yr.-6hr. Flow (MGD) From T. Amherst w/ Klein Diversion
								0.1981	+ Total Project Design Peak Flow (MGD)
								6.90	= Anticipated Peak Flows (MGD)
								43%	Operating Capacity with Anticipated Peak Flows
								57%	Available Capacity with Anticipated Peak Flows

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-687-1418
Fax: 716-655-3369

Date: March 17, 2017

SANITARY SEWER FLOW CAPACITY STUDY – Summary Review

Prepared For: 520 Campbell

Ken Zollitsch
Greenman-Pedersen, Inc.
4950 Genesee Street
Suite 100
Buffalo, NY 14225

Project Name: 520 Campbell

Flow Monitoring Period: February 6, 2017 to March 16, 2017

Rain Events (> 0.5-inches) Monitored: February 7 (0.58"), February 25 (0.57") March 7 (0.60") March 14 (0.64")

Number of Monitoring Nodes: One

Node Locations and Descriptions:

- Node 1 520 Campbell Blvd (30")

Summary Conclusion:

Based on the data presented in this report, specifically the flow depth measurements recorded (see graphs below):

- At no time the flow depth exceed the pipe diameter at any of the downstream monitoring points during the rain events monitored.
- At no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

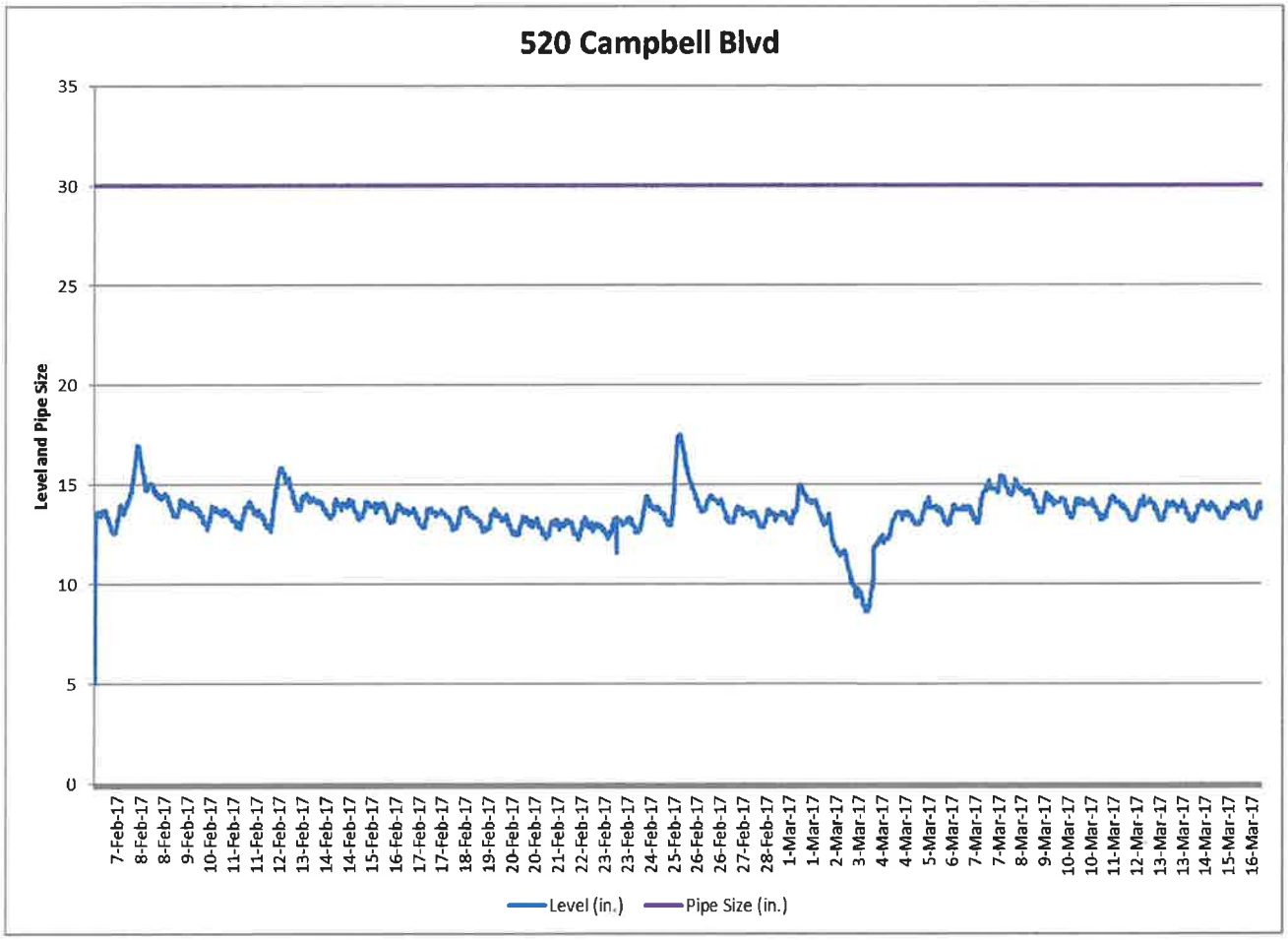
TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-687-1418
Fax: 716-655-3369

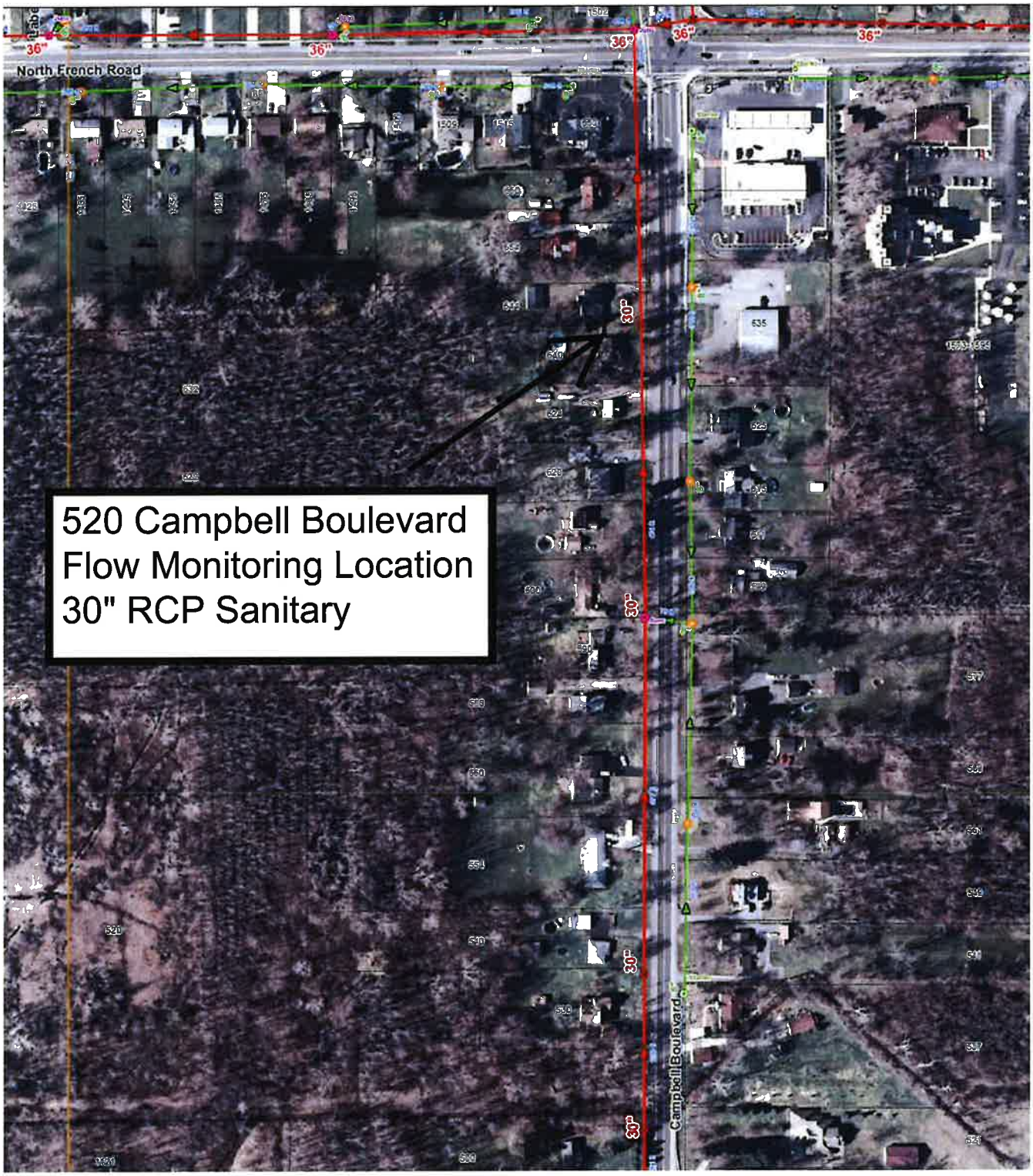
Depth of Flow Capacity Summary:

Depth of flow capacity is based on diameter of pipe. See graphs below.

- At no time during the monitoring period did the depth of flow exceed pipe diameter at Node 1



Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)



Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Project Name:	CIM002
Installation Date/Time:	2/6/17 2:25 PM
Crew Initials:	KK ES

Site Report

TECsmith Environmental

Site Name:	520 Cambell Blvd		Meter Type:	910		S/N:	JAN
Pipe Height:	30"	Pipe Width: 30"	Rim to Invert:	18' 7"	Sensor S/N:	TEC 50	I.P.:
Address:					M.E.I:		I.D.:
Location:	520 Cambell Blvd				System Type	Sanitary sewer	





Level(in):	Silt(in):	3"	Hydraulic conditions	Good	
Velocity(fps):	Sensor location		upstream		
Flow(mgd):	Pipe Condition:		good	Pipe type:	Concrete pipe





Additional information/Comments

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Date	NODE 1			Rain₂
	520 Campbell Blvd (30")			
	FLOW (GAL x 1000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	(inches)
02/06/17	259.734	1.452	13.706	0
02/07/17	850.030	1.966	16.987	0.58
02/08/17	1093.266	1.579	16.915	0.03
02/09/17	883.972	1.189	14.270	0
02/10/17	808.701	1.099	13.959	0.1
02/11/17	868.541	1.397	14.158	0
02/12/17	1103.868	1.519	15.843	0.49
02/13/17	922.729	1.292	14.592	0
02/14/17	790.949	1.557	14.296	0.01
02/15/17	728.390	1.162	14.180	0.07
02/16/17	206.873	1.661	14.014	0
02/17/17	0.000	0.000	13.795	0
02/18/17	0.543	0.052	13.837	0
02/19/17	0.000	0.000	13.758	0
02/20/17	4.176	0.401	13.420	0
02/21/17	0.000	0.000	13.251	0.08
02/22/17	0.000	0.000	13.363	0
02/23/17	367.608	1.183	13.352	0
02/24/17	847.120	1.272	14.389	0.25
02/25/17	1220.647	1.929	17.504	0.57
02/26/17	895.658	1.209	14.543	0
02/27/17	798.699	1.249	13.888	0
02/28/17	780.929	1.212	13.731	0
03/01/17	926.952	1.388	14.970	0.32
03/02/17	726.641	1.269	13.844	0
03/03/17	561.408	1.076	12.133	0
03/04/17	885.159	1.333	13.652	0.02
03/05/17	958.049	1.544	14.356	0
03/06/17	962.689	1.534	13.984	0
03/07/17	1087.078	1.421	15.440	0.6
03/08/17	1143.956	1.437	15.397	0
03/09/17	1105.607	1.450	14.592	0
03/10/17	1106.790	1.518	14.277	0.02
03/11/17	1119.847	1.537	14.415	0.07
03/12/17	900.630	2.181	14.374	0.04
03/13/17	746.621	1.322	14.178	0.1
03/14/17	656.258	1.052	14.131	0.64
03/15/17	332.524	1.170	14.152	0.27
03/16/17	80.287	0.730	14.070	0
---	---	---	---	4.26

Note: Rain data from: http://www.nws.noaa.gov/climate/index.php?wfo=buf

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

INSTALLATION SHEET

SITE DATA

SITE	520 Cambell Blvd	I.D.	1	JOB NO.	CIM002
METER MODEL	910	SERIAL NO	JAN	SENSOR SN.	TEC 50
DATE	02/06/17	TIME	2:35 PM	CREW	KK ES
RIM TO INVERT	18'7"	PIPE SIZE	30 In	LOCATION	Downstream

INITIAL READINGS

LEVEL	13.694	INCHES
FLOW	2.12	MGD
TOTAL	10	GAL x 1000
VEL	1.48	FPS
SIGNAL	12	%
BATTERY	6.0	VDC

ACTUAL MEASURMENTS

Level 1		Measured		Velocity	
Level 2		Measured		Measured	

WORK COMPLETED:			
INSTALL	☑	CHANGE BATTERIES	☐
DOWNLOAD	☐	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☑	CLEAN PROBE	☐
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☑
CHANGE DESICCANT	☐	SET TIME AND DATE	☑
		MANHOLE ENTERY	☑

NOTES:

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

DOWNLOAD SHEET

TECsmith Environmental

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	02/13/17	Time	2:09 PM	CREW	KK

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	14.265	INCHES	14.25	INCHES	14.192	INCHES
FLOW	1.38	MGD			1.11	MGD
TOTAL	6391	X1000			6394	GAL x 1000
VEL	0.87	FPS		FPS	0.74	FPS
SIGNAL	66	%			77	%
BATTERY	5.8	VDC			5.7	VDC

DATA DOWNLOAD

WORK COMPLETED:

INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☐
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

DOWNLOAD SHEET

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	02/23/17	Time	11:49 AM	CREW	KK

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	13.323	INCHES	13.25	INCHES	13.238	INCHES
FLOW	0	MGD			0.76	MGD
TOTAL	8521	X1000			8522	GAL x 1000
VEL	0.00	FPS		FPS	0.57	FPS
SIGNAL	0	%			83	%
BATTERY	5.7	VDC			5.8	VDC

DATA DOWNLOAD

WORK COMPLETED:

INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☑
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

DOWNLOAD SHEET

TECsmith Environmental

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	03/02/17	Time	11:49 AM	CREW	KK

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	12.101	INCHES	13.25	INCHES	12.105	INCHES
FLOW	0.8	MGD			0.76	MGD
TOTAL	14738	X1000			14738	GAL x 1000
VEL	0.64	FPS		FPS	0.61	FPS
SIGNAL	83	%			85	%
BATTERY	5.7	VDC			5.5	VDC

DATA DOWNLOAD

WORK COMPLETED:			
INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☑	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☐
REMOVE	☐	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

DOWNLOAD SHEET

SITE DATA

SITE	520 Campbell Blvd	ID	1	Job	CIM002
METER MODEL	910	SERIAL NO	JAN		
DATE	03/16/17	Time	11:48 AM	CREW	ES

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	13.677	INCHES		INCHES		INCHES
FLOW	0.83	MGD				MGD
TOTAL	26732	X1000				GAL x 1000
VEL	0.59	FPS		FPS		FPS
SIGNAL	40	%				%
BATTERY	4.6	VDC				VDC

DATA DOWNLOAD

WORK COMPLETED:			
INSTALL	☐	CHANGE BATTERIES	☐
DOWNLOAD	☑	MEMORY BATTERIES	☐
CHECK LEVEL\ LEVEL ADJUST	☐	TROUBLESHOOT	☐
CALIBRATE	☐	CLEAN PROBE	☐
REMOVE	☑	PURGE LINE	☐
REINSTALL	☐	TECSMITH BANDING	☐
CHANGE DESICCANT	☐	SET TIME AND DATE	☐
		MANHOLE ENTERY	☐

NOTES:

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

APPENDIX B

Stormwater Management

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

STORMWATER CALCULATIONS

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

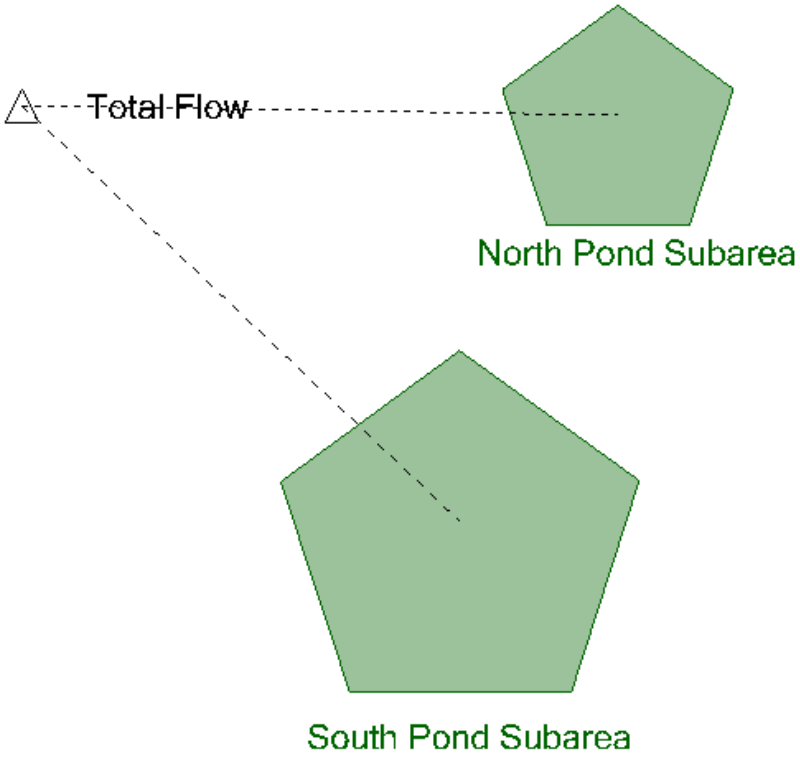
PRE-DEVELOPED CONDITIONS

Attachment: CP-2021-21_Application_040821_-_Site_Plan_(2021-21_Application_040821_-_Site_Plan_(2021-21_Application_040821_-_Site_Plan_(

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds



Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	Without WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30
North Pond Subarea	Without WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15
North Pond Subarea	Without WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64
North Pond Subarea	Without WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75
South Pond Subarea	Without WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	Without WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	Without WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	Without WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	Without WQ Ponds 1 Year 24 Hour	1	1.786	12.100	21.94
Total Flow	Without WQ Ponds 10 Year 24 Hour	10	3.959	12.100	48.65
Total Flow	Without WQ Ponds 25 Year 24 Hour	25	5.233	12.100	63.82
Total Flow	Without WQ Ponds 100 Year 24 Hour	100	7.836	12.100	94.04

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

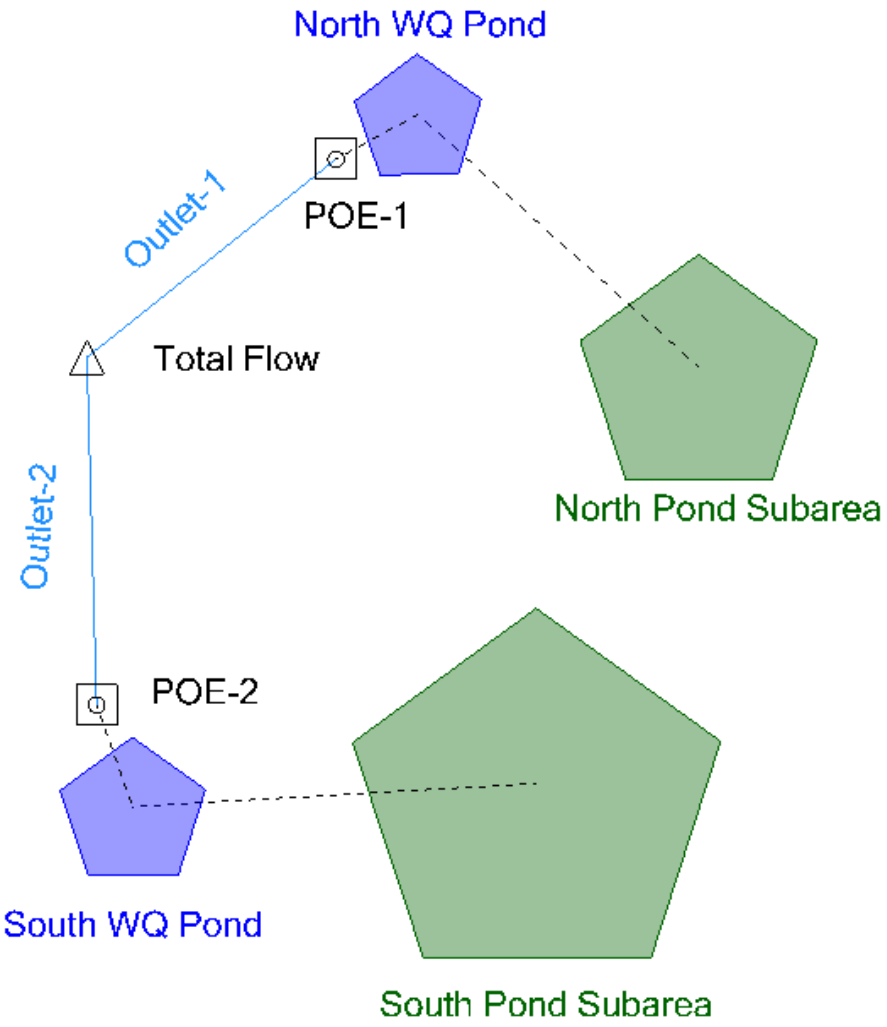
ORIGINAL DESIGN

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds



Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30
North Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15
North Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64
North Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75
South Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	With WQ Ponds 1 Year 24 Hour	1	0.999	14.650	1.10
Total Flow	With WQ Ponds 10 Year 24 Hour	10	2.739	12.500	11.08
Total Flow	With WQ Ponds 25 Year 24 Hour	25	3.833	12.400	18.27
Total Flow	With WQ Ponds 100 Year 24 Hour	100	6.323	12.450	31.37

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.324	14.000	0.39	571.52	2.111
North WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15	(N/A)	(N/A)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	0.702	14.000	0.79	572.22	2.502
North WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	0.926	13.350	1.39	572.57	2.713
North WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	1.572	12.600	4.79	573.08	3.026
South WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.675	15.450	0.71	571.90	2.516
South WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	2.037	12.500	10.35	572.74	3.060
South WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	2.907	12.400	17.40	573.17	3.358
South WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	4.750	12.400	26.88	574.08	4.036

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

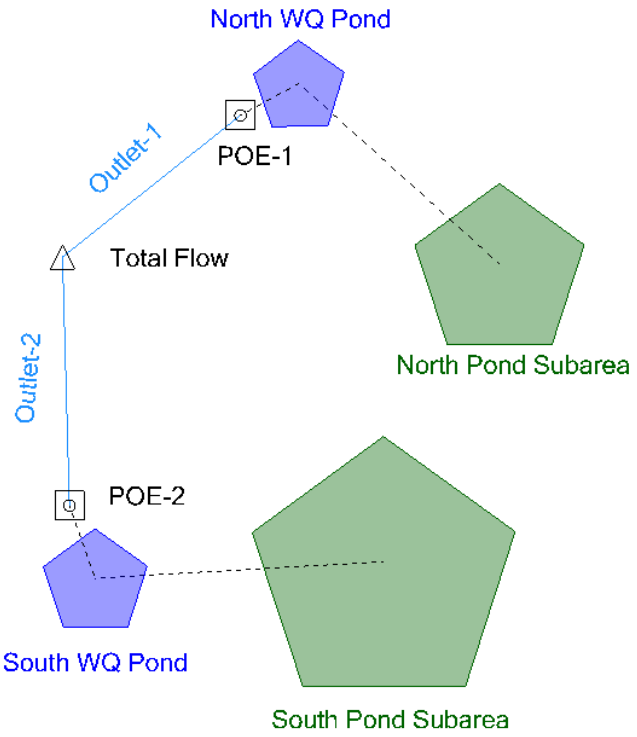
PROPOSED DESIGN

Attachment: SP 2021-24_A application 042122 (25402 : Sp 2020-10_A)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

I POST-DEVELOPED CONDITIONS

A. Watershed Model



Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

B. Establish Sub-Basin Runoff Parameters

1. *Subarea P-1 (Onsite)*

Area = 1.47 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A B C D
Impervious Area- Paved & Roof	0.42 acres
Open Space; Lawn- Good	1.05 acres

Time of Concentration:

Sheet Flow
Length, L = 100 ft Slope, s = 0.010 ft/ft
Ground Cover = Grass, Dense
Manning's "n" = 0.240
T_t = **0.38 hr**

Shallow Concentrated Flow
Length, L = 266 ft Slope, s = 0.002 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 0.65 ft/s
T_t = **0.11 hr**

Shallow Concentrated Flow
Length, L = 145 ft Slope, s = 0.002 ft/ft
Surface Type = Pipe Flow
Velocity, V = 3.00 ft/s
T_t = **0.01 hr**

Total Time of Concentration T_c = 0.38 hr. + 0.11 hr.+ 0.01 hr. = 0.50 hours

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

2. *Subarea P-2 (Onsite)*

Area = 0.28 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A	B	C	D
Impervious Area- Paved & Roof				0.06 acres
Open Space; Lawn- Good				0.22 acres

Time of Concentration:

Sheet Flow
Length, L = 10 ft Slope, s = 0.002 ft/ft
Ground Cover = Grass, Dense
Manning's "n" = 0.240
T_t = **0.11 hr**

Shallow Concentrated Flow
Length, L = 215 ft Slope, s = 0.005 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 1.06 ft/s
T_t = **0.06 hr**

Total Time of Concentration T_c = 0.11 hr.+ 0.06 hr. = 0.17 hours

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

3. *Subarea O-1 (Offsite)*

Area = 4.5 acres

Soil Type: Type "D" 100 %

Land Use: Hydrologic Soil Group
A B C D

Woods- Good 4.5 acres

Time of Concentration:

Sheet Flow
Length, L = 100 ft Slope, s = 0.008 ft/ft
Ground Cover = Woods, D. underbrush
Manning's "n" = 0.800
T_t = **1.11 hr**

Shallow Concentrated Flow
Length, L = 300 ft Slope, s = 0.007 ft/ft
Surface Type = Forest w/ Heavy Litter
Velocity, V = 0.20 ft/s
T_t = **0.41 hr**

Shallow Concentrated Flow
Length, L = 142 ft Slope, s = 0.002 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 0.67 ft/s
T_t = **0.06 hr**

Total Time of Concentration T_c = 1.11 hr. + 0.41 hr.+ 0.06 hr. = 1.58 hours

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

RUN HYDROLOGIC MODELS FOR DEVELOPED CONDITIONS

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds Updated 11/10/2021 - EJD

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

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Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	0.507	12.100	6.54
North Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	1.145	12.100	14.71
North Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	1.521	12.050	19.38
North Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	2.291	12.050	28.85
South Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	With WQ Ponds 1 Year 24 Hour	1	1.011	14.650	1.11
Total Flow	With WQ Ponds 10 Year 24 Hour	10	2.763	12.500	11.10
Total Flow	With WQ Ponds 25 Year 24 Hour	25	3.880	12.400	18.30
Total Flow	With WQ Ponds 100 Year 24 Hour	100	6.399	12.450	31.89

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	0.507	12.100	6.54	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.336	14.050	0.40	571.54	2.122
North WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	1.145	12.100	14.71	(N/A)	(N/A)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	0.726	14.000	0.81	572.27	2.529
North WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	1.521	12.050	19.38	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	0.973	13.150	1.61	572.61	2.734
North WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	2.291	12.050	28.85	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	1.649	12.600	5.27	573.13	3.061
South WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.675	15.450	0.71	571.90	2.516
South WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	2.037	12.500	10.35	572.74	3.060
South WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	2.907	12.400	17.40	573.17	3.358
South WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	4.750	12.400	26.88	574.08	4.036

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Subsection: Elevation-Area Volume Curve
Label: North WQ Pond
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
563.00	0.0	0.090	0.000	0.000	0.000
564.00	0.0	0.110	0.299	0.100	0.100
565.00	0.0	0.140	0.374	0.125	0.225
566.00	0.0	0.180	0.479	0.160	0.384
567.00	0.0	0.210	0.584	0.195	0.579
568.00	0.0	0.240	0.674	0.225	0.804
569.00	0.0	0.300	0.808	0.269	1.073
570.00	0.0	0.360	0.989	0.330	1.403
571.00	0.0	0.510	1.298	0.433	1.836
572.00	0.0	0.570	1.619	0.540	2.375
573.00	0.0	0.630	1.799	0.600	2.975
574.00	0.0	0.690	1.979	0.660	3.635

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Requested Pond Water Surface Elevations	
Minimum (Headwater)	563.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	574.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	571.00	574.00
Rectangular Weir	Weir - 1	Forward	Culvert - 1	572.50	574.00
Culvert-Circular	Culvert - 1	Forward	TW	571.00	574.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	18.0 in
Length	27.00 ft
Length (Computed Barrel)	27.00 ft
Slope (Computed)	0.007 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.500
Kb	0.018
Kr	0.500
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0078
M	2.0000
C	0.0379
Y	0.6900
T1 ratio (HW/D)	1.132
T2 ratio (HW/D)	1.293
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	572.70 ft	T1 Flow	7.58 ft³/s
T2 Elevation	572.94 ft	T2 Flow	8.66 ft³/s

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	571.00 ft
Orifice Diameter	6.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	572.50 ft
Weir Length	3.17 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

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Composite Outlet Structure - 1 (Outlet Input Data, 100 years (With WQ Ponds 100 Year 24 Hour))...5, 6, 7

M

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North WQ Pond (Elevation-Area Volume Curve, 100 years (With WQ Ponds 100 Year 24 Hour))...4

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

STORM SEWER COMPUTATIONS AND DRAINAGE AREA MAP

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

DRAINAGE COMPUTATIONS

SEWER LOCATION			TRIBUTARY AREA		RUNOFF COEFFICIENT			TIME OF CONCENTRATION			REQUIRED CAPACITY		DESIGN n = 0.012						PROFILE				EXISTING CAPACITY	
STREET	FROM	TO	A (ac)	ΣA (ac)	C	CA	ΣCA	IN CHANNEL (sec)	IN CHANNEL (min)	Tc (min)	i (in/hr)	q (cfs)	D (in)	V (fps)	Q_{full} (cfs)	LENGTH (ft)	s (%)		Rim	INV		Q (cfs)	% REQ'D
	Offsite	Swale	4.50	4.50	0.20	0.90	0.90			94.80	1.22	1.10											
	Western Swale	Daylight	0.84	0.84	0.40	0.34	0.34			30.00	2.45	0.82											
	Eastern Swale	Daylight	0.63	0.63	0.40	0.25	0.25			25.00	2.51	0.63											
	Daylight	Ex Culvert		5.97			1.49	55.20	0.92	99.60	1.18	1.76	12	2.63	1.81	145	0.22%		0.32				
	Ex Culvert	Ditch		5.97			1.49	11.00	0.18	100.52	1.18	1.75	12	7.46	7.06	82	3.35%		2.75				

COMPUTED BY: EJD DATE: 11/09/21

CHECKED BY: DATE:

LOCATION: Muir Woods Subdivision Ph 4

SHEET 1 OF 1

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Worksheet for Trapezoidal Channel - 1

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.002
Normal Depth	6.0
Left Side Slope	4.000
Right Side Slope	4.000
Bottom Width	1.00

Results	
Discharge	1.47
Flow Area	1.5
Wetted Perimeter	5.1
Hydraulic Radius	3.5
Top Width	5.00
Critical Depth	3.4
Critical Slope	0.024
Velocity	0.98
Velocity Head	0.01
Specific Energy	0.51
Froude Number	0.314
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Downstream Velocity	(N/A)
Upstream Velocity	(N/A)
Normal Depth	6.0
Critical Depth	3.4
Channel Slope	0.002
Critical Slope	0.024

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Worksheet for Trapezoidal Channel - 2

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

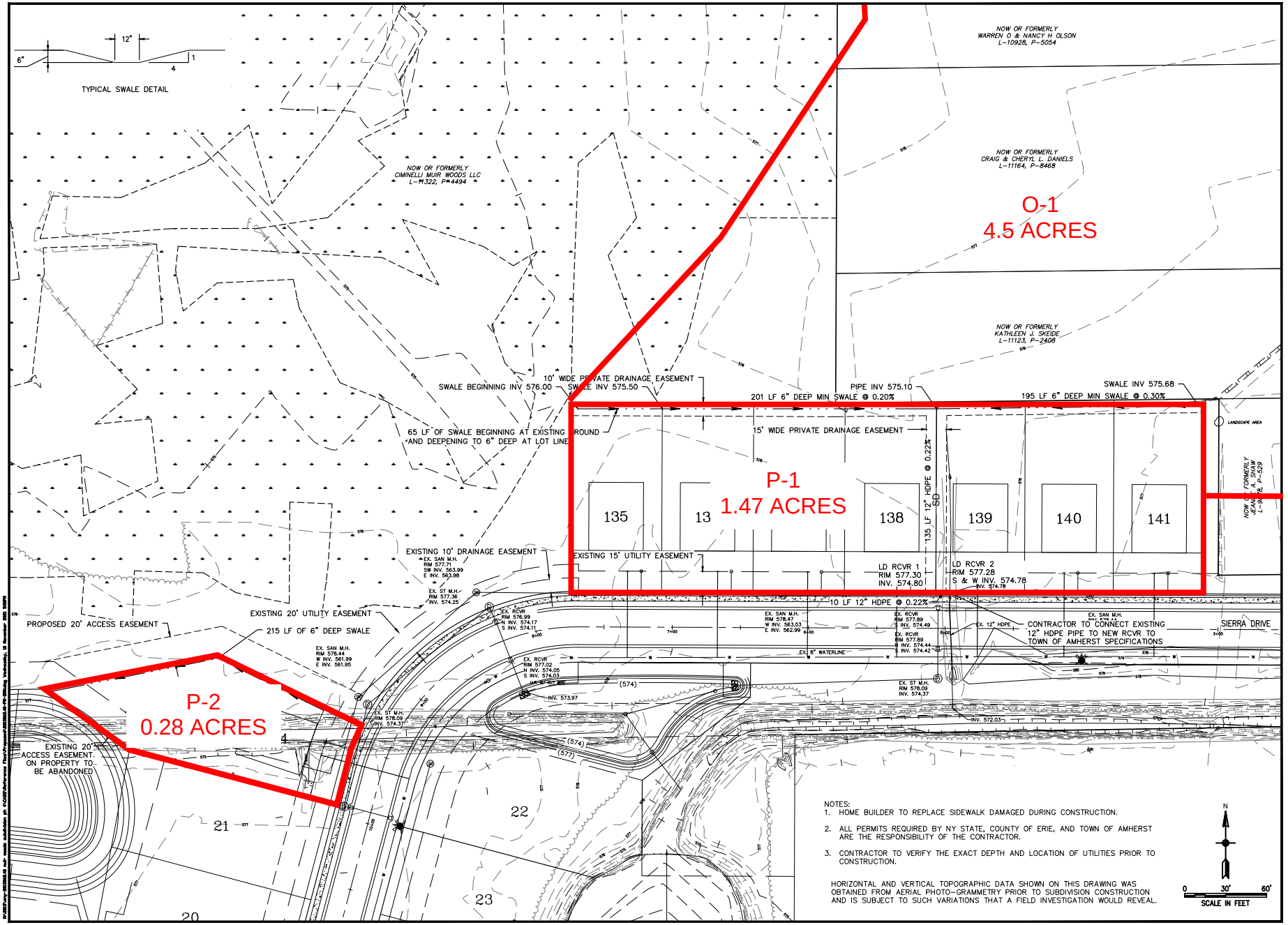
Input Data	
Roughness Coefficient	0.030
Channel Slope	0.003
Normal Depth	6.0
Left Side Slope	4.000
Right Side Slope	4.000
Bottom Width	1.00

Results	
Discharge	1.79
Flow Area	1.5
Wetted Perimeter	5.1
Hydraulic Radius	3.5
Top Width	5.00
Critical Depth	3.8
Critical Slope	0.023
Velocity	1.20
Velocity Head	0.02
Specific Energy	0.52
Froude Number	0.385
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Downstream Velocity	(N/A)
Upstream Velocity	(N/A)
Normal Depth	6.0
Critical Depth	3.8
Channel Slope	0.003
Critical Slope	0.023

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)



GPI Engineering Design Planning Construction
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 1
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Wood
50 Fountain Plaza, S
Buffalo, NY 142

Muir Woods Subdivision, Phase 4
520 Campbell Blvd

STATE OF NEW YORK GREENMAN PEDERSEN INC. LICENSED PROFESSIONAL ENGINEER No. 091

REVISIONS

NO.	REVISION

November 12, 20

DRAWN/DESIGN BY: THM | CHE

Drainage Pl

SCALE: 1" = 30'

WNY-2013062.4

03 OF 0

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

APPENDIX C

Original NOI and SPDES

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form bei coverage under this General Permit. Applica s of the permit and prepare a Stormwater Pol g this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

FOR REFERENCE ONLY- TO BE SUBMITTED VIA NYSDEC eNOI SYSTEM

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Ciminelli Muir Woods, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Packard

Owner/Operator Contact Person First Name
Brad

Owner/Operator Mailing Address
350 Essjay Road

City
Williamsville

State
NY

Zip
14221-____

Phone (Owner/Operator)
716-631-8000

Fax (Owner/Operator)
716-631-8034

Email (Owner/Operator)
bpackard@cimineli.com

FED TAX ID
82-1214709 (not required for individuals)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Project Site Information

Project/Site Name
Muir Woods Subdivision

Street Address (NOT P.O. BOX)
520 Campbell Blvd & 1121 N French Rd

Side of Street
○ North ● South ○ East ○ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Amherst

State NY | Zip 14228- | County Erie | DEC Region 9

Name of Nearest Cross Street
Lynette Ln

Distance to Nearest Cross Street (Feet)
0

Project In Relation to Cross Street
○ North ● South ○ East ○ West

Tax Map Numbers
Section-Block-Parcel
40.08-3-1.111

Tax Map Numbers
27.19-1-29

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting) 192411

Y Coordinates (Northing) 4770972

2. What is the nature of this construction project?

● **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
○ FOREST	○ SINGLE FAMILY HOME
● PASTURE/OPEN LAND	● SINGLE FAMILY SUBDIVISION — Number of Lots: 133
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
○ COMMERCIAL	○ RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
○ RECREATIONAL/SPORTS FIELD	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	○ PARKING LOT
○ LINEAR UTILITY	○ CLEARING/GRADING ONLY
○ PARKING LOT	○ DEMOLITION, NO REDEVELOPMENT
○ OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	○ OTHER

***Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
118.9	41.7	0.0	15.9

5. Do you plan to disturb more than 5 acres of soil at any one time? ● Yes ○ No

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	%	%	100 %

7. Is this a phased project? ● Yes ○ No

8. Enter the planned start and end dates of the disturbance activities.

Start Date	End Date
10/01/2017	10/01/2022

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Tributary To Ellicott Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ● Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ● Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002? ● **Yes** ○ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002? ○ **Yes** ● **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ● **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ● **No**
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ● **No**

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Town of Amherst

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ Yes ● No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ● Yes ○ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ● Yes ○ No

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Greenman-Pedersen, Inc.

Contact Name (Last, Space, First)
Boudreau, Jessica

Mailing Address
4950 Genesee Street, Suite 100

City
Buffalo

State NY Zip 14225-

Phone 716-633-4844

Fax 716-633-4940

Email
JBoudreaut@gpinet.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ● Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ● Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ● Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ● Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ● **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ● **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ● All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

1.69 **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)	
RR Techniques (Area Reduction)				
● Conservation of Natural Areas (RR-1)	33.30	and/or		
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or		
● Tree Planting/Tree Pit (RR-3)	2.07	and/or	0.69	
○ Disconnection of Rooftop Runoff (RR-4)		and/or		
RR Techniques (Volume Reduction)				
○ Vegetated Swale (RR-5)				
○ Rain Garden (RR-6)				
○ Stormwater Planter (RR-7)				
○ Rain Barrel/Cistern (RR-8)				
○ Porous Pavement (RR-9)				
○ Green Roof (RR-10)				
Standard SMPs with RRv Capacity				
○ Infiltration Trench (I-1)				
○ Infiltration Basin (I-2)				
○ Dry Well (I-3)				
○ Underground Infiltration System (I-4)				
● Bioretention (F-5)			1.85	
○ Dry Swale (O-1)				
Standard SMPs				
○ Micropool Extended Detention (P-1)				
● Wet Pond (P-2)			11.79	
○ Wet Extended Detention (P-3)				
○ Multiple Pond System (P-4)				
○ Pocket Pond (P-5)				
○ Surface Sand Filter (F-1)				
○ Underground Sand Filter (F-2)				
○ Perimeter Sand Filter (F-3)				
○ Organic Filter (F-4)				
○ Shallow Wetland (W-1)				
○ Extended Detention Wetland (W-2)				
○ Pond/Wetland System (W-3)				
○ Pocket Wetland (W-4)				
○ Wet Swale (O-2)				

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area (acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other [ ]	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.286 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ● **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

0.252 **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

● **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

3.665 **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). 3.951

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ● **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

1.152 **acre-feet**

CPv Provided

1.188 **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development . **CFS**

Post-development . **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development . **CFS**

Post-development . **CFS**

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ● Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Homeowner's Association

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

100% of the Water Quality Volume was not reduced for this site due to the poor infiltration qualities of the site soils (Type 'D') and the limiting head available.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ● Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP N Y R
- ○ Other
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ● **Yes** ○ **No**
If Yes, Indicate Size of Impact. 2.5

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. N Y R

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

Brad

MI

Print Last Name

Packard

Owner/Operator Signature

Date

/ /

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Ciminelli Muir Woods, LLC
2. Contact Person:	~~Brad Packard~~ Paul Ciminelli
3. Street Address:	350 Essjay Rd
4. City/State/Zip:	Williamsville, NY 14221
II. Project Site Information	
5. Project/Site Name:	Muir Woods Subdivision
6. Street Address:	520 Campbell Blvd & 1121 N. French Rd
7. City/State/Zip:	Amherst, NY 14228
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	Vaishali Reberholt P.E., CPESC
9. Title/Position:	Stormwater Management Officer
10. Date Final SWPPP Reviewed and Accepted:	06/27/2018
IV. Regulated MS4 Information	
11. Name of MS4:	Town of Amherst
12. MS4 SPDES Permit Identification Number: NYR20A	122
13. Contact Person:	Vaishali Reberholt P.E., CPESC
14. Street Address:	1100 N. Forest Rd
15. City/State/Zip:	Williamsville, NY 14221
16. Telephone Number:	716-631-7154

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:	Vaishali Reberholt, P.E., CPESC
Title/Position:	Stormwater Management Officer
Signature:	
Date:	06/27/18

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 | F: (518) 402-9029
www.dec.ny.gov

7/5/2018

Ciminelli Muir Woods, LLC
Paul Ciminelli
350 Essjay Road
Williamsville, NY 14221

Re ACKNOWLEDGMENT of NOTICE of INTENT for Coverage Under SPDES General Permit for Storm Water Discharges from CONSTRUCTION ACTIVITY General Permit No. GP-0-15-002

Dear Prospective Permittee:

This is to acknowledge that the New York State Department of Environmental Conservation (Department) has received a complete Notice of Intent (NOI) for coverage under General Permit No. GP-0-15-002 for the construction activities located at:

Muir Woods Subdivision
1121 North French Road & 520 Campbell Blvd
Amherst, NY 14228 County: **ERIE**

Pursuant to Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, ECL Article 70, discharges in accordance with GP-0-15-002 from the above construction site will be authorized **5** business days from **06/28/2018**, which is the date we received your final NOI, unless notified differently by the Department.

The permit identification number for this site is: **NYR11D909**. Be sure to include this permit identification number on any forms or correspondence you send us. When coverage under the permit is no longer needed, you must submit a Notice of Termination to the Department.

This authorization is conditioned upon the following:

1. The information submitted in the NOI received by the Department on **06/28/2018** is accurate and complete.

2. You have developed a Stormwater Pollution Prevention Plan (SWPPP) that complies with GP-0-15-002 which must be implemented as the first element of construction at the above-noted construction site.

3. Activities related to the above construction site comply with all other requirements of GP-0-15-002.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

4. Payment of the annual $110 regulatory fee, which is billed separately by the Department in the late fall. The regulatory fee covers a period of one calendar year. In addition, since September 1, 2004, construction stormwater permittees have been assessed an initial authorization fee which is now $110 per acre of land disturbed and $675 per acre of future impervious area. The initial authorization fee covers the duration of the authorized disturbance.

5. Your SWPPP has been reviewed by the regulated, traditional land use control MS4 where your project is located and has been determined to be in substantive conformance with the requirements in the SPDES General Permit for Stormwater Discharges from MS4s.

6. Before disturbing greater than 5 acres of soil at any one time, you have obtained written authorization from the regulated, traditional land use control MS4 that has jurisdiction over the project.

7. When applicable, project review pursuant to the State Environmental Quality Review Act (SEQRA) has been satisfied.

8. You have obtained all necessary Department permits subject to the Uniform Procedures Act (UPA). You should check with your Regional Permit Administrator for further information.

***Note: Construction activities cannot commence until project review pursuant to SEQRA has been satisfied, when SEQRA is applicable; and, where required, all necessary Department permits subject to the UPA have been obtained.**

Please be advised that the Department may request a copy of your SWPPP for review.

Should you have any questions regarding any aspect of the requirements specified in GP-0-15-002, please contact Dave Gasper at (518) 402-8114 or the undersigned at (518) 402-8109.

Sincerely,

Toni Cioffi

Toni Cioffi
Environmental Program Specialist 1

PLEASE NOTE: EPA HAS FINALIZED THE eREPORTING RULE; AND, IN THE NEAR FUTURE, ALL NOIs WILL HAVE TO BE SUBMITTED ELECTRONICALLY.
BY FILING AN NOI ELECTRONICALLY, A PROJECT CAN TYPICALLY GAIN COVERAGE IN 5 BUSINESS DAYS COMPARED TO 10 BUSINESS DAYS FOR THE PAPER NOI.
INFORMATION ON THE eNOI CAN BE FOUND ON OUR WEBSITE AT:
http://www.dec.ny.gov/chemical/43133.html UNDER "FORMS."

cc RWE - 9
SWPPP Preparer
Greenman-Pedersen, Inc.
Plotar, Thomas
4950 Genesee Street, Suite 100
Buffalo, NY 14225

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

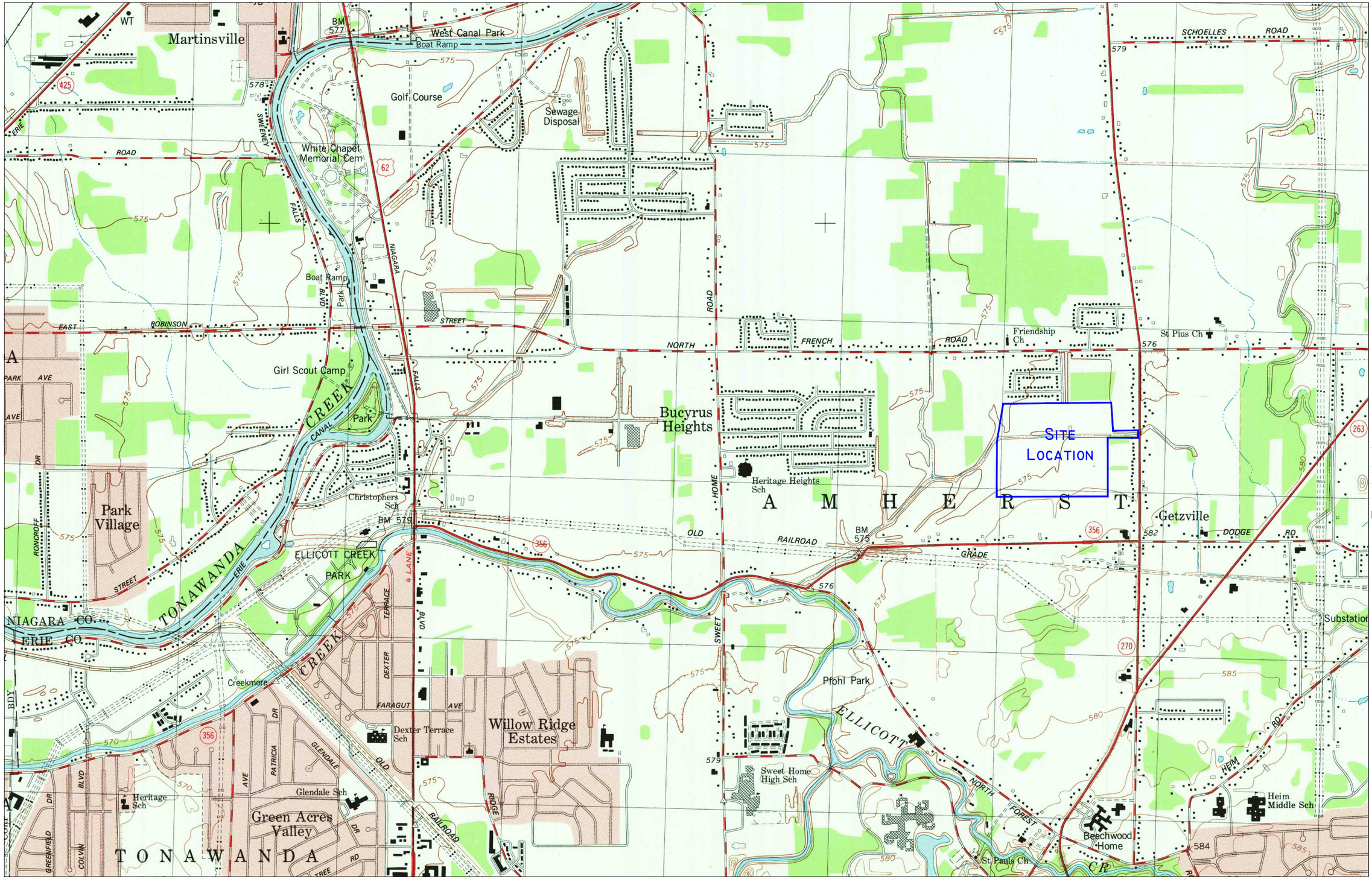
EXHIBITS

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

EXHIBIT 1

SITE LOCATION MAP

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)



GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
4950 GENESEE STREET, SUITE 165 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

GPI

JOB No.: BUF-2017014

DATE: MAY 201

Exhibit 1
Site Location Map
Muir Woods Subdivision
TOWN OF AMHERST, COUNTY OF ERIE, STATE OF NEW YORK

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

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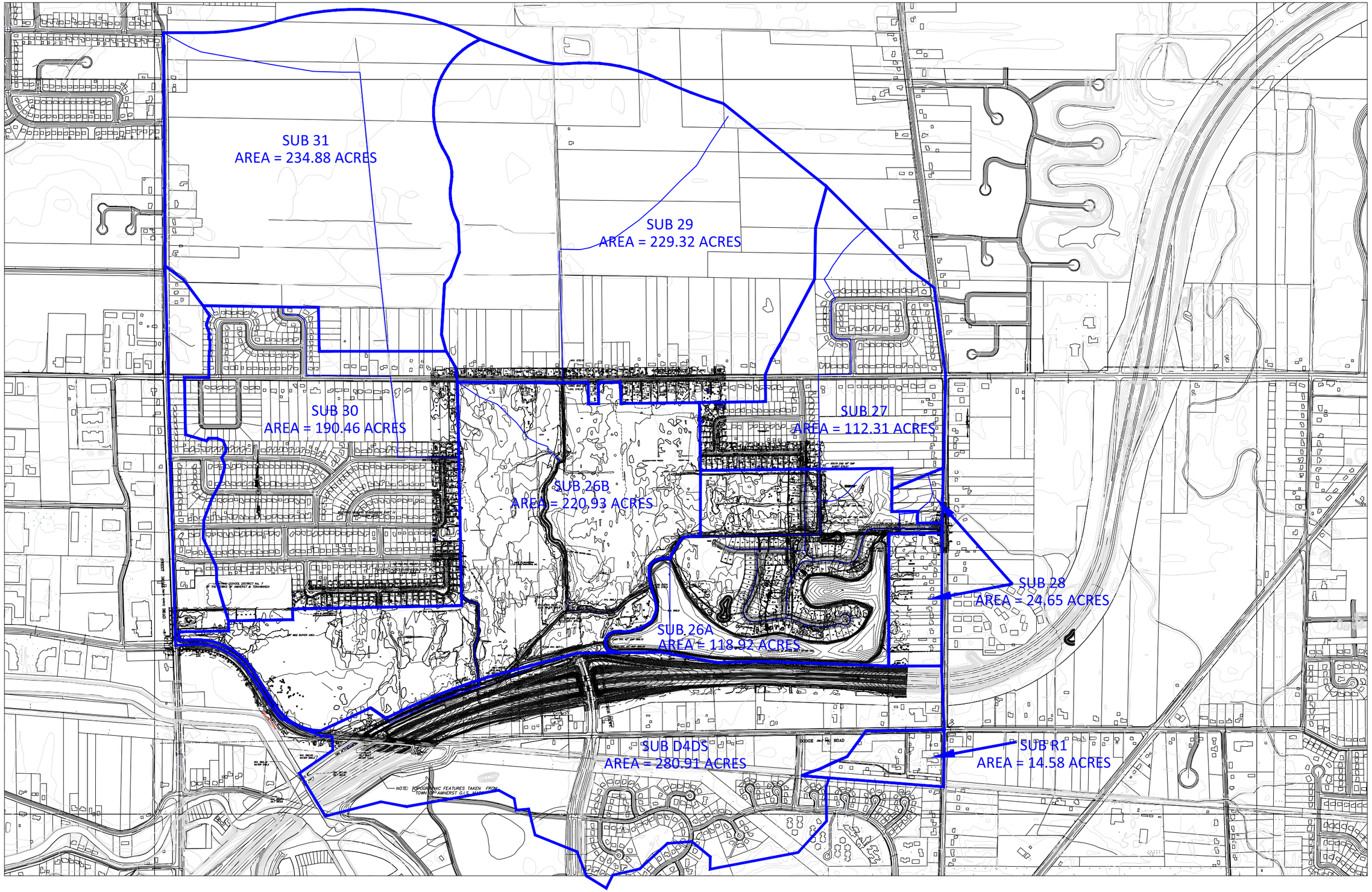
EXHIBIT 2

PRE-DEVELOPED WATERSHED DELINEATION MAP

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)



GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, NY 14226
PH (716) 633-4444 FAX (716) 633-4460

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 2

Existing Watershed Delineation Map

MUIR WOODS SUBDIVISION

TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

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EXHIBIT 3

POST DEVELOPED WATERSHED DELINEATION MAP

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

SUB 30
AREA = 425.34 ACRES

SUB 29
AREA = 229.32 ACRES

SUB 27
AREA = 112.31 ACRES

SUB 26B
AREA = 220.93 ACRES

SUB 28
AREA = 24.65 ACRES

SEE EXHIBIT 3A

SUB D4DS
AREA = 280.91 ACRES

SUB R1
AREA = 14.58 ACRES

NOTE: TOPOGRAPHIC FEATURES TAKEN FROM TOWN OF AMHERST G.I.S. MAP

Exhibit 3
Post Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY NEW YORK

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, NY 14225
PH (716) 633-4444 FAX (716) 633-4460

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

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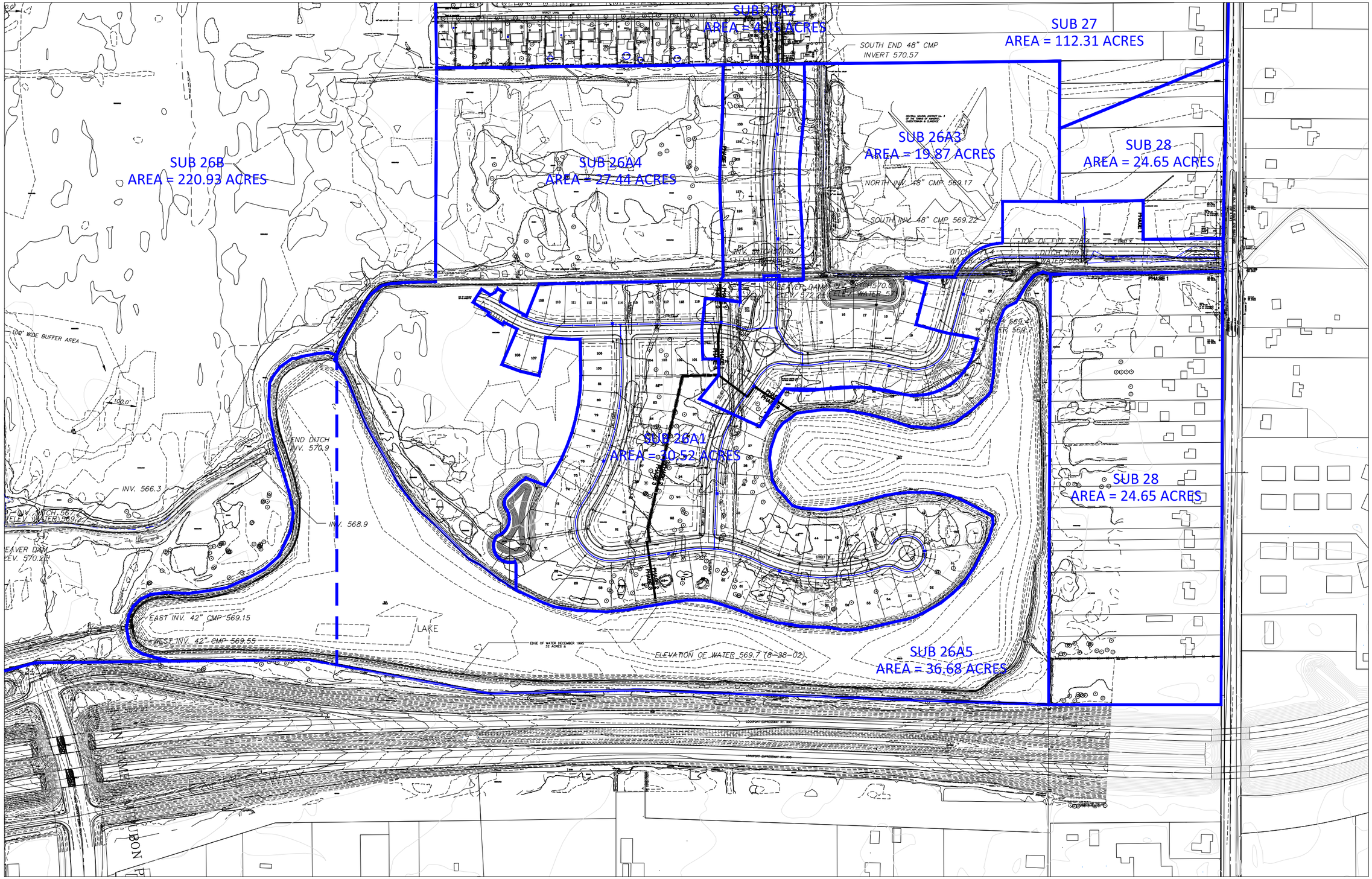

GREENMAN-PEDERSEN, INC.
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(716) 633-4844 FAX (716) 633-4940

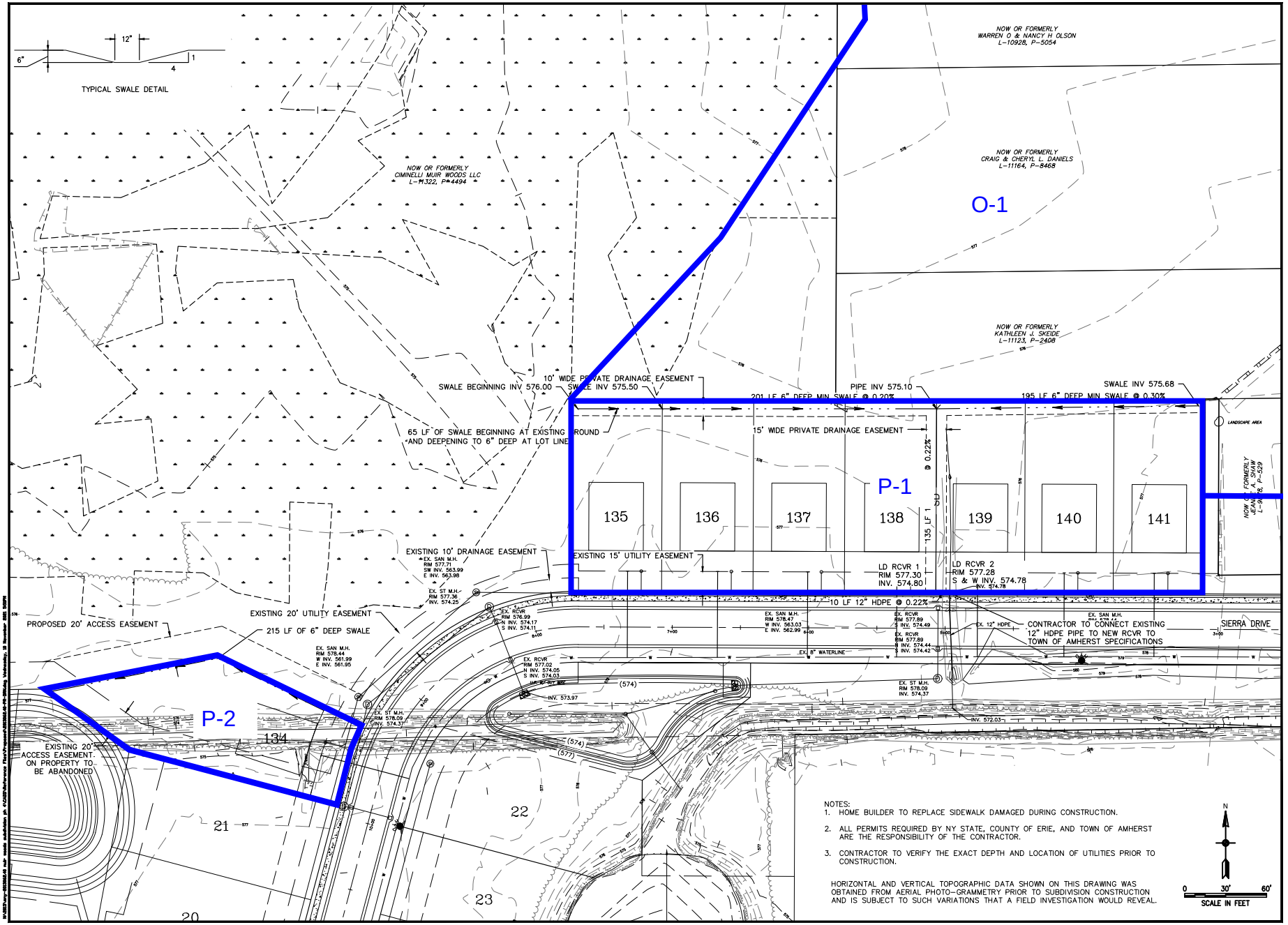
GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 3A
Post Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

N:\2013\2013062 – Muir Woods\ENG\MODELS\DRAINAGE\hydrology 2017.dwg, Model, 2017/05/11 03:46 pm



GPI Engineering Design Planning Construction
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 1
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Wood
50 Fountain Plaza, S
Buffalo, NY 142

Muir Woods Subdivision, Phase 4
520 Campbell Blvd

STATE OF NEW YORK GREENMAN PEDERSEN INC. LICENSED PROFESSIONAL ENGINEER No. 091
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REVISIONS

NO.	REVISION

November 12, 20

DRAWN/DESIGN BY THM | CHE

Drainage Pl

SCALE: 1" = 30'

WNY-2013062.4

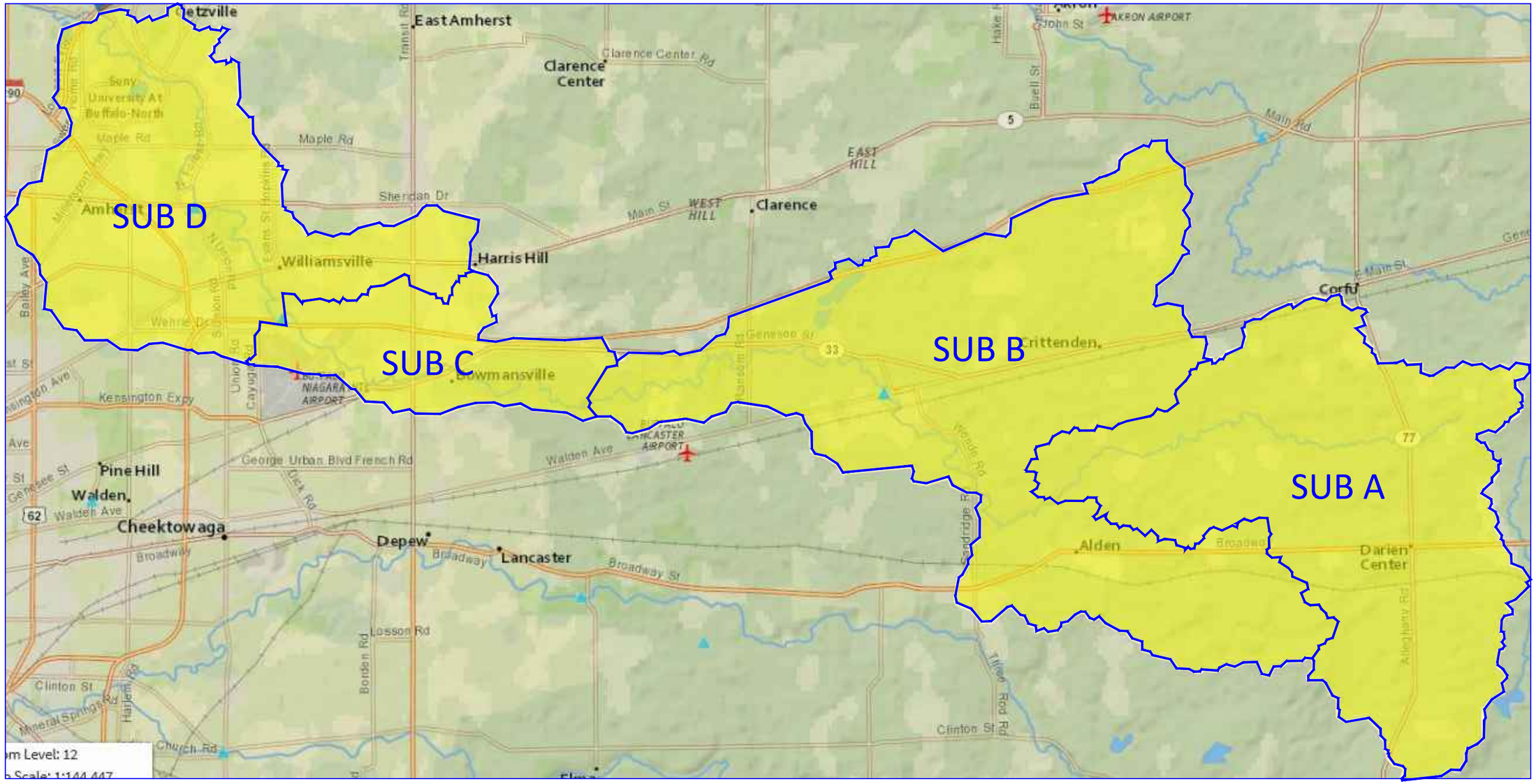
03 OF 0

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

EXHIBIT 4

ELLICOTT CREEK WATERSHED DELINEATION MAP

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)



GPI

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
4950 GENESEE STREET, SUITE 165 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 4
Ellicott Creek Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

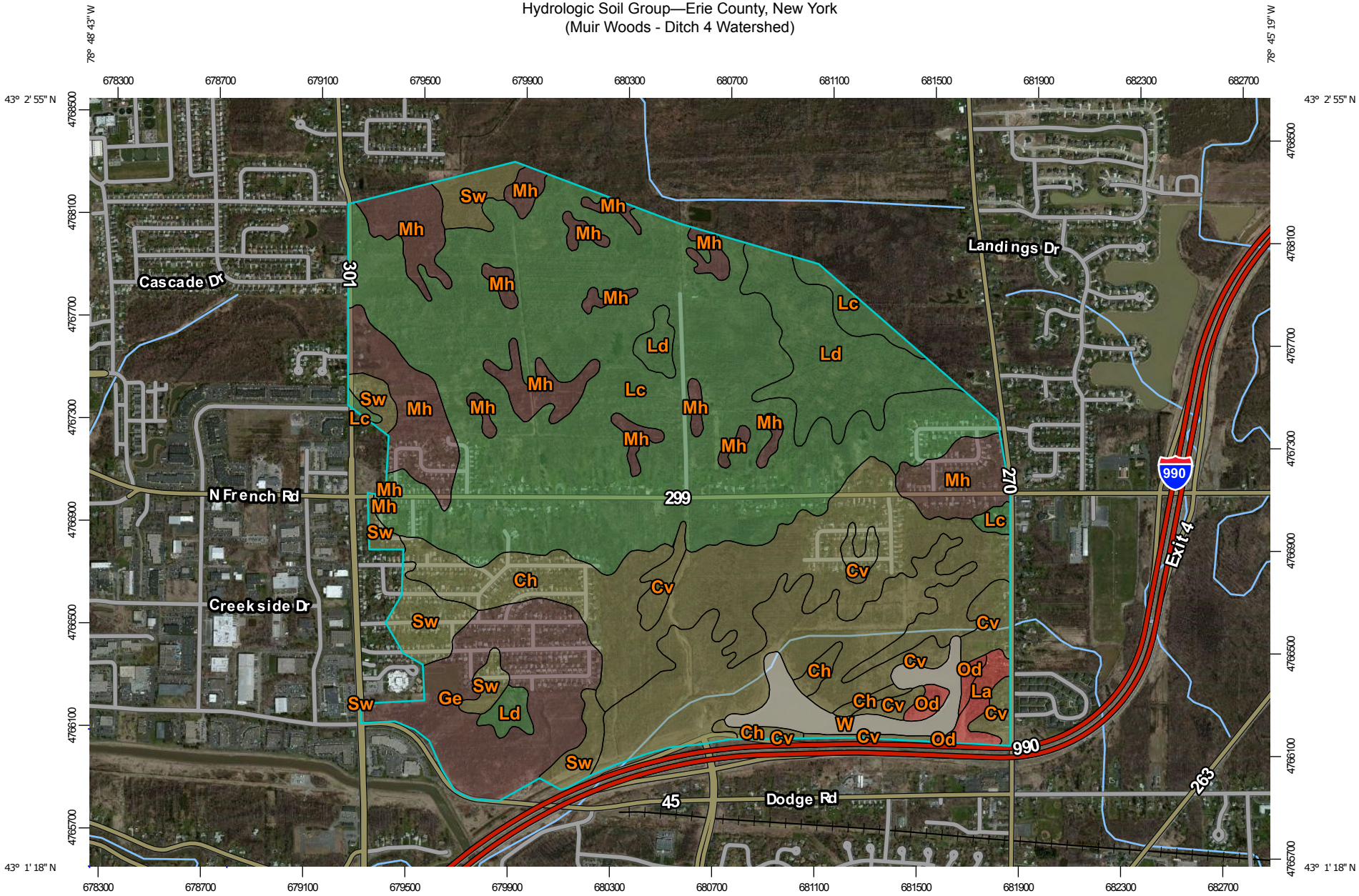
N:\2013\2013062 – Muir Woods\ENG\MODELS\DRAINAGE\hydrology 2017.dwg, Model, 2017/05/11 03:50 pm

EXHIBIT 5

SITE SOIL MAP

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Hydrologic Soil Group—Erie County, New York
(Muir Woods - Ditch 4 Watershed)



Map Scale: 1:21,100 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Hydrologic Soil Group—Erie County, New York
(Muir Woods - Ditch 4 Watershed)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 15, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Erie County, New York (NY029)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ch	Cheektowaga fine sandy loam	C/D	188.2	15.4%
Cv	Cosad loamy fine sand	C/D	143.5	11.8%
Ge	Getzville silt loam	B/D	93.0	7.6%
La	Lakemont silt loam, 0 to 3 percent slopes	D	8.9	0.7%
Lc	Lamson very fine sandy loam	A/D	484.8	39.8%
Ld	Lamson mucky very fine sandy loam	A/D	77.0	6.3%
Mh	Minoa very fine sandy loam	B/D	129.7	10.6%
Od	Odessa silt loam, 0 to 3 percent slopes	D	6.5	0.5%
Sw	Swormville clay loam	C/D	56.6	4.6%
W	Water		30.9	2.5%
Totals for Area of Interest			**1,219.0**	**100.0%**

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

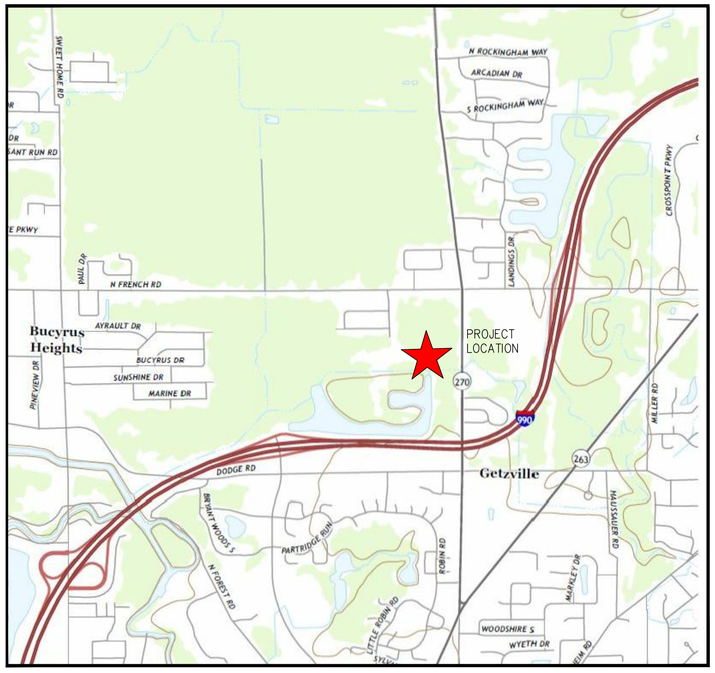
Tie-break Rule: Higher

Attachment: SP-2021-24_A application 042122 (25492 : Sp-2019-19_A)

Muir Woods Subdivision, Phase 4

Ciminelli Muir Woods LLC

520 Campbell Blvd
Town of Amherst, NY 14068



PROJECT LOCATION MAP
N.T.S.

Sheet List Table	
Sheet Number	Sheet Title
00	Cover Sheet
--	Subdivision Map
01	Existing Conditions
02	Utility Plan
03	Drainage Plan
04	Site Details
05	Grading Plan
06	Erosion and Sediment Control Plan
07	Erosion and Sediment Control Details
08	Erosion and Sediment Control Notes
L-1	Landscape Plan
RT-1	Recreational Trail Paving Plan
RT-2	Recreational Trail Erosion and Sediment Control Plan

THOMAS WOLANSKI, P.E. DATE: January 26, 2022

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
No. 151
LICENSED PROFESSIONAL ENGINEER

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Engineering
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Planning
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(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
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Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

WNY-2013062.40	November 12, 2021

SHEET NO.
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Attachment: SP-2021-24_A drawings 042122 (25492 : Sp-2019-19_A)

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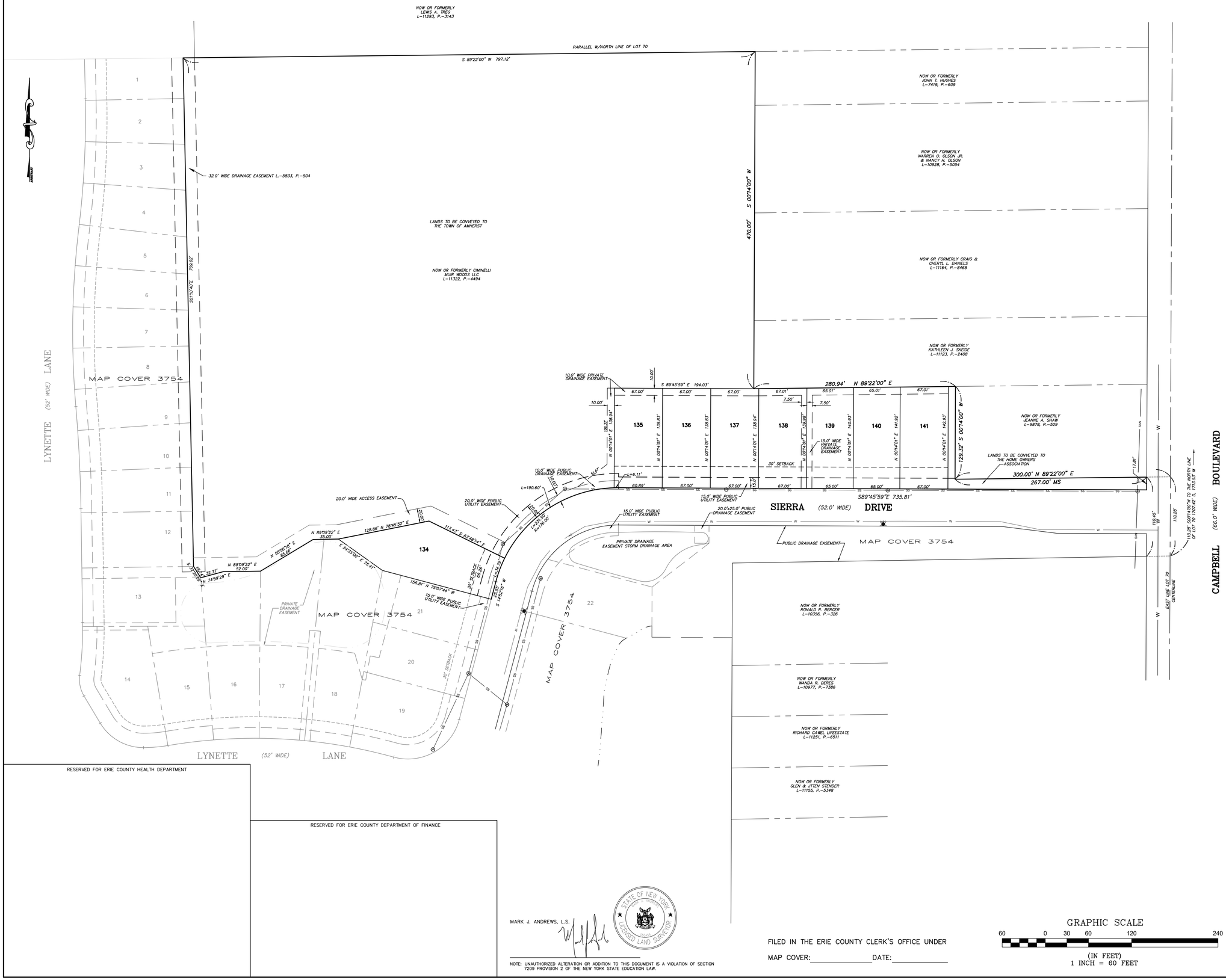
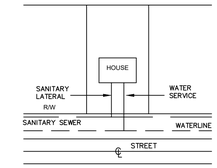


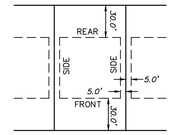
SANITARY SEWER FACILITIES, EXISTING AND PROPOSED, AND WATER SUPPLY FACILITIES, EXISTING AND PROPOSED, SHOWN ON THIS SUBDIVISION MAP ARE FOR THE PURPOSE OF COMPLIANCE WITH NEW YORK STATE REALTY SUBDIVISION LAW. GPI ENGINEERING, LANDSCAPE ARCHITECTURE AND SURVEYING, LLP ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF SANITARY SEWER AND WATER FACILITIES SHOWN ON THIS MAP OR FOR THE APPROVAL, CONSTRUCTION OR ACCEPTANCE BY APPROPRIATE GOVERNMENT AGENCIES OF SAID FACILITIES.



LOT AREAS

LOT 134	13,491 ± Sq. Ft.
LOT 135	9,302 ± Sq. Ft.
LOT 136	9,302 ± Sq. Ft.
LOT 137	9,305 ± Sq. Ft.
LOT 138	9,344 ± Sq. Ft.
LOT 139	9,130 ± Sq. Ft.
LOT 140	9,193 ± Sq. Ft.
LOT 141	9,542 ± Sq. Ft.

TYPICAL LOT SETBACK DEPICTION



NOTES:

ALL IMPROVEMENTS WILL BE INSTALLED UNDER TOWN PERMITS WITH ALL PLANS CONSISTENT WITH PRELIMINARY PLAT.

PUBLIC DRAINAGE EASEMENTS SHALL BE GRANTED TO THE TOWN OF AMHERST TO PROVIDE ACCESS TO STORM WATER FACILITIES. THESE EASEMENTS SHALL REMAIN FREE OF OBSTRUCTIONS.

PRIVATE DRAINAGE EASEMENTS SET FORTH ON THE SUBDIVISION MAP ARE FOR THE BENEFIT OF THE OWNERS OF PROPERTY WITHIN THE SUBDIVISION AND THE BENEFIT DERIVED FROM THESE EASEMENTS IS FOR THE PROPERTY ONLY AND THE TOWN OF AMHERST ASSUMES NO RESPONSIBILITY FOR THE MAINTENANCE THEREOF.

SEE SURVEY PREPARED BY GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP JOB NO. 2013062 DATED: DECEMBER 17, 2017

SUBDIVISION AREA: 13.18± Acres

OWNERS CONSENT FOR FILING :

_____ _____

OWNER DATE

APPROVED BY THE TOWN OF AMHERST PLANNING BOARD, ERIE COUNTY, NEW YORK :

_____ _____

CHAIRMAN DATE

RESERVED FOR ERIE COUNTY HEALTH DEPARTMENT

RESERVED FOR ERIE COUNTY DEPARTMENT OF FINANCE

MARK J. ANDREWS, L.S.

STATE OF NEW YORK LICENSED LAND SURVEYOR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

FILED IN THE ERIE COUNTY CLERK'S OFFICE UNDER

MAP COVER: _____ DATE: _____

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 INCH = 60 FEET

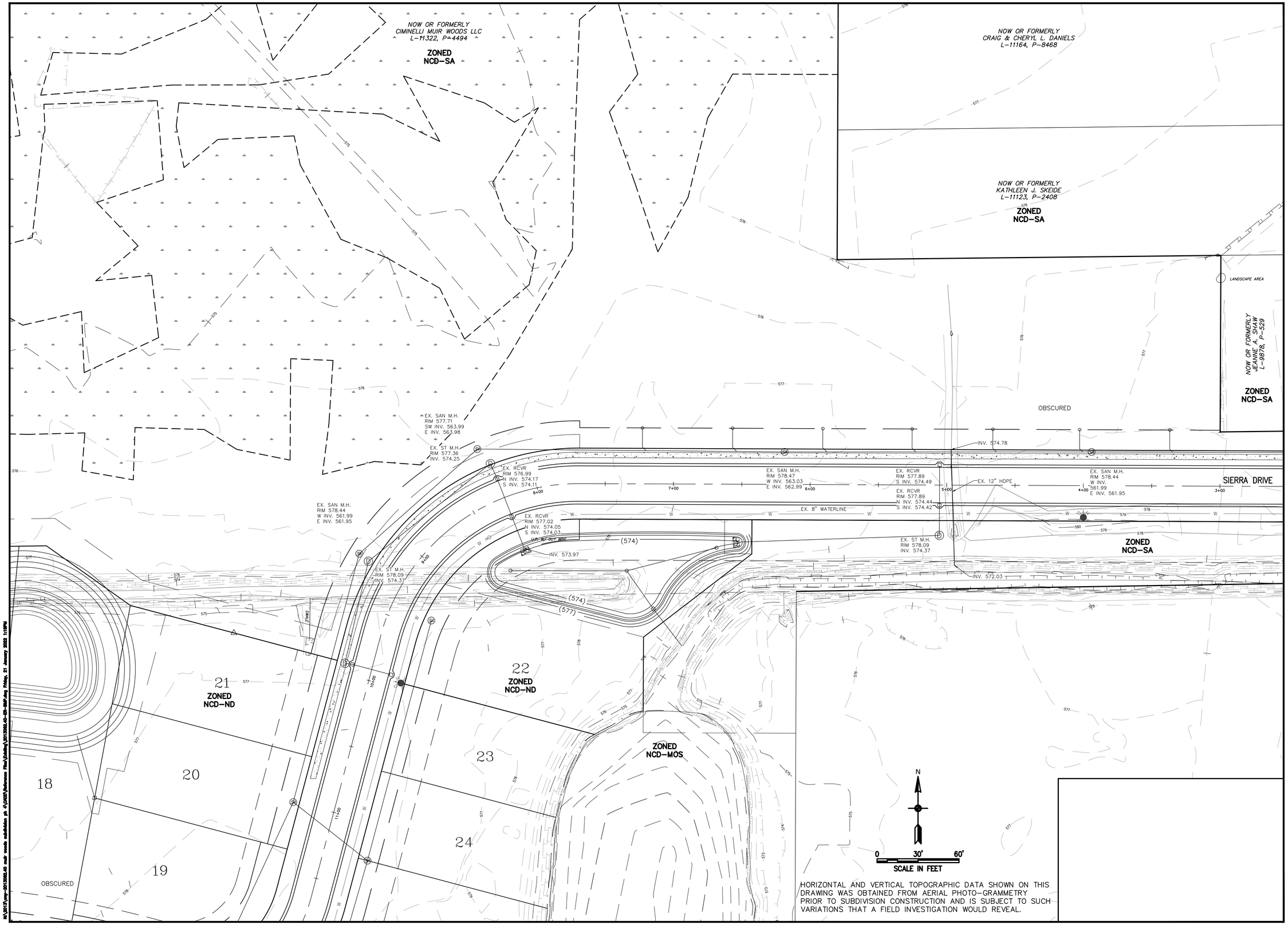
The Preserve at Muir Woods Phase 4

PART OF LOT 70, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062 Date: JANUARY 27, 2022

Attachment: SP-2021-24_A drawings 042122 (25492 : Sp-2019-19_A)



HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. 101
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REVISIONS

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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

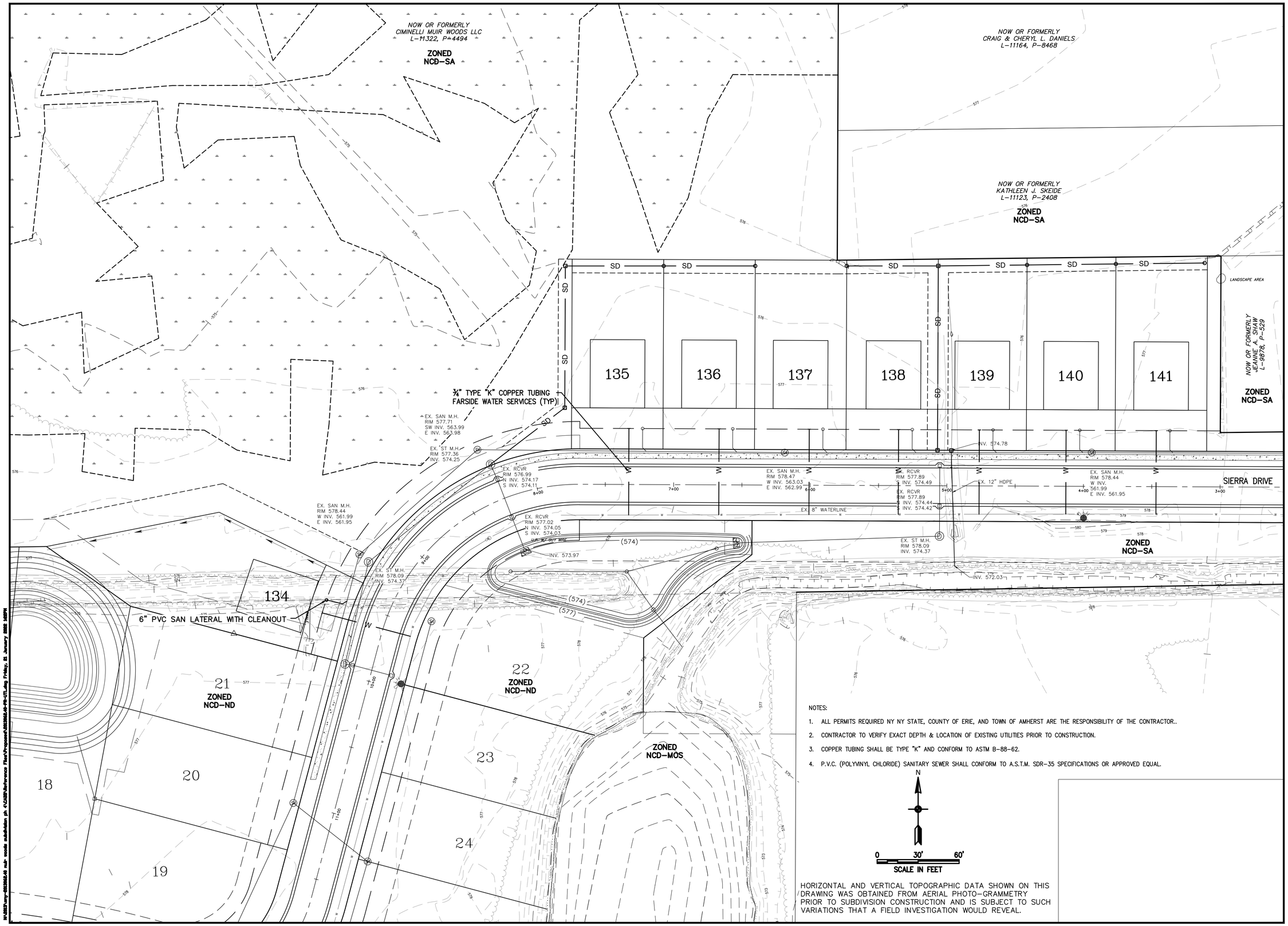
Existing Conditions

SCALE: 1" = 30'

WNY-2013062.40

01 OF 08

Attachment: SP-2021-24_A drawings 042122 (25492 : Sp-2019-19_A)



NOTES:

1. ALL PERMITS REQUIRED NY NY STATE, COUNTY OF ERIE, AND TOWN OF AMHERST ARE THE RESPONSIBILITY OF THE CONTRACTOR..
2. CONTRACTOR TO VERIFY EXACT DEPTH & LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. COPPER TUBING SHALL BE TYPE "K" AND CONFORM TO ASTM B-88-62.
4. P.V.C. (POLYVINYL CHLORIDE) SANITARY SEWER SHALL CONFORM TO A.S.T.M. SDR-35 SPECIFICATIONS OR APPROVED EQUAL.

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

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Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. [illegible]

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November 12, 2021

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THM	TW

Utility Plan

SCALE: 1" = 30'

WNY-2013062.40

02 OF 08

Attachment: SP-2021-24_A drawings 042122 (25492 : Sp-2019-19_A)

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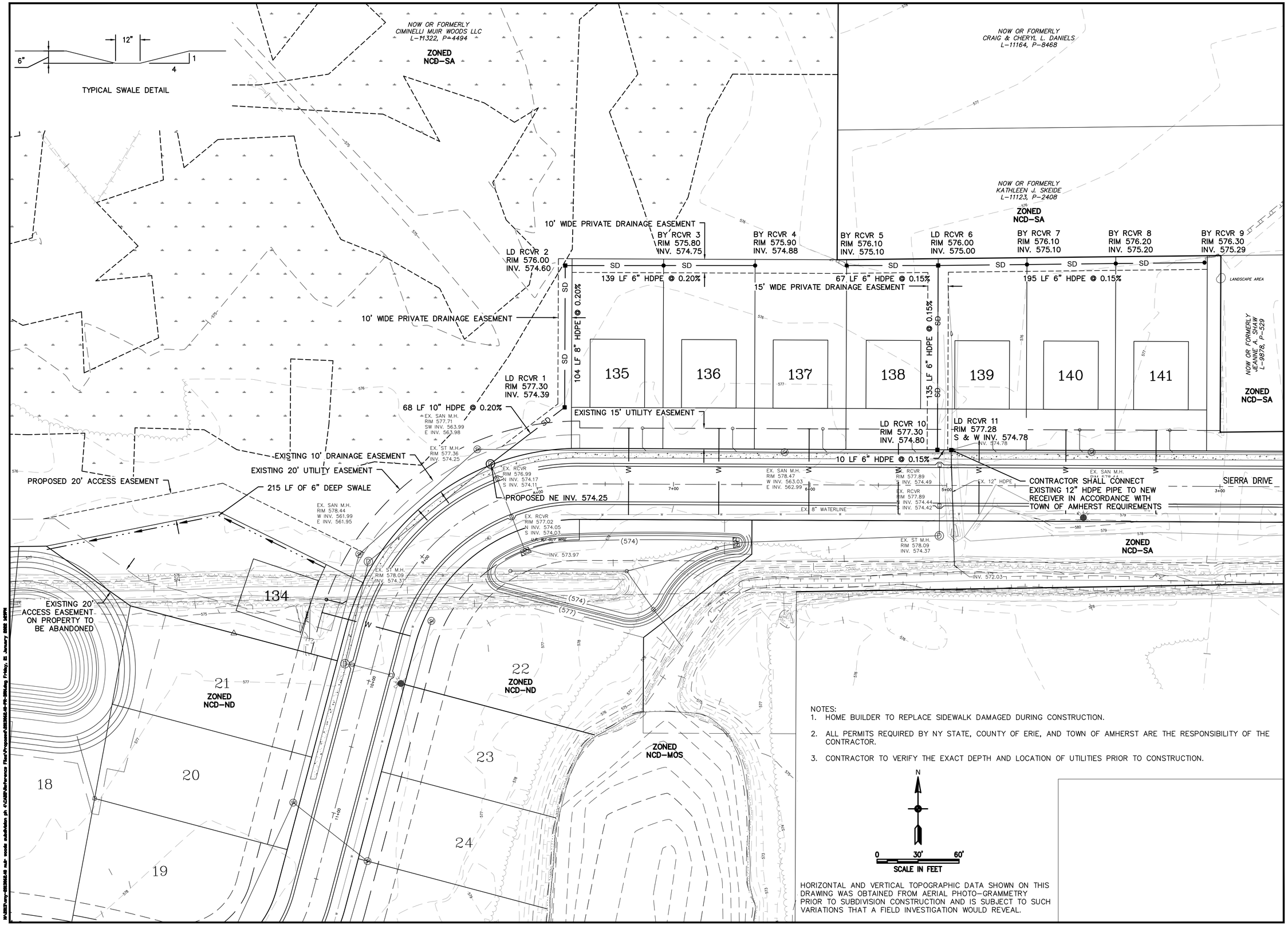

NOTES:
1. HOME BUILDER TO REPLACE SIDEWALK DAMAGED DURING CONSTRUCTION.
2. ALL PERMITS REQUIRED BY NY STATE, COUNTY OF ERIE, AND TOWN OF AMHERST ARE THE RESPONSIBILITY OF THE CONTRACTOR.
3. CONTRACTOR TO VERIFY THE EXACT DEPTH AND LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

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Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

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GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. 081

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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Drainage Plan

SCALE: 1" = 30'

WNY-2013062.40

03 OF 08

Attachment: SP-2021-24 A drawings 042122 (25492 : Sp-2019-19, A)

M:\MUP\wny-2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062.40-PLAN-Drainage Friday, 21 January 2022 8:57PM

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority only shall operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

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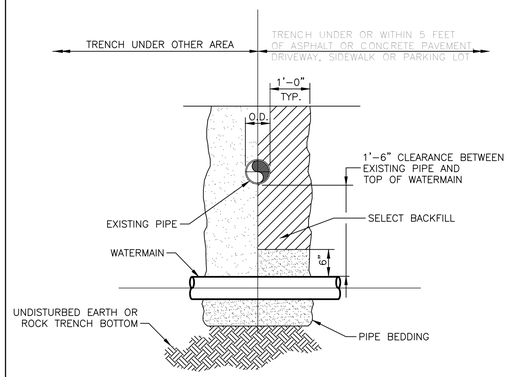
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	SD29 DATE 3/05	REVISED 8/16

11. **All watermain piping shall be installed with a minimum of 5'-0" of cover.**
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of the 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict school bus access.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for approval.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30 DATE 3/05	REVISED 8/16



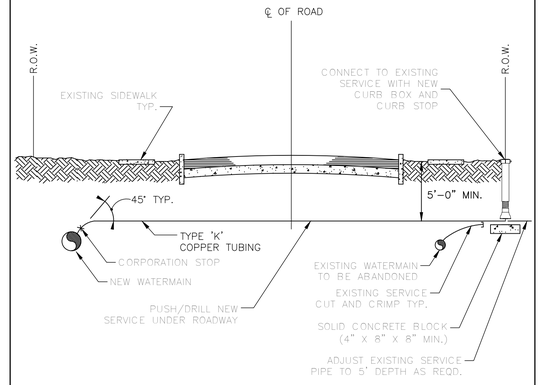
NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18. FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD2_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2 DATE 4/28/92	REVISED 7/16



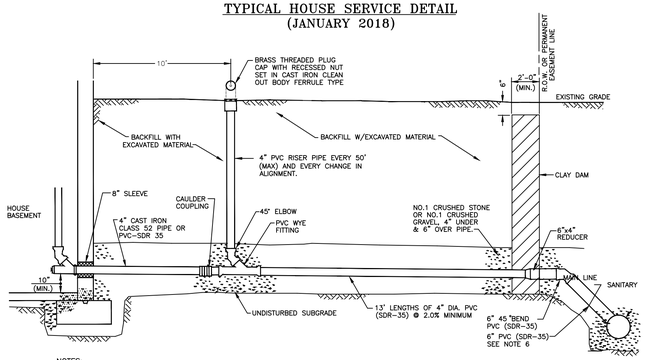
NOTES:

1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES AND PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD16_SERVICE_REPLACE SMO

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD16 DATE 4/92	REVISED 10/20

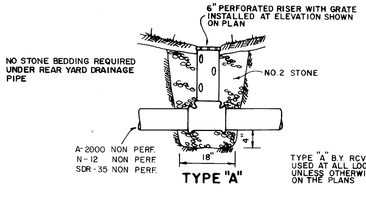
TYPICAL HOUSE SERVICE DETAIL
(JANUARY 2018)



NOTES:

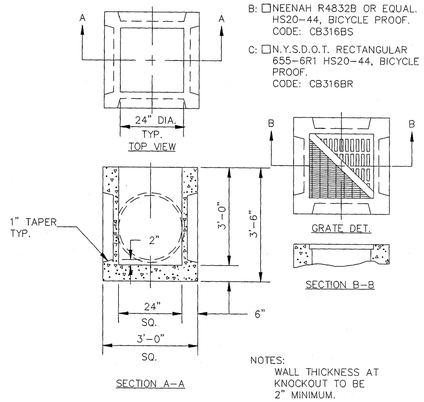
1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST ASTM SPECIFICATION D-3033/D-3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74-42.
4. A MANUAL VALVE SHALL BE INSTALLED ON BASEMENT LAUNDRY DRAIN LINE.
5. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALKS OR DRIVEWAY AREAS, PREFERABLY AT THE BACK OF THE SIDEWALK OR PAVEMENT, AND THE SIDEWALK.
6. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
7. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'-0" UNDER PAVED AREAS
8. FOR NEW CONSTRUCTION, AN 8x6 WYE WITH 6" PVC TO 6" 45° BEND, THEN 6" x 4" REDUCER IS USED.
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF PAVEMENT.
10. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
11. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE HOUSE LATERAL.
12. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

BACK YARD RECEIVER (B.Y. RCVR.) DETAIL



SPECIFICATIONS:
CONCRETE: 4,000 P.S.I. @ 28 DAYS.
ENTRAINED AIR: 5% - 9%
STEEL: A.S.T.M. A496-A615 GRADE 60-60 KSI.
DESIGN LOADING: A.A.S.H.T.O. HS-20-44 WITH 30% IMPACT AND EQUIVALENT SOIL PRESSURE OF 130 (PSF). FLOATATION FORCES NOT ACCOUNTED FOR.
WEIGHT 2,268 LBS.

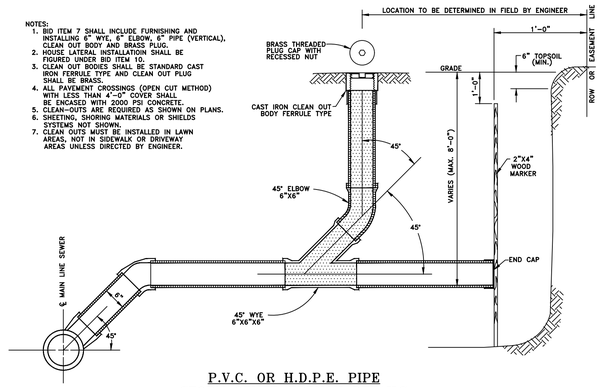
FRAME & GRATE:
A: ☐BY G.C.. CODE: CB315BS
B: ☐NEENAH R4832B OR EQUAL. HS20-44, BICYCLE PROOF. CODE: CB316BS
C: ☐N.Y.S.D.O.T. RECTANGULAR 655-6R1 HS20-44, BICYCLE PROOF. CODE: CB316BR



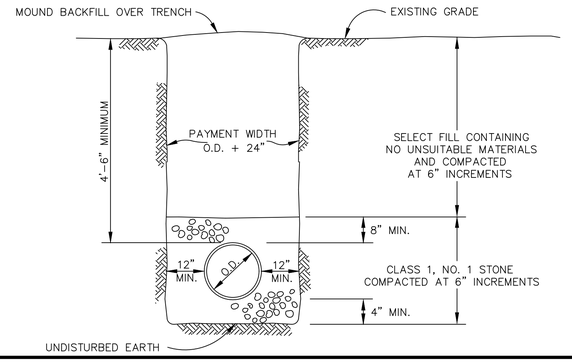
NOTES:
WALL THICKNESS AT KNOCKOUT TO BE 2" MINIMUM.

LIGHT DUTY RECEIVER (LD RCVR)

CLEAN-OUT DETAIL FOR SERVICE CONNECTION
(JANUARY 2012)



P.V.C. OR H.D.P.E. PIPE STORM SEWER TRENCH DETAILS



GPI Engineering Design Planning Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4
520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK GREENMAN PEDERSEN, INC. LICENSED PROFESSIONAL ENGINEER No. 101
ADDITIONS OR ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Site Details

SCALE: NONE

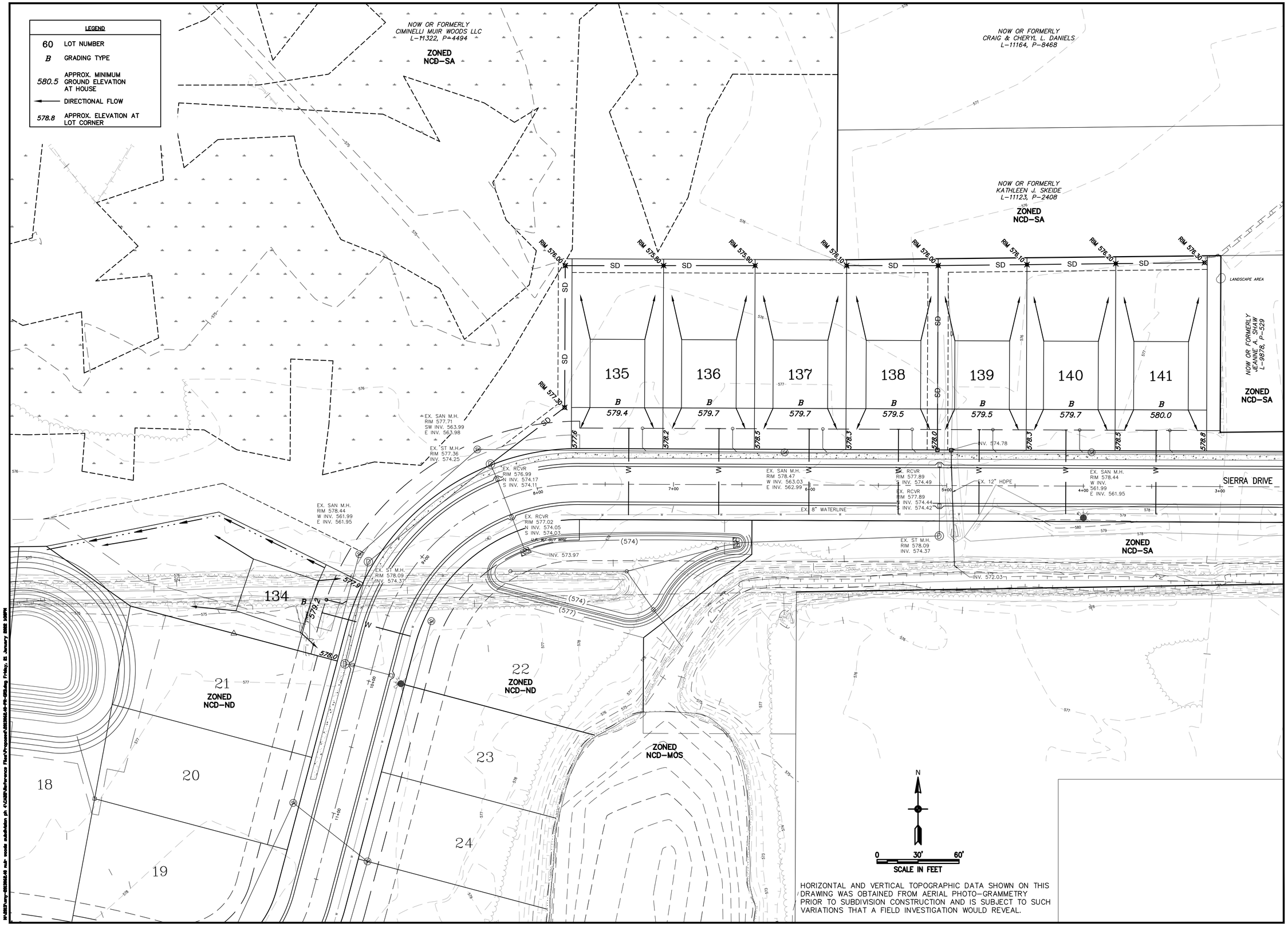
WNY-2013062.40

04 OF 08

Attachment: SP-2021-24 A drawings 042122 (2549 : Sp-2019-19. A)

Packet Pg. 2190

N:\2013\WNY-2013062.40 Muir Woods Subdivision Ph 4\CADD\Design Plans\04 Site Details.dwg Friday, 21 January 2022 1:30PM



HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

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Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. 181
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REVISIONS

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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21

November 12, 2021

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THM	TW

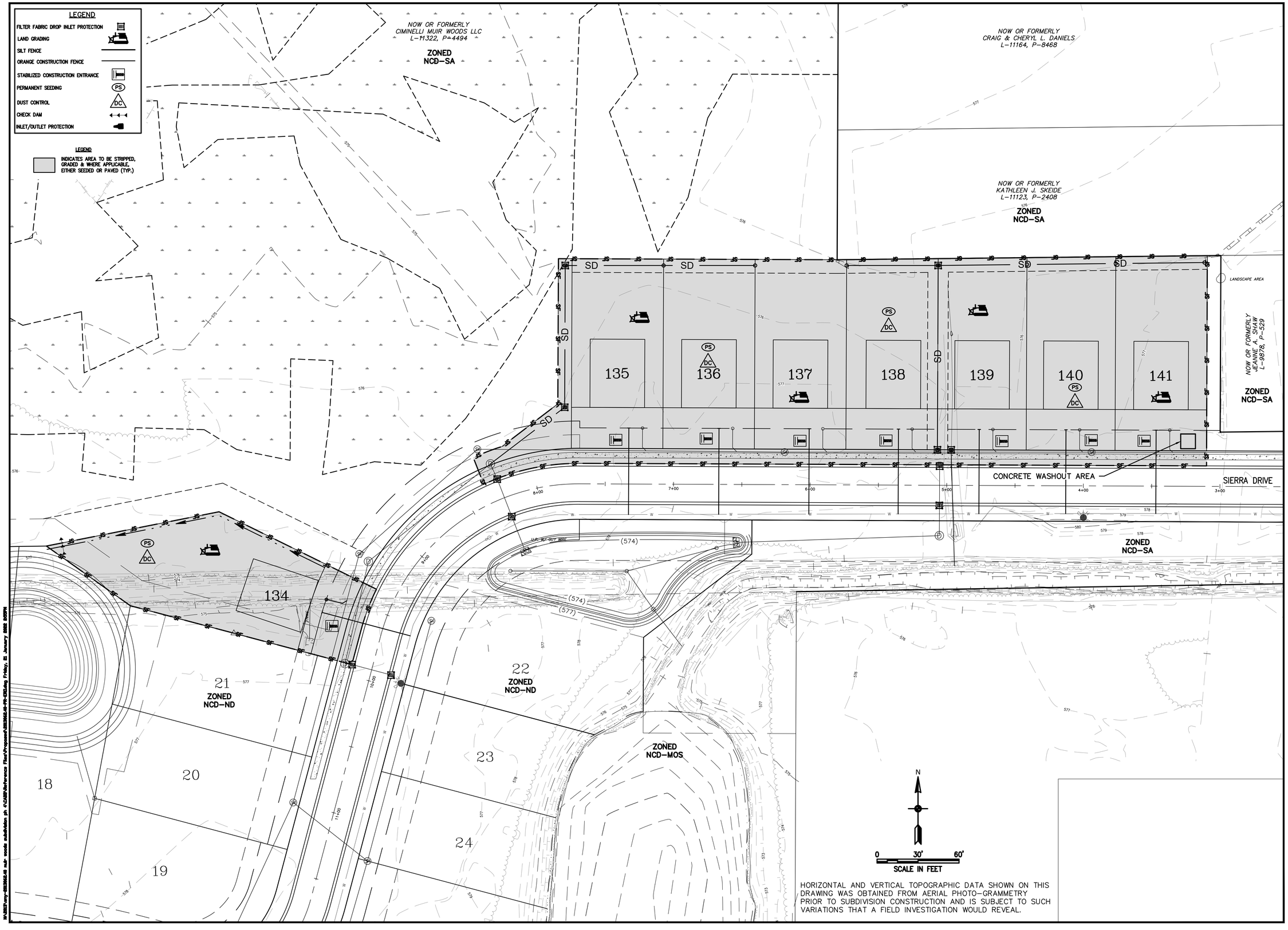
Grading Plan

SCALE: 1" = 30'

WNY-2013062.40

05 OF 08

Attachment: SP-2021-24_A drawings 042122 (25492 : Sp-2019-19_A)



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STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. [illegible]

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REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

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THM	TW

Erosion and Sediment Control Plan

SCALE: 1" = 30'

WNY-2013062.40

06 OF 08

W:\8000\wny-2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062.40-PH-EDrwg Friday, 26 January 2022 2:25PM

Attachment: SP-2021-24_A drawings 042122 (25492 : Sp-2019-19_A)

STANDARD AND SPECIFICATIONS FOR RECREATION AREA SEEDING



Definition & Scope

Establishing **permanent** grasses, legumes, vines, shrubs, trees, or other plants, or selectively reducing stand density and trimming woody plants, to improve an area for recreation. To increase the attractiveness and usefulness of recreation areas and to protect the soil and plant resources.

Conditions Where Practice Applies

On any area planned for recreation use, lawns, and areas that will be maintained in a closely mowed condition.

Specifications

ESTABLISHING GRASSES (Turfgrass)

The following applies for playgrounds, parks, athletic fields, camping areas, picnic areas, passive recreation areas such as lawns, and similar areas.

1. Time of Planting

Fall planting is preferred. Seed after August 15. In the spring, plant until May 15.

If seeding is done between May 15 and August 15, irrigation may be necessary to ensure a successful seeding.

2. Site Preparation

A. Install needed water and erosion control measures and bring area to be seeded to desired grades. A minimum of 4 in. topsoil is required.

B. Prepare seedbed by loosening soil to a depth of 4-6 inches and decompacting required areas per Soil Restoration Standard.

C. See Standard and Specification of Topsoiling.

D. Lime to a pH of 6.5. See Lime Application Standard.

E. **Fertilize as per soil test** or, if soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 850 pounds of 5-5-10 or equivalent per acre (20 lbs/1,000 sq. ft.). See Fertilizer Application Standard.

F. Incorporate lime and fertilizer in top 2-4 inches of topsoil.

G. Smooth. Remove sticks, foreign matter, and stones over 1 inch in diameter, from the surface. Firm the seedbed.

3. Planting

Use a cultipacker type seeder if possible. Seed to a depth of 1/8 to 1/4 inch. If seed is to be broadcast, cultipack or roll after seeding. If hydroseeded, lime and fertilizer may be applied through the seeder, and rolling is not practical.

4. Mulching

Mulch all seedings in accordance with Standard and Specifications for Mulching. Small grain straw is the best material.

5. Seed Mixtures

Select seed mixture for site conditions and intended use from Table 4.5.

6. Contact Cornell Cooperative Extension Turf Specialist for suitable varieties.

Turf-type tall fescues have replaced the old KY31 tall fescues. New varieties have finer leaves and are the most resistant grass to foot traffic. Do not mix it with fine textured grasses such as bluegrass and red fescue.

Common ryegrass and redtop, which are relatively short lived species, provide quick green cover. Improved lawn cultivars of perennial ryegrass provide excellent quality turf, but continue to lack winter hardiness.

Common white clover can be added to mixtures at the rate of 1-2 lbs/acre to help maintain green color during the dry summer period; however, they will not withstand heavy traffic. Avoid using around swimming areas as flowers attract bees which can be easily stepped on.

7. Fertilizing—First Year

Apply fertilizer as indicated by the soil test three to four weeks after germination (spring seedlings). If test results have not been obtained, apply 1 pound nitrogen/1,000 square feet using a complete fertilizer with a 2-1-1 or 4-1-3 ratio. Summer and early fall seedings, apply as above unless air temperatures are above 85°F for an extended period. Wait for cooler temperatures to fertilize. Late fall/ winter seedings, fertilize in spring.

8. Restrict Use

New seedlings should be protected from use for one full year or a spring and fall growth cycle where possible to allow development of a dense sod with good root structure.

MAINTAINING GRASSES

1. Maintain a pH of 6.0 - 7.0.

2. Fertilize in late May to early June as follows with 5-5-10 analysis fertilizer at the rate of 5 lbs./1,000 sq. ft. and repeat in late August if sod density is not adequate. Avoid fertilizing when heat is greater than 85°F. Top dress weak sod annually in the spring, but at least once every 2 to 3 years. **Fertilize in accordance with soil test analysis**, after determining adequate topsoil depth exists.

3. Aerate compacted or heavily used areas, like athletic fields, annually as soon as soil moisture conditions permit. Aerate area six to eight times using a spoon or hollow tine type aerator. Do not use solid spike equipment.

4. Reseed bare and thin areas annually with original seed mix.

Site - Use	Species (% by weight)	lbs/1,000 ft² (PLS)	lbs/acre (PLS)
Sunny Sites (well, moderately well, and somewhat poorly drained soils)	*Athletic fields and similar areas*		
	80% Hard fescue	2.4-3.2	105-138
	20% Perennial ryegrass	0.6-0.8	25-37
		3.0-4.0	130-175
	OR, for southern and eastern, NY 50% Hard fescue	1.5-2.0	65-88
	50% perennial ryegrass	1.5-2.0	65-87
		3.0-4.0	130-175
	OR, 100% Creeping Red Fescue	3.4-4.6	150-200
	General recreation areas and lawns (Medium to high maintenance)		
	65% Creeping red fescue	2.0-2.6	85-114
	20% Perennial ryegrass	0.6-0.8	26-35
	15% Fine fescue	0.4-0.6	19-26
		3.0-4.0	130-175
	OR, 100% Creeping red fescue	3.4-4.6	150-200
Sunny Droughty Sites (general recreation areas and lawns, low maintenance) (somewhat excessively to excessively drained soils, excluding Long Island)	65% Fine fescue	2.6-3.3	114-143
	15% Perennial ryegrass	0.6-0.7	26-33
	20% Creeping red fescue	0.8-1.0	35-44
		4.0-5.0	175-220
	OR, 100% Creeping red fescue	3.4-4.6	150-200
Shady Dry Sites (well to somewhat poorly drained soils)	65% fine fescue	2.6-3.3	114-143
	15% perennial ryegrass	0.6-0.7	26-33
	20% Creeping red fescue	0.8-1.0	35-44
	OR	4.0-5.0	174-220
	80% blend of shade-tolerant Cereal rye	2.4-3.2	105-138
	20% perennial ryegrass	0.6-0.8	25-37
	OR	3.0-4.0	130-175
	100% Creeping red fescue	3.4-4.6	150-200
Shady Wet Sites (somewhat poor to poorly drained soils)	70% Creeping red fescue	1.4-2.1	not on
	30% blend of shade-tolerant Hard fescue	0.6-0.9	25-39
	OR	2.0-3.0	85-130
	100% Chewings fescue	3.4-4.6	150-200

For varieties suitable for specific locations, contact Cornell Cooperative Extension Turf Specialist.
Reference: Thurn, M.C., N.W. Hummel, and A.M. Petrovic. Cornell Extension Pub. Info. Bulletin 185 Revised. HomeLawns Establishment and Maintenance. 1994.

STANDARD AND SPECIFICATIONS FOR COMPOST FILTER SOCK



Definition & Scope

A **temporary** sediment control practice composed of a degradable geotextile mesh tube filled with compost fiber media to filter sediment and other pollutants associated with construction activity to prevent their migration offsite.

Condition Where Practice Applies

Compost filter socks can be used in many construction site applications where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock. In areas with steep slopes and/or rocky terrain, soil conditions must be such that good continuous contact between the sock and the soil is maintained throughout its length. For use on impervious surfaces such as road pavement or parking areas, proper anchorage must be provided to prevent shifting of the sock or separation of the contact between the sock and the pavement. Compost filter socks are utilized both at the site perimeter as well as within the construction areas. These socks may be filled after placement by blowing compost into the tube pneumatically, or filled at a staging location and moved into its designed location.

Design Criteria

1. Compost filter socks will be placed on the contour with both terminal ends of the sock extended 8 feet upslope at a 45 degree angle to prevent bypass flow.

2. Diameters designed for use shall be 12" – 32" except that 8" diameter socks may be used for residential lots to control areas less than 0.25 acres.

3. The flat dimension of the sock shall be at least 1.5 times the nominal diameter.

4. The **Maximum Slope Length** (in feet) above a compost filter sock shall not exceed the following limits:

Dia. (in.)	Slope %							
	2	5	10	20	25	33	50
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50

* Length in feet



5. The compost infill shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content. When using compost filter socks adjacent to surface water, the compost should have a low nutrient value.**

6. The compost filter sock fabric material shall meet the

7. Compost filter socks shall be anchored in earth with 2" x 2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock.

8. All specific construction details and material specifications shall appear on the erosion and sediment control constructions drawings when compost filter socks are included in the plan.

Maintenance

1. Traffic shall not be permitted to cross filter socks.

2. Accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

3. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired in the manner required by the manufacturer or replaced within 24 hours of inspection notification.

4. Biodegradable filter socks shall be replaced after 6 months; photodegradable filter socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.

5. Upon stabilization of the area contributory to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut and the compost spread as an additional mulch to act as a soil supplement.

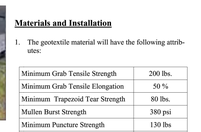
Table 5.1 - Compost Sock Fabric Minimum Specifications Table

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years

Table 5.2 - Compost Standards Table

Organic matter content	25% - 100% (dry weight)
Organic portion	Fibrous and elongated
pH	6.0 – 8.0
Moisture content	30% - 60%
Particle size	100% passing a 1" screen and 10 - 50% passing a 3/8" screen
Soluble salt concentration	5.0 dS/m (mmhos/cm) maximum

STANDARD AND SPECIFICATIONS FOR GEOTEXTILE FILTER BAG



Definition & Scope

A **temporary** portable device through which sediment laden water is pumped to trap and retain sediment prior to its discharge to drainageways or off-site.

Condition Where Practice Applies

On sites where space is limited such as urban construction or linear projects (e.g. roads and utility work) where rights-of-way are limited and larger de-silting practices are impractical.

Design Criteria

1. Location - The portable filter bag should be located to minimize interference with construction activities and pedestrian traffic. It should also be placed in a location that is vegetated, relatively level, and provides for ease of access by heavy equipment, cleanout, disposal of trapped sediment, and proper release of filtered water.

   The filter bag shall also be placed at least 50 feet from all wetlands, streams or other surface waters.

2. Size - Geotextile filter bag shall be sized in accordance with the manufacturers recommendations based on the pump discharge rate.

Materials and Installation

1. The geotextile material will have the following attributes:

Minimum Grab Tensile Strength	200 lbs.
Minimum Grab Tensile Elongation	50 %
Minimum Trapezoid Tear Strength	80 lbs.
Mullen Burst Strength	380 psi
Minimum Puncture Strength	130 lbs
Apparent Opening Size	40 - 80 US sieve
Minimum UV Resistance	70%
Minimum Flow Thru Rate	70 gpm/sq ft

2. The bag shall be sewn with a double needle machine using high strength thread, double stitched "loc" type capable of minimum roll strength of 100 lbs/inch (ASTM D4884).

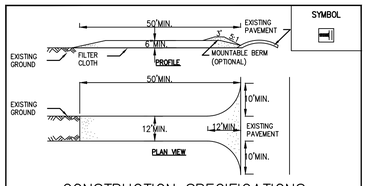
3. The geotextile filter bag shall have an opening large enough to accommodate a 4 inch diameter discharge hose with an attached strap to tie off the bag to the hose to prevent back flow.

4. The geotextile shall be placed on a gravel bed 2 inches thick, a straw mat 4 inches thick, or a vegetated filter strip to allow water to flow out of the bag in all directions.

Maintenance

1. The geotextile filter bag is considered full when remaining bag flow area has been reduced by 75%. At this point, it should be replaced with a new bag.

2. Disposal may be accomplished by removing the bag to an appropriate designated upland area, cut open, remove the geotextile for disposal, and spread sediment contents and seeded and mulched according to the vegetative plan.

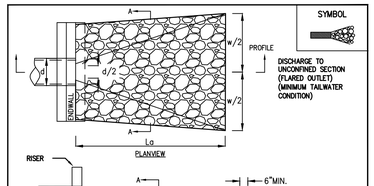


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STABILIZED CONSTRUCTION ACCESS

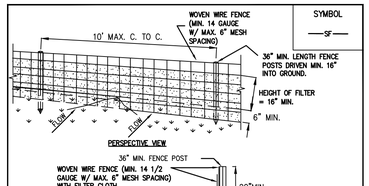


NOTE: APRON @ ZERO GRADE SIDE SLOPE 2:1

NOTE:
SEE RIPRAP STANDARDS AND SPECIFICATIONS
MINIMUM TAILWATER CONDITIONS

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET PROTECTION EXAMPLE

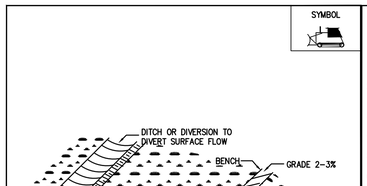


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABLINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

SILT FENCE



ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

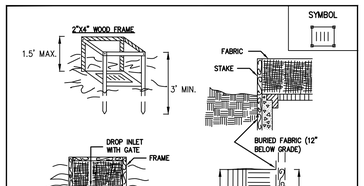
LANDGRADING DETAIL

CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

LANDGRADING SPECIFICATIONS



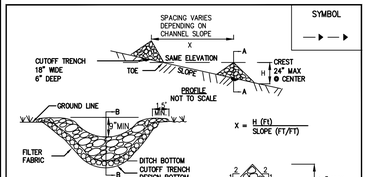
CONSTRUCTION SPECIFICATIONS

1. FABRIC SHALL HAVE AN EOS OF 40–85, BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM OF 18 INCHES DEEP. STAKES SHALL BE PLACED WHEN FABRIC MAY BE PLACED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE PLACED A MINIMUM 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

FABRIC DROP INLET PROTECTION


SYMBOL
SPACING VARIES DEPENDING ON CHANNEL SLOPE
A
SEE SAME ELEVATION
TOE
SLOPE
CREST
H
24" MAX @ CENTER
A
CUTOFF TRENCH 18" WIDE 6" DEEP
PROFILE NOT TO SCALE
GROUND LINE
B
1.5'
1.5'
3' MIN.
X = H (Ft) SLOPE (FT/FT)
FILTER FABRIC
DITCH BOTTOM
CUTOFF TRENCH
DESIGN BOTTOM
B
24" MAX @ CENTER
SECTION A–A NOT TO SCALE
FILTER FABRIC
1'
2
2
1'
1'
1'

POLLUTION PREVENTION

1. THE FOLLOWING GENERAL NOTES PROVIDE A DESCRIPTION OF POLLUTION PREVENTION MEASURES UTILIZED TO CONTROL LITTER, CONSTRUCTION CHEMICALS, CONSTRUCTION DEBRIS, AND STORAGE PRACTICES FROM BECOMING A POLLUTANT SOURCE TO STORMWATER DISCHARGES, AS WELL AS SPILL PREVENTION AND RESPONSE MEASURES.

2. MATERIAL DELIVERY AND STORAGE:

   A. LOCATE MATERIAL STORAGE AND DELIVERY AREAS AT A MINIMUM DISTANCE OF 100 FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   B. KEEP INVENTORY LOW.

   C. STORE DRY CHEMICALS AND BAGGED MATERIALS ON PALLETS.

   D. STORE ALL FLAMMABLE PRODUCTS AWAY FROM ANY HEAT AND/OR IGNITION SOURCE.

   E. PROVIDE SECONDARY CONTAINMENT FOR LIQUIDS.

   F. KEEP DESIGNATED STORAGE AREAS CLEAN AND WELL ORGANIZED. CONDUCT WEEKLY INSPECTIONS TO CHECK FOR DAMAGED CONTAINERS, LEAKS, ETC.

   G. COMPLY WITH STATE AND LOCAL REQUIREMENTS FOR STORAGE OF HAZARDOUS WASTE.

   H. DURING THE WET SEASON, COVER CHEMICALS, DRUMS, AND BAGGED MATERIALS TO PREVENT CONTACT WITH RAINWATER (E.G. TARPS, BINS, STRUCTURES).

   I. DURING THE WET SEASON, COVER SECONDARY CONTAINMENT AREAS TO PREVENT ACCUMULATION OF WATER.

   J. KEEP CHEMICALS LABELED AND IN ORIGINAL CONTAINERS.

   K. TRAIN EMPLOYEES AND CONTRACTORS ON THE PROPER USE OF STORAGE AREA.

3. SPILL PREVENTION AND CONTROL:

   A. NOTIFY ALL CONSTRUCTION WORKERS OF THE LOCATION OF MATERIALS UTILIZED FOR CLEANING UP SPILLS.

   B. STORE SPILL CLEANUP MATERIALS ON SITE AND NEAR POTENTIAL SPILL AREAS.

   C. KEEP COMMERCIALLY AVAILABLE SPILL KITS FOR CONSTRUCTION EQUIPMENT ON SITE.

   D. KEEP DRUMS, BARRELS, TEMPORARY STORAGE BAGS, OR EQUIVALENT MATERIALS FOR CONTAINMENT AND TRANSPORTATION ON SITE.

   E. KEEP ABSORBENT PADS, OIL BOOMS, MAT, OR EQUIVALENT MATERIALS ON SITE.

   F. KEEP WASHABLE, REUSABLE RAGS FOR CLEANING UP SMALL LUBRICANT LEAKS ON SITE.

   G. TRAIN EMPLOYEES AND SUBCONTRACTORS ON PROPER SPILL PREVENTION AND CONTROL METHODS.

   H. NEVER HOSE DOWN OR BURY DRY MATERIAL SPILLS. CLEANUP AS MUCH AS POSSIBLE AND DISPOSE OF PROPERLY.

   I. IN THE EVENT OF A SPILL OCCURRENCE, THE FOLLOWING ACTIONS ARE TO BE TAKEN:

      1. DOCUMENT THE SPILL AND REPORT TO THE PROJECT CONSTRUCTION MANAGER AND ENVIRONMENTAL MONITOR.

      2. FOR SPILLS LESS THAN 5 GALLONS ON AN IMPERVIOUS SURFACE, ATTEMPT TO CONFINE AND CLEAN THE SPILL.

      3. FOR SPILLS GREATER THAN 5 GALLONS, ATTEMPT TO CONFINE THE SPILL AND CALL A REMEDIATION CONTRACTOR IF ASSISTANCE IS REQUIRED WITH PRODUCT RECOVERY AND CONTAINMENT.

      4. FOR SPILLS GREATER THAN 5 GALLONS, REPORT TO NYSDEC REGION 9 SPILL PREVENTION AND RESPONSE (716-851-7220) WITHIN TWO HOURS OF DISCOVERY.

      5. PROVIDE WRITTEN DOCUMENTATION OF THE SPILL.

      6. DISPOSAL OF RECOVERED MATERIALS MUST BE CONDUCTED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.

4. SOLID WASTE MANAGEMENT:

   A. PROVIDE AS MANY WASTE BINS AS NEEDED TO KEEP SITE CLEAN OF LITTER AND WASTE.

   B. DURING THE WET SEASON, WASTE BINS MUST BE COVERED TO PREVENT RUNOFF FROM TRASH.

   C. COLLECT TRASH ON A DAILY BASIS.

   D. ARRANGE FOR REGULAR WASTE COLLECTION BY A LICENSED TRASH HAULER.

   E. SEGREGATE AND RECYCLE WASTE MATERIALS (E.G. PAINTS, SOLVENTS, OIL, ETC.)

   F. PROVIDE COVERED WASTE BINS FOR DISPOSAL OF ALL EMPTY PRODUCTS (E.G. PAINTS, SOLVENTS, GLUES, PESTICIDES, ETC.)

   G. LOCATE WASTE CONTAINER STORAGE AREA(S) AT A MINIMUM DISTANCE OF 100 FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   H. PROVIDE SECONDARY CONTAINMENT FOR HAZARDOUS WASTE CONTAINERS.

   9. COMPLY WITH ALL LOCAL AND STATE SOLID WASTE DISPOSAL AND NUISANCE REQUIREMENTS.

   I. DO NOT HOSE OUT WASTE CONTAINERS ON SITE.

   J. TRAIN EMPLOYEES AND SUBCONTRACTORS TO USE PROPER SOLID WASTE MANAGEMENT.

5. VEHICLE/EQUIPMENT MAINTENANCE:

   A. DO NOT DISCHARGE VEHICLE/MACHINERY WASH WATERS OR SOLVENTS TO STORM DRAINS OR TO SURFACE WATER BODIES.

   B. LOCATE AREAS FOR FUELING AND MAINTENANCE AT A MINIMUM DISTANCE OF 100-FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   C. ANY EQUIPMENT WHICH MUST BE REFUELED IN THE FIELD WILL BE REFUELED FROM TANKS CARRIED TO THE WORK SITE BY TRUCK.

   D. PREVENT SPILLS AND LEAKS DURING FUELING AND MAINTENANCE OPERATIONS.

   E. INSPECT AND MAINTAIN VEHICLES REGULARLY TO MINIMIZE LEAKS AND DRIPS; PLACE DRIP PANS OR ABSORBENT MATERIALS UNDER LEAK-PRONE MACHINERY WHEN IDLE.

   F. COMPLY WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS FOR FUEL STORAGE TANKS.

6. LANDSCAPING OPERATIONS:

   A. CAREFULLY FOLLOW RECOMMENDED USAGE INSTRUCTIONS FOR THE APPLICATION OF ALL FERTILIZER. DISPOSAL OF TREES, BRUSH, OR OTHER DEBRIS IN ANY STREAM CORRIDOR, WETLAND, OR SURFACE WATER IS PROHIBITED. AVOID APPLICATIONS OF FERTILIZERS PRIOR TO STORM EVENTS. APPLY FERTILIZERS IN MULTIPLE SMALLER APPLICATIONS, AS OPPOSED TO ONE LARGE APPLICATION. TRAIN EMPLOYEES AND SUBCONTRACTORS IN THE PROPER USE OF LANDSCAPE MATERIALS AND CHEMICALS.

7. CONCRETE WASTE MANAGEMENT:

   A. AVOID MIXING EXCESS AMOUNTS OF CONCRETE OR FRESH CEMENT ON SITE.

   B. STORE CONCRETE, GROUT, AND MORTAR UNDER COVER AND AWAY FROM DRAINAGE AREAS.

   C. DESIGNATE A WASH OUT AREA ON SITE AND INSURE THAT MATERIAL CAN NOT FLOW TO STORM DRAINS, OPEN DITCHES, STREETS, OR SURFACE WATER BODIES BY CONSTRUCTING A TEMPORARY PIT OR BERMED AREA.

   D. CONCRETE FROM WASHOUT AREA SHOULD BE ALLOWED TO SET. UPON COMPLETION OF THE CONCRETE WORK, THE CONTRACTOR SHALL BREAK UP, REMOVE, AND HAUL AWAY SOLID CONCRETE THAT HAS ACCUMULATED IN THE WASHOUT.

   E. TRAIN EMPLOYEES AND SUBCONTRACTORS IN PROPER CONCRETE WASTE MANAGEMENT.

8. SANITARY/SEPTIC WASTE MANAGEMENT:

   A. LOCATE SANITARY FACILITIES FOR CONVENIENT ACCESS AND AT A MINIMUM OF 100 FEET AWAY FROM DRAIN INLETS AND SURFACE WATER BODIES.

   B. UNTREATED RAW WASTEWATER MAY NOT BE DISCHARGED TO LAND, THE STORM DRAIN SYSTEM, OR TO SURFACE WATER BODIES.

   C. SANITARY/SEPTIC FACILITIES SHOULD BE MAINTAINED IN GOOD WORKING ORDER BY A LICENSED SERVICE.

   D. ARRANGE REGULAR WASTE COLLECTION BY A LICENSED HAULER BEFORE FACILITIES OVERFLOW.

   E. IF WASHING OUT OF INTERIOR OR PORTABLE TOILETS IS NEEDED, INSURE THAT WASH WATER IS DISCHARGED TO LAND AND DOES NOT FLOW INTO STREET, THE STORM DRAIN SYSTEM, OR SURFACE WATER BODIES.

GENERAL ENVIRONMENTAL NOTES AND RESTRICTIONS

GENERAL NOTES:

1. THE CONTRACTOR SHALL HAVE KNOWLEDGE OF, AND WORK IN COMPLIANCE WITH THE TERMS AND CONDITIONS STATED IN THE PERMITS ISSUED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC), AND IS SUBJECT TO THE SANCTIONS FOR VIOLATIONS OF SUCH PERMITS.

2. ALL ACTIVITIES AUTHORIZED UNDER THE PERMITS ISSUED BY THE NYSDEC MUST BE IN STRICT CONFORMANCE WITH THE DETAILS DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

3. NONE OF THE ISSUED PERMITS ALLOW FOR THE RIGHT TO TRESPASS UPON THE LANDS OR INTERFERE WITH THE PROPERTY AND/OR RIPARIAN RIGHTS OF LANDOWNERS THAT ARE NOT PARTICIPANTS OF THE PROJECT.

4. THE CONTRACTOR SHALL NOTE THE CONDITION OF ANY EXISTING FENCE THAT MAY BE IMPACTED BY PROJECT CONSTRUCTION. FENCES THAT MUST BE REMOVED AND/OR CUT WILL HAVE A TEMPORARY GATE INSTALLED. UPON COMPLETION OF CONSTRUCTION, THE TEMPORARY GATE WILL BE REMOVED AND THE FENCE WILL BE REBUILT TO LIKE-NEW CONDITION AS DIRECTED BY THE LANDOWNER.

5. LOCAL FIRE DEPARTMENTS AND EMERGENCY MANAGEMENT TEAMS SHALL BE MADE AWARE OF HAZARDOUS CHEMICALS AND WASTE ON-SITE.

6. REPRESENTATIVES FROM THE NYSDEC SHALL BE PERMITTED TO INSPECT THE SITE AT ANY TIME DEEMED NECESSARY, TO ENSURE THAT ALL ACTIVITIES ARE IN ACCORDANCE WITH THE TERMS AND CONDITIONS SPECIFIED IN THE ISSUED PERMITS.

7. CROSSING OF EXISTING GAS TRANSMISSION PIPELINES OR ANY OTHER EXISTING UNDERGROUND UTILITY BY HEAVY EQUIPMENT SHALL BE RESTRICTED TO IMPROVED GRAVEL ACCESS ROAD CROSSINGS.

8. ALL CONSTRUCTION ACTIVITY, INCLUDING OPERATION OF MACHINERY, EXCAVATION, FILLING, GRADING, CLEARING OF VEGETATION, DISPOSAL OF WASTE, AND STOCKPILING OF MATERIAL MUST TAKE PLACE WITHIN THE APPROVED WORK AREA AS DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

9. FUGITIVE DUST RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE MINIMIZED BY IMPLEMENTING APPROPRIATE CONTROL MEASURES. THESE MEASURES MAY INCLUDE THE APPLICATION OF MULCH, WATER, STONE, OR APPROVED CHEMICAL AGENTS ON ACCESS ROADS, EXPOSED SOILS, STOCKPILED SOILS, OR UNPAVED PUBLIC ROADS WHEN DRY AND WINDY CONDITIONS EXIST. A WATERING VEHICLE SHALL BE AVAILABLE FOR THE DURATION OF PROJECT ACTIVITIES, INCLUDING THROUGHOUT RESTORATION.

10. BLASTING IS NOT PERMITTED WITHOUT PRIOR TOWN APPROVAL AND ACQUISITION OF ALL REQUIRED PERMITS.

11. NOISE IMPACTS SHALL BE MINIMIZED AND MITIGATED TO THE EXTENT PRACTICABLE. CONTRACTOR SHALL MAINTAIN ALL EQUIPMENT IN GOOD OPERATING CONDITIONS AND ALL MOTORS AND ENGINES WILL BE MUFFLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND WILL COMPLY WITH STATE ENVIRONMENTAL LAW, SUBCHAPTER E, PART 450 (NOISE FROM HEAVY MOTOR VEHICLES). ANY FAULTY NOISE SUPPRESSOR WILL BE REPAIRED OR REPLACED. EQUIPMENT WILL NOT BE LEFT RUNNING UNNECESSARILY, AND EXISTING TALL GROWING VEGETATION WILL BE MAINTAINED, TO THE MAXIMUM EXTENT PRACTICABLE, TO SERVE AS A NOISE BUFFER.

12. CONSTRUCTION ACTIVITY WILL ONLY OCCUR BETWEEN THE HOURS OF 7:00 A.M. AND 6:00 P.M. MONDAY THROUGH SATURDAY. AT THE DISCRETION OF THE TOWN OF AMHERST, WORK HOURS MAY BE EXPANDED.

13. WITHIN 100 FEET OF STATE-REGULATED WETLANDS AND 50 FEET OF OTHER WATER BODIES, REMOVE ONLY THE MINIMUM VEGETATION NECESSARY TO ALLOW CONSTRUCTION AND OPERATION OF THE FACILITY.

14. THE DISPOSAL OF TREES, BRUSH, OR OTHER DEBRIS IN ANY STREAM CORRIDOR, WETLAND, OR SURFACE WATER IS PROHIBITED.

15. CULVERTS SHALL BE SUFFICIENT SIZE AND CAPACITY TO PREVENT ALTERATION OF THE NATURAL FLOW. REFER TO CONSTRUCTION DRAWINGS FOR CULVERT SIZES.

16. THE USE OF EQUIPMENT IN ANY STREAM OR WETLAND AREA, UNLESS PERMITTED, IS STRICTLY PROHIBITED.

17. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PRECLUDE CONTAMINATION OF ANY WETLAND OR WATERWAY BY SUSPENDED SOLIDS, SEDIMENTS, FUELS, SOLVENTS, LUBRICANTS, EPOXY COATINGS, PAINTS, CONCRETE, LEACHATE, OR ANY OTHER ENVIRONMENTALLY DELETERIOUS MATERIALS ASSOCIATED WITH THE PROJECT. THESE MATERIALS SHALL BE STORED A MINIMUM OF 100 FEET FROM ANY WETLAND, STREAM, DITCH, WATERCOURSE, OR DRAINAGE. NO EQUIPMENT RE-FUELING SHALL OCCUR WITHIN THE SAME 100-FOOT AREA.

18. STREAMS AND WETLANDS WILL BE PROTECTED FROM INDIRECT IMPACTS DURING CONSTRUCTION BY UTILIZING VARIOUS EROSION AND SEDIMENT CONTROL MEASURES INDICATED IN THE EROSION AND SEDIMENT CONTROL DETAILS, INCLUDING SILT FENCES PLACED BETWEEN WATER RESOURCE BOUNDARIES AND CONSTRUCTION AREAS. EXPOSED SOIL WILL BE SEEDED AND/OR MULCHED, AS SOON AS PRACTICABLE, TO ASSURE THAT EROSION AND SILTATION IS KEPT TO A MINIMUM ALONG STREAM AND WETLANDS BOUNDARIES.

19. TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AS SOON AS PRACTICABLE AND APPROPRIATE, AS INDICATED IN THE EROSION AND SEDIMENT CONTROL PLANS. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY GRADING OR FILLING OPERATIONS AND INSTALLATIONS OF PROPOSED STRUCTURES OR UTILITIES. THEY SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND THE AREA IS STABILIZED AND/OR RE-VEGETATED. ADDITIONALLY, NO SITE PREPARATION WORK SHALL BE UNDERTAKEN UNTIL ALL REQUIRED EROSION CONTROL MEASURE HAVE BEEN INSTALLED.

20. SILTATION PREVENTION MEASURES, SUCH AS SILT FENCING AND STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, TO PREVENT MOVEMENT OF SILT AND TURBID WATERS FROM THE PROJECT SITE AND INTO ANY WATERCOURSE, STREAM, WATER BODY, OR WETLAND. THESE MEASURES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND THE AREA IS STABILIZED AND/OR RE-VEGETATED.

21. ALL DISTURBED AREAS WHERE SOIL WILL BE TEMPORARILY EXPOSED OR STOCKPILED FOR LONGER THAN ONE WEEK SHALL BE CONTAINED BY A CONTINUOUS LINE OF SILT FENCE PLACED ON THE DOWN SLOPE SIDE BETWEEN THE FILL AND WETLAND OR STATE-REGULATED 100-FOOT ADJACENT AREA. TARPS ARE AUTHORIZED TO SUPPLEMENT THESE APPROVED METHODS.

22. ALL AREAS OF SOIL DISTURBANCE RESULTING FROM THIS PROJECT SHALL BE STABILIZED IMMEDIATELY FOLLOWING PROJECT COMPLETION OR PRIOR TO NYSDEC PERMIT EXPIRATION, WHICHEVER COMES FIRST. THE NYSDEC APPROVED METHODOLOGIES AREA AS FOLLOWS:

   A. STABILIZATION OF THE ENTIRE DISTURBED AREA WITH APPROPRIATE VEGETATION (GRASSES, ETC.)
   B. TEMPORARILY STABILIZATION WITH STRAW MULCH OR JUTE MATTING OR OTHER SIMILAR NATURAL FIBER MATTING WITHIN ONE WEEK OF FINAL GRADING. TEMPORARY STABILIZATION SHALL BE MAINTAINED UNTIL A MATURE VEGETATIVE COVER IS ESTABLISHED

23. VISIBLE TURBID DISCHARGES FROM LAND CLEARING, GRADING OR EXCAVATING ACTIVITIES, OR DE-WATERING OPERATIONS SHALL NOT ENTER A STREAM, NAVIGABLE WATER, OR WETLAND. PRIOR TO ENTRY IN A STREAM, NAVIGABLE WATER, OR WETLAND, ANY SUCH DISCHARGE SHALL BE:

   A. RETAINED IN AN APPROPRIATELY MAINTAINED UPLAND SETTLING BASIN
   B. FILTERED THROUGH CRUSHED STONE, SAND, STRAW BALES, SILT SCREENING (MAXIMUM OPENING SIZE OF U.S. SIEVE NUMBER 20), ETC, OR;
   C. DIRECTED TO A GRASSY UPLAND AREA SUFFICIENT DISTANCE FROM THE STREAM TO PREVENT CHANGE IN TURBIDITY OF THE RECEIVING WATER.

24. IN THE EVENT THAT ARCHAEOLOGICAL MATERIALS, HUMAN REMAINS, OR EVIDENCE OF HUMAN BURIALS ARE ENCOUNTERED DURING CONSTRUCTION, ALL WORK IN THE VICINITY OF THE FIND SHALL BE IMMEDIATELY HALTED, THE FIND PROTECTED FROM FURTHER DAMAGE, AND THE CONSTRUCTION MANAGER AND ENVIRONMENTAL MONITOR ADVISED. THE PERMITEE IS REQUIRED TO NOTIFY THE LOCAL POLICE AND THE STATE HISTORIC PRESERVATION OFFICE IMMEDIATELY FOLLOWING SUCH A DISCOVERY.

INSPECTIONS

THE OWNER AND SITE CONTRACTOR SHALL HAVE A QUALIFIED PROFESSIONAL CONDUCT AN ASSESSMENT OF THE SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND TO CERTIFY IN AN INSPECTION REPORT THAT THE APPROPRIATE EROSION AND SEDIMENT CONTROLS DESCRIBED IN THE SWPPP AND REQUIRED BY THE SPDES GENERAL PERMIT HAVE BEEN ADEQUATELY INSTALLED OR IMPLEMENTED TO ENSURE OVERALL PREPAREDNESS OF THE SITE FOR THE COMMENCEMENT OF CONSTRUCTION. AFTER COMMENCEMENT OF CONSTRUCTION, THE OWNER OR OPERATOR SHALL ENSURE THAT AT LEAST ONE TRAINED CONTRACTOR IS ON SITE ON A DAILY BASIS WHEN SOIL DISTURBANCE ACTIVITIES ARE BEING PERFORMED. FURTHER, THE OWNER SHALL HAVE A QUALIFIED PROFESSIONAL PERFORM SITE INSPECTIONS WEEKLY FOR SITES WITH DISTURBANCE AREAS OF LESS THAN FIVE (5) ACRES AND TWICE WEEKLY FOR SITES WITH DISTURBANCE AREAS OF GREATER THAN FIVE (5) ACRES. PRIOR TO FILING A NOTICE OF TERMINATION (NOT) FORM WITH NYSDEC FOR EACH PROJECT SITE OR AT THE END OF THE PERMIT TERM, THE OWNER SHALL HAVE THE QUALIFIED PROFESSIONAL PERFORM A FINAL SITE INSPECTION.

SPILL PREVENTION, CONTAINMENT, & COUNTER-MEASURES NOTES

1. GENERAL: PERSONNEL RESPONSIBLE FOR THE OVERSIGHT OF THE PETROLEUM PRODUCTS AND HAZARDOUS OR CONTROLLED SUBSTANCES INCLUDE:

   A. CONSTRUCTION MANAGER
   B. JOB-SITE COORDINATORS DESIGNATED BY THE CONSTRUCTION MANAGER

2. SPILLS SHALL BE IMMEDIATELY REPORTED TO THE OWNER BY THE CONTRACTOR. THE CONTRACTOR WILL KEEP AN UP-TO-DATE LIST OF QUALIFIED EMERGENCY RESPONSE CONTRACTORS WITH THE CAPABILITY OF REACHING THE PROJECT SITE QUICKLY. IN THE EVENT THAT A SPILL OCCURS ON THE SITE, THE FOLLOWING NOTIFICATION PROCEDURE WILL BE FOLLOWED.

   A. CONSTRUCTION TEAM LEADER NOTIFIES THE CONSTRUCTION MANAGER.
   B. CONSTRUCTION MANAGER NOTIFIES THE INSPECTOR DESIGNATED BY THE TOWN OF AMHERST.
   C. CONSTRUCTION MANAGER NOTIFIES THE OWNER AT (716-631-8000).
   D. THE OWNER NOTIFIES NYSDEC REGION 9 SPILL PREVENTION AND RESPONSE (716-851-7220).

PETROLEUM PRODUCTS & HAZARDOUS / CONTROLLED SUBSTANCES

1. PETROLEUM PRODUCTS AND HAZARDOUS OR CONTROLLED SUBSTANCES SHALL BE STORED AT THE TEMPORARY STORAGE AND STAGING AREA. IT IS ANTICIPATED THAT THE FOLLOWING HAZARDOUS OR CONTROLLED SUBSTANCES AND PETROLEUM PRODUCTS MAY BE STORED ON SITE IN REGULATORY APPROVED STORAGE CONTAINERS.

   A. GASOLINE
   B. DIESEL FUEL
   C. EQUIPMENT OILS AND LUBRICANTS
   D. COMMERCIAL FERTILIZER

EROSION AND SEDIMENT CONTROL PRACTICES

1. ALL SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES TO CONFORM TO THE LATEST EDITION OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL. SELECT THE APPROPRIATE SESC MEASURES TO BEST CONTROL SOIL EROSION AND SEDIMENTATION, SHOULD SITE CONDITIONS WARRANT.

2. PROVIDE AND MAINTAIN SESC MEASURES IN ACCORDANCE WITH THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND SESC DRAWINGS TO EFFECTIVELY CONTAIN ALL SOIL MATERIAL WITHIN THE SITE CONSTRUCTION AREA WHEN RAINFALL IS IMMINENT.

   A. THE PLAN AND DETAILS SHOWN ARE INTENDED TO BE USED AS A GUIDE. ANY REVISIONS DEEMED NECESSARY SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

3. THE CONTROL MEASURES THAT CAN BE UTILIZED UTILIZED DURING THE PROJECT ARE SUMMARIZED BELOW:

   A. SILT FENCE: FENCE SHALL BE INSTALLED AROUND SOIL STOCKPILES, WHERE ROADWAY CUT/FILL SLOPES ARE LOCATED WITHIN 100 FEET OF WATERCOURSES, AT THE LOCATION OF UTILITY LINE STREAM CROSSINGS, AND BETWEEN WETLAND BOUNDARIES AND CONSTRUCTION AREAS.

   B. STABILIZED CONSTRUCTION ENTRANCE: STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED WHERE ALL ACCESS ROADS INTERSECT LOCAL, COUNTY OR STATE ROADS.

   C. TEMPORARY SWALE: A TEMPORARY SWALE IS TO BE CONSTRUCTED TO PREVENT RUNOFF FROM ENTERING DISTURBED AREAS BY INTERCEPTING AND DIVERTING IT TO A STABILIZED OUTLET OR TO INTERCEPT SEDIMENT LADEN WATER AND DIVERT IT TO A SEDIMENT TRAPPING DEVICE.

   D. EARTH DIKE: EARTH DIKES CAN ALSO BE INSTALLED FOR DIVERTING CLEAN WATER AWAY FROM DISTURBED AREAS AND/OR INTERCEPT AND DIRECT SEDIMENT LADEN WATER TO A SEDIMENT TRAPPING DEVICE.

   E. SEDIMENT TRAP: SEDIMENT TRAPS ARE INSTALLED IN DRAINAGE WAYS, NATURAL OR TEMPORARY, BY EXCAVATION AND/OR EMBANKMENT TO INTERCEPT SEDIMENT LADEN RUNOFF AND RETAIN THE SEDIMENT.

   F. SEDIMENT FILTER BAG: SEDIMENT FILTER BAGS SHALL BE USED TO FILTER WATER PUMPED FROM OPEN EXCAVATIONS. SEDIMENT FILTER BAGS SHALL BE USED DURING CULVERT INSTALLATIONS AND AT INTERCONNECT STREAM CROSSINGS.

   G. WATERING VEHICLE: THE WATERING VEHICLE SHALL BE USED TO PREVENT SURFACE AND AIR MOVEMENT OF DUST FROM DISTURBED SOIL SURFACES THAT MAY CAUSE OFF-SITE DAMAGE, HEALTH HAZARDS, AND TRAFFIC SAFETY PROBLEMS. WATER WILL BE USED TO SPRAY THE SURFACE ON CONSTRUCTION ROADS, ACCESS POINTS, AND OTHER DISTURBED AREAS WHERE OFF-SITE DAMAGE MAY OCCUR IF DUST IS NOT CONTROLLED.

CONSTRUCTION SCHEDULE:

1. OBTAIN PLAN APPROVAL AND OTHER APPLICABLE PERMITS.
2. HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND SILT FENCE WHERE SHOWN ON EROSION AND SEDIMENT CONTROL PLAN.
4. INSTALL ALL TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES AS DESIGNED ON PLANS.
5. PLACE EXCAVATED MATERIAL IN AREAS REQUIRING FILL. TOPSOIL TO BE STOCKPILED IN AN AREA APPROVED BY ENGINEER. STOCKPILED MATERIAL TO BE ENCLOSED BY SILT FENCE. STOCKPILES SHALL UNDERGO TEMPORARY STABILIZATION METHODS WITHIN 14 DAYS OF INACTIVITY.
6. INSTALL SITE UTILITIES AND STORM SEWERS.
7. CONSTRUCT BUILDINGS.
8. GRADE, TOPSOIL AND SEED AS SOON AS PRACTICAL UPON COMPLETION OF UTILITIES INSTALLATION.
9. ONCE ALL DISTURBED AREAS ARE VEGETATED, ALL TEMPORARY SEDIMENT CONTROL MEASURES CAN BE REMOVED. SITE CONTRACTOR MUST HAVE THE ENTIRE SITE STABILIZED PRIOR TO WITHDRAWING FROM SITE.

CONSTRUCTION SPECIFICATIONS

GENERAL SPECIFICATIONS FOR THE INSTALLATION OF THE EROSION AND CONTROL PRACTICES ARE SUMMARIZED BELOW.

1. SILT FENCE: FILTER FABRIC SHOULD BE INSTALLED AT LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION SHOULD BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO ALLOW FOR POOLING OF WATER. A 6 INCH DEEP TRENCH SHOULD BE EXCAVATED, MINIMIZING THE DISTURBANCE ON THE DOWNSIDE SLOPE. THE BOTTOM OF THE TRENCH SHOULD BE AT LEVEL GRADE. MAXIMUM DEVIATION FROM LEVEL GRADE SHOULD BE 1% AND NOT EXTEND MORE THAN 25 FEET. THE BOTTOM OF THE FENCE SHOULD BE ANCHORED BY PLACING FABRIC IN BOTTOM OF THE TRENCH, AND BACKFILLING AND COMPACTING THE FILL MATERIAL IN THE TRENCH. SUPPORT STAKES SHOULD BE DRIVEN 18 INCHES BELOW THE EXISTING GROUND SURFACE AT 8 FEET (MAX) INTERVALS. FILTER FABRIC SHOULD BE STRETCHED AND FASTENED TO THE UPSLOPE SIDE OF THE SUPPORT STAKES. AT FABRIC ENDS, BOTH ENDS SHOULD BE WRAPPED AROUND THE SUPPORT STAKE AND STAPLED. IF THE FABRIC COMES ALREADY ATTACHED TO THE STAKES, THE END STAKES SHOULD BE HELD TOGETHER WHILE THE FABRIC IS WRAPPED AROUND THE STAKES AT LEAST ONE REVOLUTION PRIOR TO DRIVING THE STAKES.

2. STABILIZED CONSTRUCTION ENTRANCE: CLEAR THE ENTRANCE/EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. PLACE GEOTEXTILE FABRIC OVERLAYED WITH STONE TO THE DIMENSIONS, GRADES, AND ELEVATION SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS.

3. TEMPORARY SWALE:

   ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.

   DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.

   DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.

   ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE

   THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.

   FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.

   ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.

   STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC -10AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSIOR, SOD	LINED WITH 4-8" RIP-RAP OR RECYCLED CONCRETE EQUIVALENT
4	8.1-20.%	LINED WITH 4-8" RIP-RAP	ENGINEERED DESIGN

MAINTENANCE PLAN

ALL EROSION AND SEDIMENT POLLUTION CONTROL DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY. THE CONTROL DEVICES WILL BE INSPECTED AND MAINTAINED AS PRESCRIBED BELOW.

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY REPAIRS NEEDED WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT ACCUMULATIONS AT THE SILT FENCE SHALL BE REMOVED WHEN THE DEPTH OF THE SEDIMENT AT THE FENCE REACHES 0.5-FEET. REPAIRS WILL BE MADE TO THE FENCE TO MAINTAIN ITS BARRIER.
3. THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT THE TRACKING OF SEDIMENT ONTO PUBLIC AND PRIVATE RIGHT-OF-WAYS OR STREETS. PERIODICALLY, THE ENTRANCE WILL BE TOP DRESSED WITH ADDITIONAL AGGREGATE TO MAINTAIN THE 6-INCH THICKNESS. ANY SEDIMENT WHICH IS SPILLED, DROPPED OR WASHED ONTO PUBLIC AND PRIVATE RIGHT-OF-WAYS SHALL BE REMOVED IMMEDIATELY.
4. SEDIMENT FILTER BAGS SHALL BE INSPECTED DAILY DURING USE. IF A PROBLEM IS DETECTED, PUMPING SHOULD CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED. FILTER BAGS WILL BE REPLACED WHEN THEY BECOME ½ FULL. SPARE BAGS SHOULD BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR FILLED.
5. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
6. DUST CONTROL MEASURES SHALL BE MAINTAINED THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS ARE STABILIZED.

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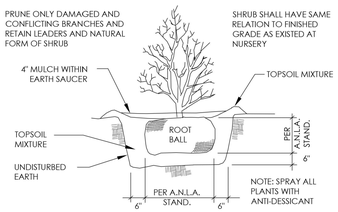
PREPARED FO



SHRUB PLANTING

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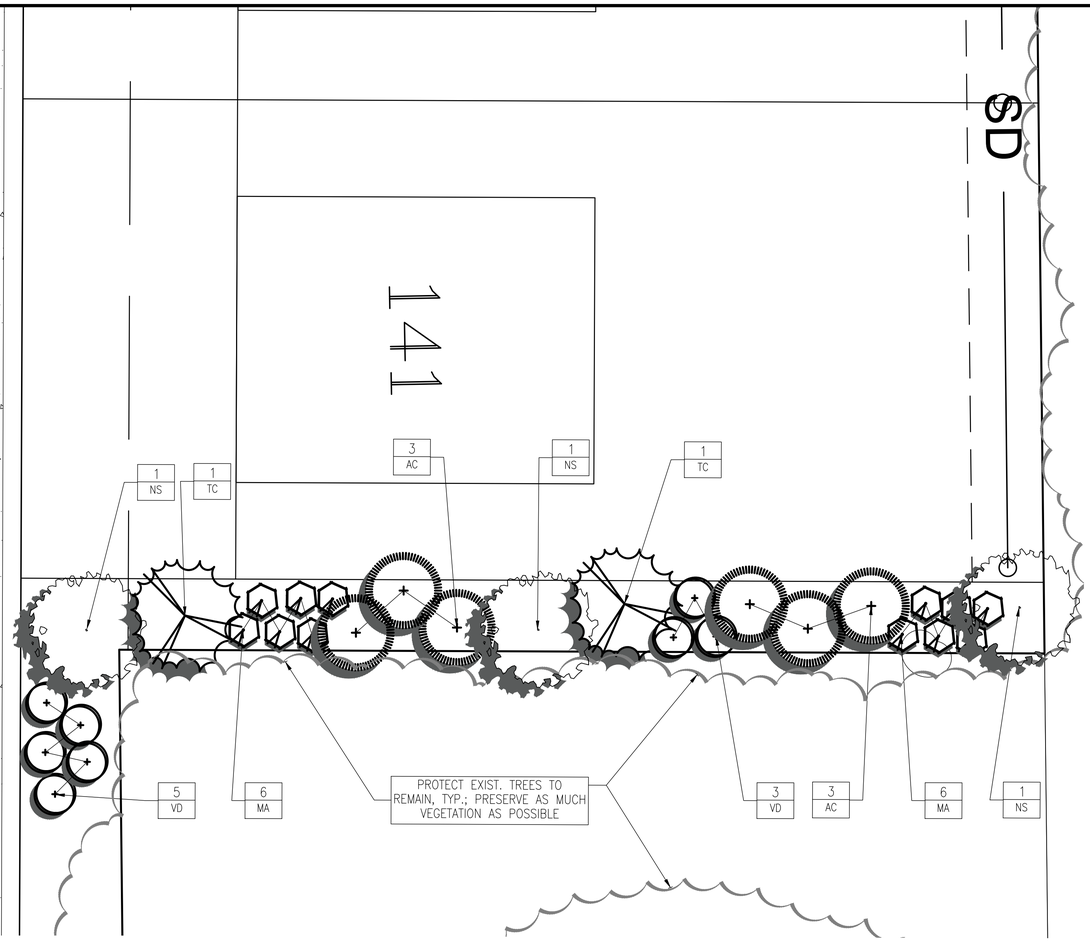

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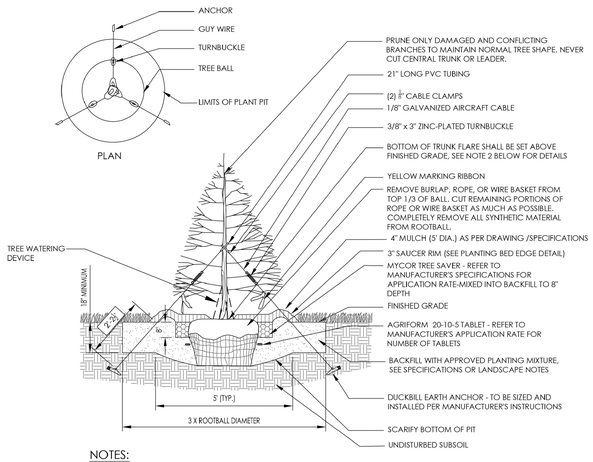
SCALE IN FEET

LANDSCAPE NOTES:

1. IT IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY TO VISIT THE SITE PRIOR TO BID MOBILIZATION, TO BECOME FAMILIAR WITH EXISTING CONDITIONS AT THE SITE.
2. STANDARDS SET FORTH IN THE "AMERICAN STANDARD FOR NURSERY STOCK", ANSI Z60.1 (LATEST EDITION) REPRESENT GUIDELINE SPECIFICATIONS ONLY AND SHALL CONSTITUTE THE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIALS DELIVERED AND INSTALLED ON THIS PROJECT.
3. ALL PLANTS MUST BE HEALTHY, VIGOROUS AND FREE OF PESTS AND DISEASE.
4. ALL PLANTS MUST BE HARDY UNDER CLIMATE CONDITIONS THAT EXIST AT THE PROJECT SITE AND GROWN AT A NURSERY IN THE SAME HARDINESS ZONE AS THE PROJECT LOCATION.
5. ALL PLANTS MUST BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED ON THE PLANT LIST.
6. ANY PROPOSED DEVIATION TO THE LANDSCAPE PLAN MUST FIRST BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO THE INSTALLATION OF THE PROPOSED LANDSCAPING CHANGES.
7. ALL TREES MUST BE STRAIGHT–TRUNKED, INJURY FREE, HAVE A FULL, SYMMETRICAL CROWN (HEAD) AND MEET ALL REQUIREMENTS SPECIFIED (E.G. SINGLE STEM, MULTI–STEM, HEAVY BRANCHED, ETC.).
8. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS.
9. ANY DISCREPANCIES IN THE QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR LANDSCAPE ARCHITECT (OWNER'S REPRESENTATIVE).
10. ANY CONCERNS RELATED TO SITE CONDITIONS AND/OR PLANT LOCATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR DESIGN LANDSCAPE ARCHITECT (OWNER'S REPRESENTATIVE) PRIOR TO INSTALLATION.
11. ALL GRADING AND UTILITY WORK SHALL BE COMPLETED PRIOR TO INSTALLATION OF PLANT MATERIAL AND LANDSCAPE MULCH.
12. THE FINAL LOCATION OF TREES AND OTHER LANDSCAPING SHALL BE DETERMINED IN THE FIELD BASED ON UTILITY STAKEOUT AND SHALL NOT CONFLICT WITH TRAFFIC SIGNS AND/OR UTILITIES. STAKE OUT SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
13. PLANTING BACKFILL MIXTURE: 20 PARTS ON–SITE SOIL, 10 PARTS SCREENED TOPSOIL, 5 PARTS PEAT MOSS, 5 PARTS ALL GROW, 2.5 PARTS WELL ROTTED MANURE AND 10 LBS. 5–10–5 PLANTING FERTILIZER, MIXED THOROUGHLY PER CUBIC YARD.
14. MULCH ALL PLANT BEDS, AND INDIVIDUAL TREES IN LAWN AREAS WITH COMPOSTED AND AGED SHREDDED HARDWOOD BARK MULCH TO A DEPTH OF FOUR (4") INCHES UNLESS OTHERWISE SPECIFIED ON PLANTING DETAILS, OR AS DIRECTED BY THE LANDSCAPE ARCHITECT DUE TO SITE CONDITIONS. MULCH SAMPLE TO BE SUBMITTED TO THE OWNER AND THE OWNER'S REPRESENTATIVE FOR FINAL APPROVAL.
15. ANY PLANT WHICH TURNS BROWN, DEFOLIATES OR DIES PRIOR TO FINAL ACCEPTANCE BY THE OWNER, OR LANDSCAPE ARCHITECT, SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH THE SAME PLANT (SPECIES, VARIETY AND SIZE) AS SPECIFIED ON THE PLANT SCHEDULE (LIST).
16. THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIALS UNTIL THE PROJECT HAS RECEIVED FINAL ACCEPTANCE BY THE OWNER OR OWNER'S REPRESENTATIVE. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO: WATERING, MULCHING, FERTILIZING, SPRAYING (FUNGICIDE, PESTICIDE, ANTI–DESICANT), AS WELL AS RAISING PLANTS THAT HAVE SETTLED TOO DEEP OR REQUIRE STRAIGHTENING.
17. ALL AREAS DISTURBED BY SITE GRADING AND/OR UTILITY INSTALLATION SHALL RECEIVE APPROVED TOPSOIL (BASED ON APPROVED SAMPLES SUBMITTED BY THE CONTRACTOR) AND SPREAD TO A DEPTH NOT LESS THAN SIX (6") INCHES AFTER COMPACTION. TOPSOIL PLACED FOR LAWNS SHALL BE FINE GRADED, SEEDED, MULCHED AND WATERED UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED (BY OTHERS). THIS IS EXCLUDING FOUNDATION PLANT BEDS, LANDSCAPE ISLANDS AND ENTRANCE AREAS. **TOPSOIL PLACEMENT IS NOT A PART OF THIS CONTRACT.**
18. LOCATIONS OF EXISTING BURIED UTILITIES SHOWN ON THE SITE PLAN ARE BASED UPON THE BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE TO CALL FOR A UTILITY STAKEOUT PRIOR TO COMMENCING PLANT INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, AND SITE APPURTENANCES WHICH OCCURS AS A RESULT OF LANDSCAPE INSTALLATION OPERATIONS.
19. EXISTING TREES INDICATED TO BE REMOVED SHALL OCCUR UNDER THE SITE CONTRACT FOR THIS PROJECT. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR NEW PLANTINGS OR RESTORATION OF THE DISTURBED AREA (LAWNS, PLANT BEDS).
20. EXISTING TREES TO REMAIN SHALL BE PROTECTED BY INSTALLING A TEMPORARY FENCE AT THE OUTER LIMITS OF THE TREE CANOPY.
21. ALL SHRUB BEDS ADJACENT TO LAWN AREAS SHALL HAVE A SPADED EDGE BORDER.

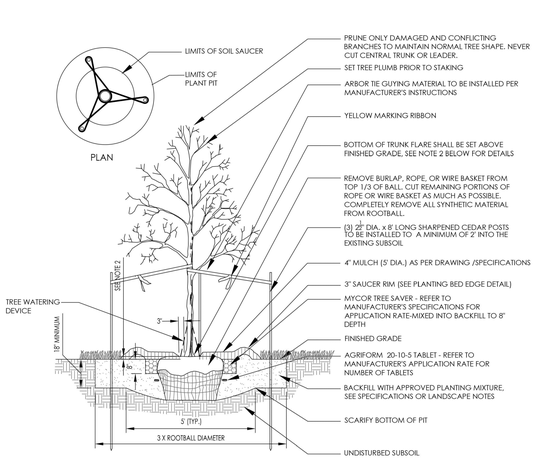


NOTES:

1. MAINTAIN A 2' MINIMUM RADIUS CLEAR OF MULCH AROUND THE TRUNK.
2. THE DISTANCE BETWEEN THE BOTTOM OF THE TRUNK FLARE AND THE FINISHED GRADE SHALL BE AS FOLLOWS:
   FOR SANDY OR LOAMY SOILS: 1"
   FOR CLAY OR POORLY DRAINED SOILS: 3"
   THE CONTRACTOR SHALL REVIEW THE APPROPRIATE PLANTING DEPTH WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. WHEN TAGGING TREES AT THE NURSERY, MARK THE NORTH SIDE OF THE TREE IN THE FIELD AND WHEN INSTALLING, ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE

EVERGREEN TREE PLANTING

SCALE: N.T.S.



NOTES:

1. MAINTAIN A 3" MINIMUM RADIUS CLEAR OF MULCH AROUND THE TRUNK.
2. THE DISTANCE BETWEEN THE BOTTOM OF THE TRUNK FLARE AND THE FINISHED GRADE SHALL BE AS FOLLOWS:
   2.1. FOR SANDY OR LOAMY SOILS: 1"
   2.2. FOR CLAY OR POORLY DRAINED SOILS: 3"
   THE CONTRACTOR SHALL REVIEW THE APPROPRIATE PLANTING DEPTH WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. WHEN TAGGING TREES AT THE NURSERY, MARK THE NORTH SIDE OF THE TREE IN THE FIELD AND WHEN INSTALLING, ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE

DECIDUOUS TREE PLANTING

SCALE: N.T.S.

MUIR WOODS SUBDIVISION PHASE 4 - Plant List

(December 2021)

Key	No.	Botanical Name	Common Name	Min. Size	Remarks
TREES					
AC	6	*Abies Concolor*	White Fir	7-8' Hgt.	B&B Full to ground
NS	3	*Nyssa sylvatica*	Black Gum	2 1/2" Cal.	single leader
TC	2	*Tsuga Canadensis*	Canadian Hemlock	8-10' Hgt.	B&B; Full to ground
SHRUBS					
MA	12	*Mahonia aquifolium*	Oregon Hollygrape	4' hgt.	48" hgt. min.- Full
VD	8	*Viburnum dentatum*	Arrowwood Viburnum	4' hgt.	Balled & burlap
		(**) NOTE: Per Town of Amherst Zoning Ordinance Sect. 7-2-3 (A) (1) (g), all shrubs to be a minimum of 24-inches in height (at the time of planting)			

PLANTING LEGEND

PROP. LRG. EVERGREEN TREE

PROP. DECIDUOUS TREE

PROP. DECIDUOUS SHRUB

PROP. EVERGREEN SHRUB

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
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PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

REGISTERED LANDSCAPE ARCHITECT JOHN D. REDDINGTON 001930-1 STATE OF NEW YORK

WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	rev. per Town comments	12/16/2021
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Landscape Plan

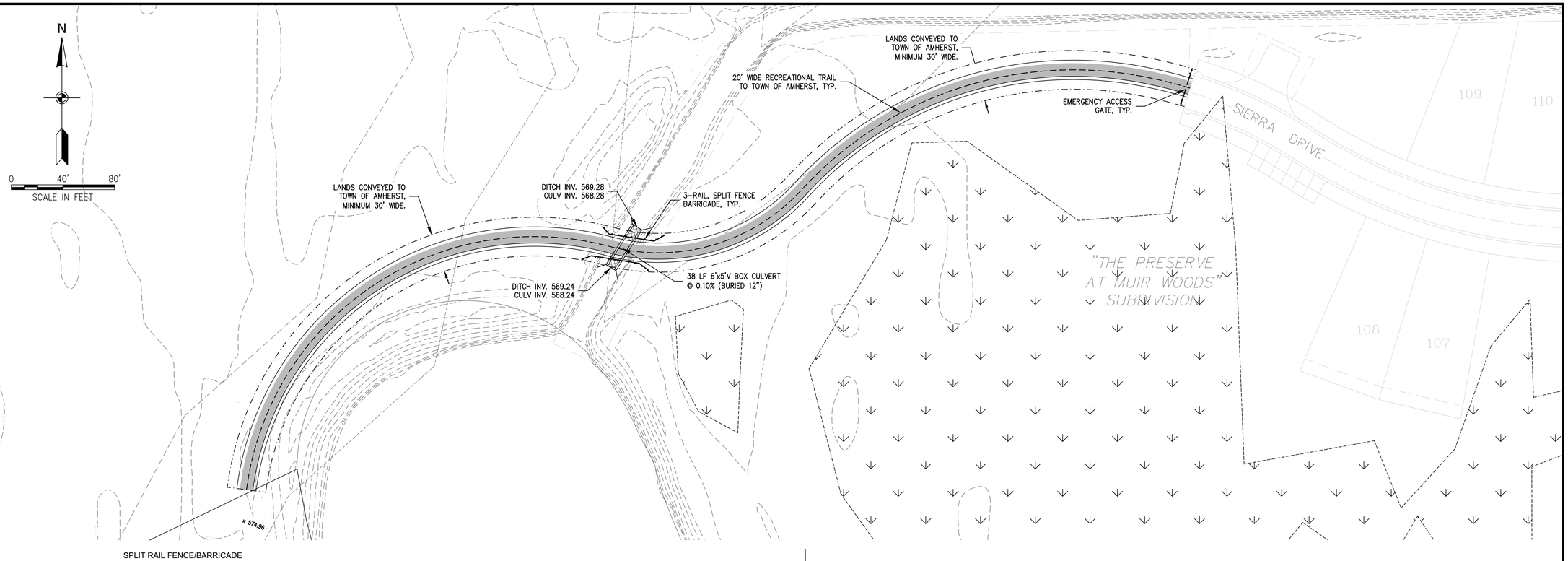
SCALE: 1" = 10'

WNY-2013062.40

L-1

M:\WNY\wny-2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062.40-PH-Utility Friday, 31 January 2020 3:56PM

Attachment: SP-2021-24 A drawings 042122 (25492 : Sp-2019-19_A)



Part 1 GENERAL 1

1.1 **GENERAL**

A. Unless otherwise required by Town ordinances, fences/Barricades shall be four; feet in height.
B. All wood materials shall be treated wood, or wood of a natural resistance to decay. Materials shall be free from loose knots, cracks, and other imperfections.
C. This specification is written around traditional split rail style fencing. However, post and rail or buck and rail style fences will be considered on a case-by-case basis. Designs and specifications for these styles should be submitted to the Town for review and approval.

2.1 MATERIAL

2.2 **RAILS**

A. 3-rail or 2-rail "American Style" split rail system shall be used.

2.3 **POSTS**

A. Posts shall be 18-inch girth (apprx. 25 square inches).
B. 2-rail posts shall be approximately 64-inches in height.
C. 3-rail posts shall be approximately 78-inches in height.
D. Posts shall be buried 30-inches into ground.

3.1 INSTALLATION

3.3 **INSTALLATION OF POSTS**

A. Posts shall be set true to line and grade.
B. Line posts do not require concrete footings.
C. Corner, or end posts do require 12-inch diameter concrete footings extending at least 24-inches into undisturbed natural ground or properly compacted fill.

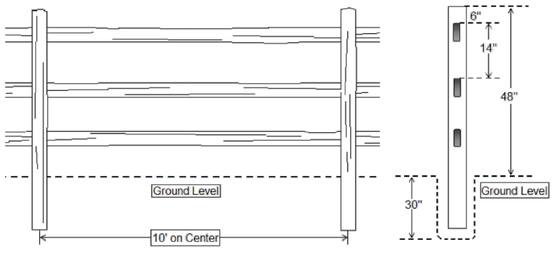
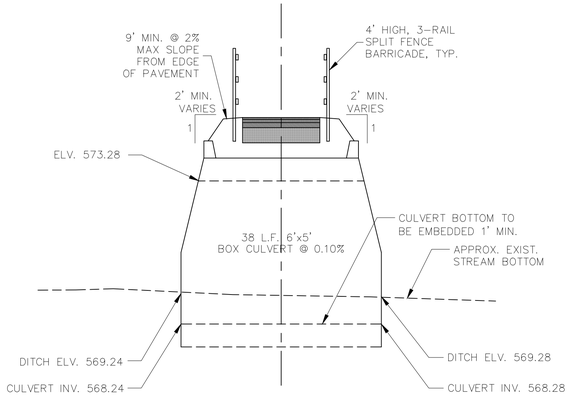


FIGURE 1 - 3-rail Split Rail Fence/Barricade Detail.

(Source: CFC Fences & Decks)



RECREATIONAL TRAIL BOX CULVERT ELEVATION
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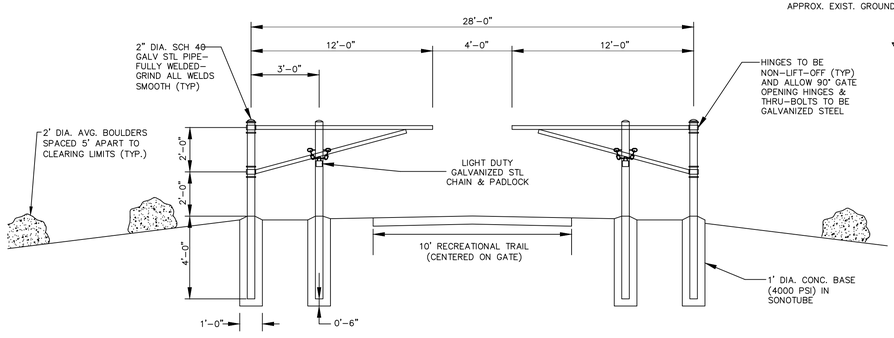
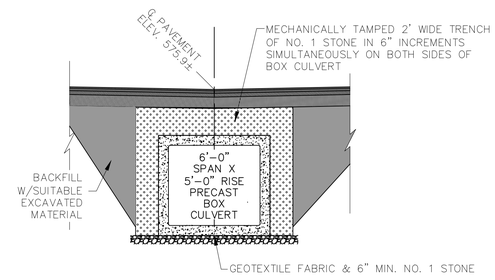
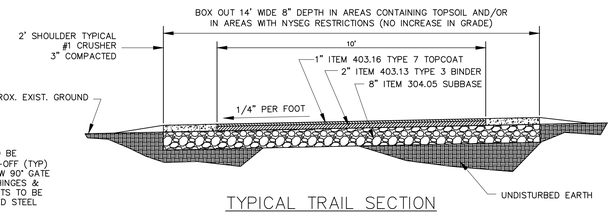


ACCESS GATE DETAIL
NOT TO SCALE



RECREATIONAL TRAIL BOX CULVERT SECTION
SCALE: N.T.S.



TYPICAL TRAIL SECTION

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PREPARED FOR
Ciminelli Muir Woods LLC
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Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK GREENMAN PEDERSEN, INC. LICENSED PROFESSIONAL ENGINEER No. 081 BUFFALO
ALTERING OR ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
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2	Rev. Per Town Comments	01-21-22
1	Rev. Per Town Comments	12-21-21
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Recreational Trail Paving Plan

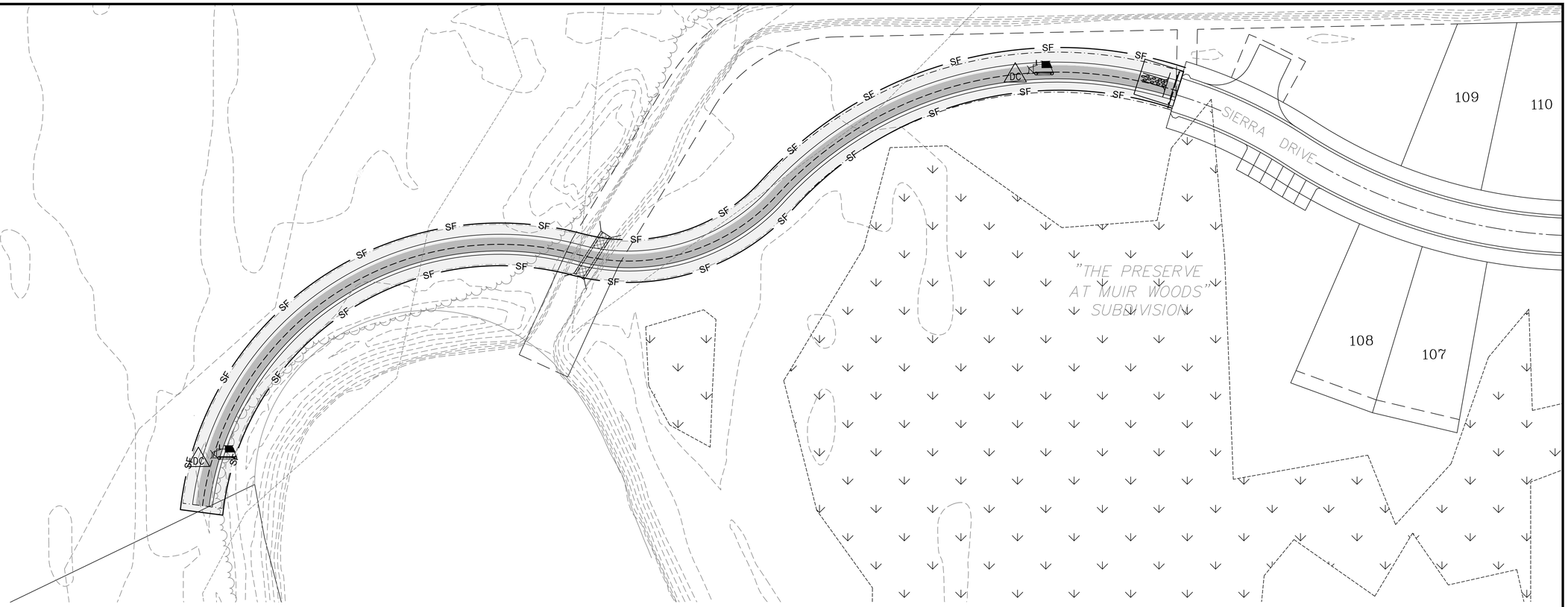
SCALE: 1" = 40'

WNY-2013062.40

RT-1

N:\2013\2013062 - Muir Woods\Site R\2013062.10 Muir Woods Site R - Aspen Heights\CADD\Design Plans\RT-1 Recreational Trail Paving Plan.dwg, Friday, 25 March 2022 12:35PM

Attachment: SP-2021-24_A drawings 042122 (2549 : Sp-2019-19_A)



EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

N

0 40' 80'
SCALE IN FEET

LEGEND

CHECK DAM	
FILTER FABRIC/ FILTER BAG DROP INLET PROTECTION	
LAND GRADING	
SILT FENCE	SF
TEMPORARY SEEDING	TS
STABILIZED CONSTRUCTION ENTRANCE	
PERMANENT SEEDING	PS
DUST CONTROL	DC
INLET/OUTLET PROTECTION	
TOPSOILING	

INDICATES MIN. AREA TO BE STRIPPED, GRADED, & WHERE APPLICABLE, EITHER SEEDED OR PAVED (TYP.)

GPI Engineering Design Planning Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. 1[illegible]
WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS

NO.	REVISION	DATE
1	Rev. Per Town Comments	12-21-21

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	TW

Recreational Trail Erosion and Sediment Control Plan

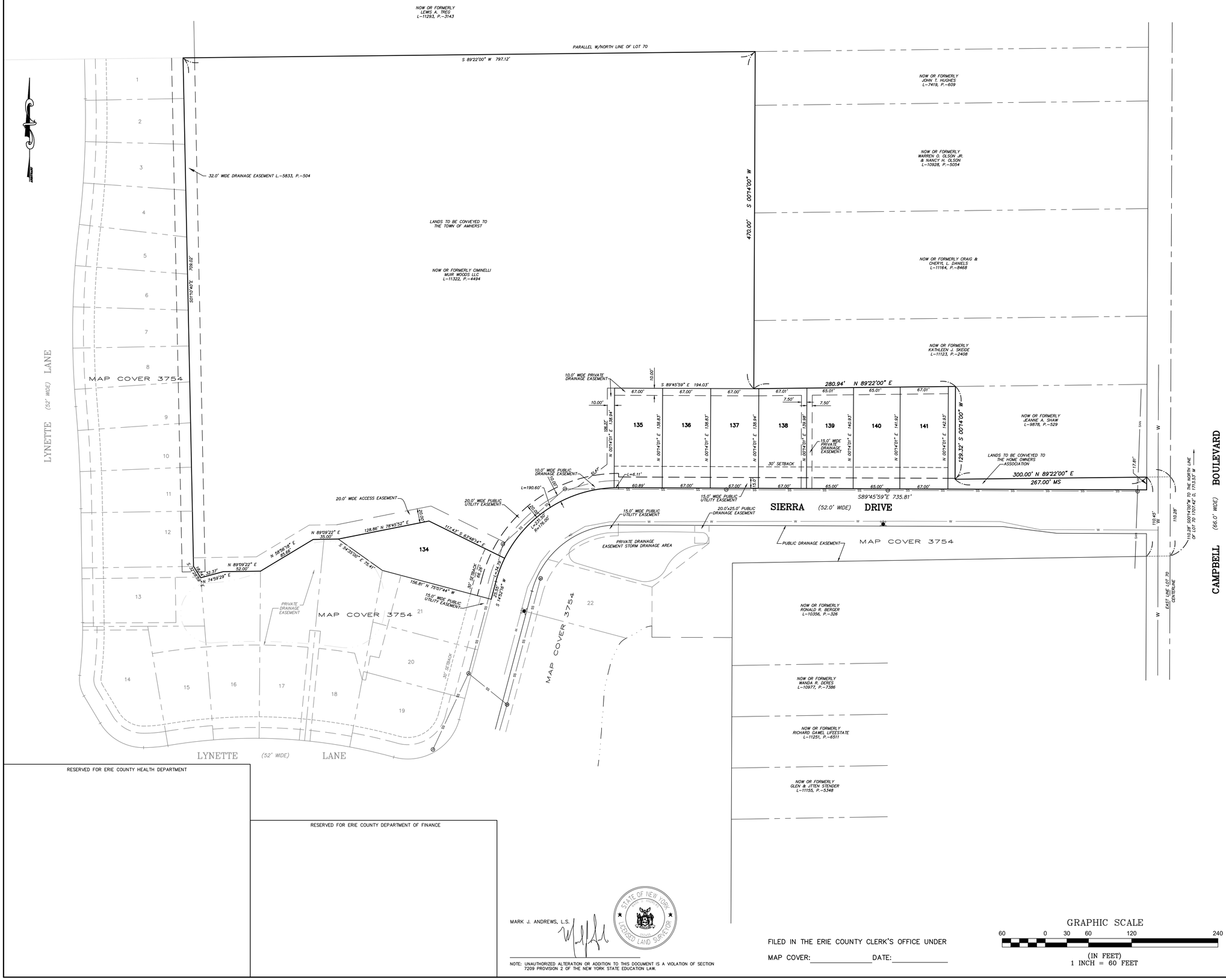
SCALE: 1" = 40'

WNY-2013062.40

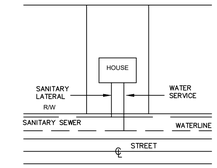
RT-2

Attachment: SP-2021-24_A drawings 042122 (25492 : Sp-2019-19_A)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.



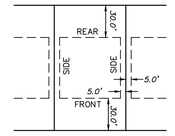
SANITARY SEWER FACILITIES, EXISTING AND PROPOSED, AND WATER SUPPLY FACILITIES, EXISTING AND PROPOSED, SHOWN ON THIS SUBDIVISION MAP ARE FOR THE PURPOSE OF COMPLIANCE WITH NEW YORK STATE REALTY SUBDIVISION LAW. GPI ENGINEERING, LANDSCAPE ARCHITECTURE AND SURVEYING, LLP ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF SANITARY SEWER AND WATER FACILITIES SHOWN ON THIS MAP OR FOR THE APPROVAL, CONSTRUCTION OR ACCEPTANCE BY APPROPRIATE GOVERNMENT AGENCIES OF SAID FACILITIES.



LOT AREAS

LOT 134	13,491 ± Sq. Ft.
LOT 135	9,302 ± Sq. Ft.
LOT 136	9,302 ± Sq. Ft.
LOT 137	9,305 ± Sq. Ft.
LOT 138	9,344 ± Sq. Ft.
LOT 139	9,130 ± Sq. Ft.
LOT 140	9,193 ± Sq. Ft.
LOT 141	9,542 ± Sq. Ft.

TYPICAL LOT SETBACK DEPICTION



STREET

NOTES:

ALL IMPROVEMENTS WILL BE INSTALLED UNDER TOWN PERMITS WITH ALL PLANS CONSISTENT WITH PRELIMINARY PLAT.

PUBLIC DRAINAGE EASEMENTS SHALL BE GRANTED TO THE TOWN OF AMHERST TO PROVIDE ACCESS TO STORM WATER FACILITIES. THESE EASEMENTS SHALL REMAIN FREE OF OBSTRUCTIONS.

PRIVATE DRAINAGE EASEMENTS SET FORTH ON THE SUBDIVISION MAP ARE FOR THE BENEFIT OF THE OWNERS OF PROPERTY WITHIN THE SUBDIVISION AND THE BENEFIT DERIVED FROM THESE EASEMENTS IS FOR THE PROPERTY ONLY AND THE TOWN OF AMHERST ASSUMES NO RESPONSIBILITY FOR THE MAINTENANCE THEREOF.

SEE SURVEY PREPARED BY GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP JOB NO. 2013062 DATED: DECEMBER 17, 2017

SUBDIVISION AREA: 13.18± Acres

OWNERS CONSENT FOR FILING :

_____ _____

OWNER DATE

APPROVED BY THE TOWN OF AMHERST PLANNING BOARD, ERIE COUNTY, NEW YORK :

_____ _____

CHAIRMAN DATE

RESERVED FOR ERIE COUNTY HEALTH DEPARTMENT

RESERVED FOR ERIE COUNTY DEPARTMENT OF FINANCE

MARK J. ANDREWS, L.S.

STATE OF NEW YORK MARK J. ANDREWS 090231 LICENSED LAND SURVEYOR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

FILED IN THE ERIE COUNTY CLERK'S OFFICE UNDER

MAP COVER: _____ DATE: _____

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 INCH = 60 FEET

The Preserve at Muir Woods Phase 4

PART OF LOT 70, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062 Date: JANUARY 27, 2022

Attachment: SP-2021-24_A drawings 042122 (25492 : Sp-2019-19_A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2019-19

PETITIONER

Acquest Companies
5554 Main Street
Williamsville, NY 14221

PROPERTY LOCATION

2425-2445 Wehrle Drive

APR30'20 PM 3:35 RCVD

WHEREAS, the Town of Amherst Planning Board on Thursday, February 20, 2020 held a public hearing on a Site Plan for a warehouse/office building, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act is required. An approved Jurisdictional Determination dated December 1, 2017 has been issued. ACOE permits will be required for this project.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance **approves** said Site Plan subject to the following conditions:

1. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

Attachment: SP-2019-19A draft resolution 042122 (25492 : Sp-2019-19_A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2019-19

PETITIONER

Acquest Companies

PROPERTY LOCATION

2425-2445 Wehrle Drive

APR30'20 PM 3:38 RCVD

2. That any lights used to illuminate the property be equipped with adjustable hoods to control light spread and direction so as not to create any nuisance to nearby properties, and that lights not exceed 25 feet in total height from finished grade.

3. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

4. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

5. That any required permits from the Army Corps of Engineers and/or NYS Department of Environmental Conservation be obtained prior to final site plan approval.

6. That all access agreements be filed and approved prior to final site plan approval.

7. That a flood plain development permit be obtained from the Building Department.

8. That an Erie County highway permit be obtained and provided to the Town.

9. That the comments listed in the SWPPP review letter dated April 13, 2020 be addressed.

10. That approval documents from National Fuel Gas relative to the proposed plans be copied to the Engineering Department prior to the issuance of a Town of Amherst Plumbing permit.

Attachment: SP-2019-19A draft resolution 042122 (25492 : Sp-2019-19_A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2019-19

APR30'20 PM 3:35 RCVD

PETITIONER

Acquest Companies

PROPERTY LOCATION

2425-2445 Wehrle Drive

The foregoing resolution was adopted by the Town of Amherst Planning Board, April 23, 2020; moved by – Guiliani; seconded by – Gelber; ayes 6, noes 0.

Robert J. Gilmour, Chair

4/30/20
Date

RR/ac
X:\Current_Planning\Files\Site Plans\2019\SP-2019-19_(2425-2445_Wehrle_Dr)_2019\Blurb_031920.doc
cc: Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
Acquest Companies, 5554 Main Street, Williamsville, NY 14221
Victor O'Brien, C&S Companies, 141 Elm Street, Suite 100, Buffalo, NY 14203

Approved Plan: C & S Engineering, Inc.
Received: February 6, 2020

WHEREAS, the Town of Amherst Planning Board at their meeting on Thursday, April 21, 2022 considered a request for an extension of the Major site plan approval for a proposed warehouse/office building located at 2425-2445 Wehrle Drive, and

NOW THEREFORE BE IT RESOLVED that the Planning Board grants an extension of Site Plan Approval commencing on April 23, 2022 for a period of two years.
The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

Robert J. Gilmour, Chair Date

Attachment: SP-2019-19A draft resolution 042122 (25492 : Sp-2019-19_A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2019-19

PETITIONER

Acquest Companies
5554 Main Street
Williamsville, NY 14221

PROPERTY LOCATION

2425-2445 Wehrle Drive

GP/ac
P/Current Planning Fields_Major Site Plans_
cc: Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
Acquest Companies, 5554 Main Street, Williamsville, NY 14221
Victor O'Brien, C&S Engineers, 141 Elm Street #100, Buffalo, NY 14203

Approved Plan: _____
Received: _____

Attachment: SP-2019-19A draft resolution 042122 (25492 : Sp-2019-19_A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2019-19

PETITIONER

Acquest Companies
5554 Main Street
Williamsville, NY 14221

PROPERTY LOCATION

2425-2445 Wehrle Drive

APR30'20 PM 3:39 RCVD

APR27'22 AM 9:59 RCVD

WHEREAS, the Town of Amherst Planning Board on Thursday, February 20, 2020 held a public hearing on a Site Plan for a warehouse/office building, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act is required. An approved Jurisdictional Determination dated December 1, 2017 has been issued. ACOE permits will be required for this project.

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Attachment: SP-2019-19A_signed_resolution_042122 (25492 : Sp-2019-19_A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2019-19

PETITIONER

Acquest Companies

PROPERTY LOCATION

2425-2445 Wehrle Drive

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APR27'22 AM 9:59 RCVD

2. That any lights used to illuminate the property be equipped with adjustable hoods to control light spread and direction so as not to create any nuisance to nearby properties, and that lights not exceed 25 feet in total height from finished grade.

3. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

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Attachment: SP-2019-19A_signed_resolution_042122 (25492 : Sp-2019-19_A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2019-19

APR27'22 AM 9:59 RCVD
APR30'20 PM 3:39 RCVD

PETITIONER	PROPERTY LOCATION
Acquest Companies	2425-2445 Wehrle Drive

The foregoing resolution was adopted by the Town of Amherst Planning Board, April 23, 2020; moved by – Guiliani; seconded by – Gelber; ayes 6, noes 0.

Robert J. Gilmour, Chair

4/30/20
Date

RR/ac
X:\Current_Planning\Files\Site Plans\2019\SP-2019-19_(2425-2445_Wehrle_Dr)_2019\Blurb_031920.doc

cc: Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
Acquest Companies, 5554 Main Street, Williamsville, NY 14221
Victor O'Brien, C&S Companies, 141 Elm Street, Suite 100, Buffalo, NY 14203

Approved Plan: C & S Engineering, Inc.
Received: February 6, 2020

WHEREAS, the Town of Amherst Planning Board at their meeting on Thursday, April 21, 2022 considered a request for an extension of the Major site plan approval for a proposed warehouse/office building located at 2425-2445 Wehrle Drive, and

NOW THEREFORE BE IT RESOLVED that the Planning Board grants an extension of Site Plan Approval commencing on April 23, 2022 for a period of two years.
The foregoing resolution was adopted by the Town of Amherst Planning Board, April 21, 2022; moved by Penberthy; seconded by Kahn; ayes 6, noes 0; absent 1 (Gilmour).

FOR Robert J. Gilmour, Chair

4-27-22
Date

Attachment: SP-2019-19A_signed_resolution_042122 (25492 : Sp-2019-19_A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2019-19

PETITIONER

Acquest Companies
5554 Main Street
Williamsville, NY 14221

PROPERTY LOCATION

2425-2445 Wehrle Drive

APR27'22 AM 9:58 RCVD

GP/ac
X:\Current_Planning\Files\Site Plans\2019\SP-2019-19_A_(2425-2445_Wehrle_Dr)_2022\SP-2019-19_A_resolution_042122.doc

cc: Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
Acquest Companies, 5554 Main Street, Williamsville, NY 14221
Victor O'Brien, C&S Engineers, 141 Elm Street #100, Buffalo, NY 14203

Approved Plan: Acquest Development
Received: February 2, 2022

Attachment: SP-2019-19A_signed_resolution_042122 (25492 : Sp-2019-19_A)