

# **STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

**FOR**

**Dollar General  
West Seneca Dollar General  
3030 Seneca Street**

West Seneca, New York  
Erie County

**Owner/Operator:**

The Broadway Group  
216 Westside Square  
Huntsville, AL 35801

**DOLLAR GENERAL®**

**Published:** December 2022

**Prepared By:**



**180 Charlotte Street, Rochester, NY 14607  
Phone: 585-334-1310  
[www.fisherassoc.com](http://www.fisherassoc.com)**

**FA No.: 220673.01**

**Draft Print**

12/14/2022 10:51:43 AM

## **TABLE OF CONTENTS**

	<b><u>Page No.</u></b>
I. Executive Summary .....	1
A. Permitting .....	1
B. Coverage under the Permit and Standard Conditions .....	2
C. Termination of Permit Coverage .....	3
II. Background Information .....	4
A. Project Contact Information .....	4
B. Project Description .....	4
III. Stormwater Management Planning.....	4
A. Step 1: Site Planning .....	5
B. Step 2: Determine Water Quality Treatment Volume (WQv) .....	8
C. Step 3: Runoff Reduction by Applying Green Infrastructure Techniques with Runoff Reduction Volume (RRv) Capacity .....	9
D. Step 4: Apply Standard Stormwater Management Practices to Address Remaining WQv .....	10
E. Step 5: Apply Volume and Peak Rate Control Practices if Still Needed to Meet Requirements .....	10
IV. Pollution Prevention Measures .....	11
A. Erosion and Sedimentation Control.....	12
B. Other Pollution Prevention Controls .....	14
V. Construction Observation & Maintenance Procedures .....	16
VI. Post-Construction Operation & Maintenance Procedures .....	18

## **Appendix A: Supporting Documents**

Exhibit 1: Project Location Maps  
Exhibit 2: Notice of Intent (NOI ) Application & NYSDEC Acknowledgment  
Exhibit 3: MS4 SWPPP Acceptance  
Exhibit 4: SPDES GP-0-20-001  
Exhibit 5: Notice of Termination (NOT) Form  
Exhibit 6: Certification(s)  
Exhibit 7: Inspection Report Form  
Exhibit 8: Permanent SMP Maintenance Agreement  
Exhibit 9: Water Quality Calculations  
Exhibit 10: Erosion and Sediment Control Specifications and Details  
Exhibit 11: Miscellaneous Mapping and Documentation  
Exhibit 12: SWPPP Amendments

## **References**

1) West Seneca Dollar General Construction Documents, Completed by Fisher Associates.

---

---

## **I. Executive Summary**

This report summarizes the general conditions of the New York (NY) State Pollution Discharge Elimination System (SPDES); outlines existing and proposed drainage conditions with regard to critical environmental identities; addresses temporary and permanent erosion and sediment control; sets forth required stormwater quality and quantity mitigation; provides sequencing of activities and phasing; sets forth methods for material tracking, spill prevention, and cleanup; appoints individuals responsible for implementation of the project requirements; and specifies operation and maintenance procedures for the proposed storm water practices. The practices specified herein follow the “New York Standards and Specifications for Erosion and Sediment Control, November 2016” (NY SSESC) and the “New York State Stormwater Management Design Manual, January 2015” (NYS SMDM).

### **A. Permitting**

This Stormwater Pollution Prevention Plan (SWPPP) was created to help achieve compliance with the NYS Department of Environmental Conservation (NYS DEC) SPDES General Permit for Stormwater Discharges from Construction Activity, Permit No. GP-0-20-001, Expiration Date January 28, 2025 (referenced hereafter as SPDES GP-0-20-001).

This SWPPP has been prepared by a licensed professional, in general accordance with the NYS water quality standards to the extent technically feasible and with the substantive intent of the SPDES GP-0-20-001. Thus, as required by Part V of the permit, the licensed professional who stamped and signed the cover of this document certifies to the following statement, as obtained from the SPDES GP-02-01 and referenced thereafter in parentheses:

“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.” (SPDES GP-02-01, Part V.H.2.C).

For the purposes of the SPDES GP-0-20-001 and this report, the term “Owner/Operator” means the person, persons, or legal entity that owns or leases the property on which the construction activity is occurring; the term “Contractor(s)” shall mean any person, persons, or legal entities, including General Contractors and Subcontractors, who will generate site disturbance; and the term “Qualified Professional” shall mean a person whom is knowledgeable in the principles and practices of erosion and sediment controls, such as a NYS licensed Professional Engineer, a Certified Professional in Erosion and Sediment Control (CPESC), a NYS licensed Landscape Architect, or a Soil Scientist.

To obtain coverage under SPDES GP-0-20-001 requires electronic submittal of a Notice of Intent (NOI) to NYSDEC. Permit coverage begins five (5) days after NOI submittal unless otherwise notified by NYSDEC.

In accordance with Part II.A of the SPDES GP-0-20-001, the Owner/Operator must sign the Certification section of the NOI and have the completed application submitted to NYSDEC, to obtain coverage under the permit. Note that submittal of a completed NOI is considered an affirmation by the Owner/Operator

that the proposed construction activity is eligible for coverage under the SPDES GP-0-20-001 and that the SWPPP has been prepared and will be implemented in accordance with Part III of the permit.

In accordance with the Part VII.H of the SPDES GP-0-20-001, the Owner/Operator is responsible for signing the Certification section of the NOI, as follows:

1. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (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;
2. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or
3. 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:
  - The chief executive officer of the agency, or
  - A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

Upon approval of the application, NYSDEC will forward the Owner/Operator a letter acknowledging permit coverage for the project. A copy of this letter shall be posted on site, in a public area, prior to commencement of any construction. The documents shall remain accessible to the public until final stabilization of the site is achieved and permit coverage is terminated.

#### B. Coverage under the Permit and Standard Conditions

The excerpts below are from the SPDES GP-0-20-001. They provide general detail about coverage under the permit and its conditions. The citation referencing the SPDES GP-0-20-001 is noted in parentheses at the end of each excerpt.

- It shall be a violation of this general permit and the *Environmental Conservation Law* (“ECL”) for any discharge authorized by this general permit 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 (SPDES GP-0-20-001, Part I.D).



- 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 permit non-compliance constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation 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*. (SPDES GP-0-20-001, Part VII.A).
- There is 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. (SPDES GP-0-20-001, Part VII.C).
- 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. (SPDES GP-0-20-001, Part VII.E).

Prior to the certification of SPDES related documents, the Owner/Operator should become familiar with the SPDES GP-0-20-001 and its conditions (6 NYCRR Part 750, Subpart 750-1 & 750-2) by reviewing them. The conditions can be found by contacting the NYS DEC or by visiting its website at <http://www.dec.state.ny.us>.

Prior to allowing commencement of any construction activities on site, the Owner/Operator shall obtain certifications from all Contractors involved with activities that disturb soil or implement pollution prevention controls to comply with the terms and conditions herein. Certifications are in *Appendix A, Exhibit 7*.

#### C. Termination of Permit Coverage

Permit coverage may terminate once disturbed areas are stabilized, permanent erosion and sedimentation controls installed, temporary erosion and sedimentation controls removed, construction activities have ceased, and a completed Notice of Termination (NOT) has been filed with NYSDEC.

To terminate permit coverage, the NOT form must be filed with NYSDEC after final stabilization is achieved. "Final stabilization" shall mean that soil-disturbing activities at the site have been completed, a uniform perennial vegetative cover with a minimum density of 80 percent has been established or equivalent stabilization measures have been employed on pervious areas, and impervious covers have been installed.

According to SPDES GP-0-20-001, Part V.A.3, the Owner/Operator shall have a qualified inspector perform a final site inspection, determining whether final stabilization have been achieved, prior to NOT submittal. The qualified inspector shall sign the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certifications of the NOT.

For sites within a regulated, traditional land use control Municipal Separate Storm Sewer System (MS4), per SPDES GP-0-20-001 Part V.A.4, the “MS4 Acceptance” section of the NOT must be completed and signed by the MS4 official. The MS4 official can determine the site conditions are acceptable for submitting the NOT by performing a final site inspection themselves or by accepting the qualified inspector’s final site inspection certification(s).

## **II. Background Information**

### **A. Project Contact Information**

Owner/Operator: Tara Mathias Bennett  
Development Manager – The Broadway Group, LLC  
216 Westside Square  
Huntsville, AL 35801  
[Tara.mathias@broadwaygroup.net](mailto:Tara.mathias@broadwaygroup.net) , 256-533-7287

### **B. Project Description**

This project contains a redevelopment of an existing commercial plaza located at 3030 Seneca Street, West Seneca, New York. The Town of West Seneca is a regulated, traditional land use control MS4. The project includes:

- Removal of asphalt parking areas;
- Removal of existing buildings;
- Addition of new asphalt parking areas;
- Addition of concrete sidewalks and hardscape;
- Addition of driveways;
- Addition of grassed areas and landscaping;
- Addition of new Dollar General store.

The project area is in the Town of West Seneca, Erie County, New York. For completion of the NOI, the nearest cross street to the project is Seneca Street and Center Road, located approximately 300-linear feet northwest of the northwestern most driveway to the site. The parcel’s centroid x,y coordinates are 42.8396 and -78.7820, from the electronic NOI location map.

## **III. Stormwater Management Planning**

As noted in Chapter 3 of the 2015 NYS SMDM, planners and designers must use the following five-step process in stormwater management planning:

1. Site planning to preserve natural features and reduce impervious cover;
2. Calculation of the water quality volume for the site;
3. Incorporation of green infrastructure techniques and standard stormwater management practices (SMPs) with Runoff Reduction Volume (RRv) capacity;
4. Use of standard SMPs, where applicable, to treat the portion of water quality volume not addressed by green infrastructure techniques and standard SMPs with RRv capacity; and
5. Design of volume and peak rate control practices, where required.

According to Chapter 4 of the NYS SMDM, the SWPPP must demonstrate green infrastructure planning and design options are evaluated to meet the runoff reduction requirement and provide documentation if components of the approach are not technically feasible. Thus, the following sections of this report address the above requirements with respect to site constraints and requirements for development of the project.

#### A. Step 1: Site Planning

##### 1. Preservation of Natural Resources

- Preservation of Undisturbed Areas – Delineate and place into permanent conservation easement undisturbed forests, native vegetated areas, riparian corridors, wetlands, and natural terrain.
  - There are no forests, riparian corridors, or other pertinent natural terrain within the project area except for an existing wetland southwest of the project location.
- Preservation of Buffers – Define, delineate, and place in permanent conservation easement naturally vegetated buffers along perennial streams, rivers, shorelines and wetlands.
  - There are no perennial streams, rivers, or shorelines within the project area that can be placed within a permanent conservation easement.
- Reduction of Clearing and Grading – Limit clearing and grading to the minimum amount needed for roads, driveways, foundation, utilities, and stormwater management facilities.
  - The limit of disturbance has been restricted to the minimum area necessary for the construction of the project. No work outside of these limits shall take place.
- Locating Development in Less Sensitive Areas – Avoid sensitive resource areas such as floodplain, steep slopes, erodible soils, wetlands, mature forests, and critical habitats by locating development to fit the terrain in areas that will create the least impact.
  - Slope – The Soil Conservation Service (SCS) Web Soil Survey (WSS) was used to generate a map depicting the location of the various Soil Series found on-site. The SCS WSS data does not indicate the soils within the disturbed areas are classified as having steep slopes. The SCS WSS report is included in *Appendix A, Exhibit 11*.
  - Soil Erodibility –The SCS WSS data indicates that most of the soils on site where earthmoving activities are to be performed are classified as Urban Land. The site soils are considered to have moderate to high erodibility, and measures have been taken in this SWPPP design to reduce runoff velocities and therefore minimize the potential for erosion. Erosion Control practices are to be employed as shown in the Construction Drawings. The SCS WSS report is included in *Appendix A, Exhibit 11*.

- Depth to Bedrock - According to the SCS WSS, the depth to restrictive layer within the project disturbed areas is estimated to be greater than 6.5-ft. As such, bedrock is not anticipated to be encountered during construction of this project. The SCS WSS report is included in *Appendix A, Exhibit 11*.
- Water Table - The SCS WSS data indicates groundwater is anticipated to be greater than 6.5 ft below the surface. Groundwater is not anticipated to be encountered during construction of this project, however if it is proper dewatering practices shall be utilized per the NY SDESC. The SCS WSS report is included in *Appendix A, Exhibit 11*, and pertinent standards from the NY SDESC are included in *Appendix A, Exhibit 10*.
- Historic and Archeological Resources - According to the Cultural Resource Information System (CRIS) of the State of New York Historic Preservation Office (SHPO), the project is not located within an archeo-sensitive area and is not adjacent to a determined historic site. The CRIS map of the project area is included in *Appendix A, Exhibit 11*.
- Watershed - This project is located within the NYSDEC Niagara River Lake Erie Watershed, as shown on the watershed profile included as part of *Appendix A, Exhibit 11*.
- Rare Plants & Animals – According to the National Fish and Wildlife Service, there are no rare plants or animals within project limits. Additionally, there will not be any tree removals as a part of this project effecting the Northern Long Eared Bat or any bird species.
- Impaired Waters - The project does not discharge into a NYSDEC jurisdictional wetland or to a watercourse listed on the Section 303(d) Segment Impaired by Construction Related Pollutants list in Appendix E of GP-01-20-001.
- Total Maximum Daily Load Water bodies - The project does not involve a watercourse that is on the Environmental Protection Agency (EPA) list of water bodies having TMDL limits within the Niagara River Lake Erie Watershed.
- Municipal Separate Storm Sewer System (MS4) - The project is located within the Town of West Seneca, which is a designated MS4. The MS4 Acceptance Form is included in *Appendix A, Exhibit 3*.
- Aquifers – The Federal Sole Source Aquifer Map was reviewed, and it revealed the project is not located over a Sole Source Aquifer. The NYS Primary Water Supply and Principal Aquifers map was also reviewed, and it indicated the project site is not located over a Principal Aquifer. Aquifer maps are in *Appendix A, Exhibit 11*.
- Wetlands – There are no federal wetlands within the limit of disturbance, according to the National Wetland Inventory (NWI) map included as part of *Appendix A, Exhibit 11*. In addition, there are no NYSDEC wetlands located within

the limits of disturbance. A Federal Freshwater Forested/Shrubbed Wetland is located to the southwest of the project site. A copy of the NYSDEC Environmental Resource Map and the National Wetlands Inventory Map is also included as part of *Appendix A, Exhibit 11*.

- Floodplain - The project area is not within a 100-year flood plain, as determined from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Town of West Seneca, New York, Erie County, Community Number 36029C0333H. A portion of the floodplain map is included as part of *Appendix A, Exhibit 11*.
- Stormwater Hotspot - This project is not classified as a Stormwater Hotspot, as it does not involve any land uses or activities listed in Table 4.3 of the NYS SMDM.
- Open Space Design – Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources.
  - The project maintains the existing open space of the site and adds additional green space compared to the existing condition.
- Soil Restoration – Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of practices such as downspout disconnection, grass channels, filter strips, and tree clusters.
  - Disturbed areas are to be permanently vegetated shall have soil restoration applied in accordance with Table 5.3 of the NYS SMDM.

## 2. Reduction of Impervious Cover

- Roadway Reduction – Minimize roadway widths and lengths to reduce site impervious area.
  - The project does not include the adjustment of municipal roadway lengths or widths.
- Sidewalk Reduction – Minimize sidewalk lengths and widths to reduce site impervious area.
  - Sidewalks have been minimized as much as practical.
- Driveway Reduction – Minimize driveway lengths and widths to reduce site impervious area.
  - Driveways have been minimized as much as practical.

- Cul-de-sac Reduction – Minimize the number of cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.
  - The project does not include the addition of cul-de-sacs or adjustment to existing cul-de-sacs.
- Building Footprint Reduction – Reduce the impervious footprint of residences and commercial buildings by using alternate or taller buildings while maintaining the same floor to area ratio.
  - The Building Footprint has been minimized as much as practical.
- Parking Reduction – Reduce imperviousness of parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, minimizing stall dimensions, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate.
  - The proposed parking has been minimized as much as practical.

**B. Step 2: Determine Water Quality Treatment Volume (WQv)**

**1. Soils**

Based on the SCS WSS, the site contains mainly Urban Land and Niagara soils which has a Hydrologic Soil Group classification of HSG “D”. The earthmoving activities will take place within this soil identification. A copy of the soils map is included as part of *Appendix A, Exhibit 11*.

**2. Proposed Drainage & Ground Cover**

The table below summarizes the site area, existing impervious area, and proposed impervious area resulting from this project. The site plan can be found within the project Construction Documents.

Estimated Project Areas – Table 1			
Location	Drainage Area (ac)		
Overall Site	1.19		
Existing Conditions			
	Impervious Area (ac)	Pervious Area (ac)	Summation of Existing Drainage Area (ac)
Existing	1.04	0.15	1.19
Proposed Conditions			
	Impervious Area (ac)	Pervious Area (ac)	Summation of Proposed Drainage Area (ac)
Proposed	0.86	0.33	1.19
Existing Versus Proposed Comparison			
	Impervious Area (ac)	Pervious Area (ac)	
Net Change	-0.18	+0.18	

The proposed drainage area analyzed for the West Seneca Dollar General project is approximately 2.19 acres. Of this area, approximately 0.86 acres are impervious, which includes the addition of the Dollar General building, asphalt parking areas, and various hardscape additions. Since existing impervious area was quantified at approximately 1.04 acres, the proposed construction removes approximately 0.18 acres of impervious area to the project site.

In general, the proposed building and southern portion of the parking lot are treated by six total surface basins and a First Defense Hydrodynamic Separator Unit (Model FD-3HC) where water is treated and sent into the Seneca Street municipal underground stormwater pipe network. The northern portion of the proposed parking lot is treated using two surface basins, one routing into the other which ultimately sends stormwater into the Center Road municipal underground stormwater pipe network.

Refer to the project Stormwater Drainage Report in Appendix B for additional information and calculations regarding the drainage system design.

### 3. Stormwater Quality

This project will include redevelopment areas and will have an increase in impervious cover. Per Chapter 4 of the NYS SMDM, 100% of WQv associated with new development areas which increase impervious cover shall be treated. According to the Chapter 9 of the NYS SMDM, 25% of WQv associated with the existing impervious surfaces is to be treated. Since we are reducing impervious areas within the site, only the 25% of WQv associated with the existing impervious surfaces is to be treated. These percentages are contingent on the use of practices that are considered standard RRv and standard SMP's with RRv capability.

The calculations used to determine the required WQv are included in *Appendix A, Exhibit 9*. The following is a summary of the required water quality volume for the project:

Required WQv Summary – Table 2			
Location	Type of Development	Required Treatment Area per NYS SMDM	Required WQv (cf)
Overall Site	Redevelopment	25%	903
<b>Total</b>	<b>-</b>	<b>-</b>	<b>903</b>

### C. Step 3: Runoff Reduction by Applying Green Infrastructure Techniques with Runoff Reduction Volume (RRv) Capacity

According to Chapter 4 of the NYSDEC SMDM June 2015, runoff reduction shall be achieved by infiltration, groundwater recharge, reuse, recycle, evaporation/evapotranspiration of 100% of the post-development WQv to replicate pre-development hydrology. This requirement can be accomplished by application of on-site green infrastructure practices, standard stormwater management practices with runoff reduction capacity, and good operation and maintenance.

The table below summarizes the RRv provided by the above Green Infrastructure Techniques. For purposes of the West Seneca Dollar General project, the implementation of GI Techniques was not practical. The table below reflects this. The remaining WQv will be addressed with SMP's with RRv capacity.

GI Technique RRv Summary – Table 3			
Location	Treatment Technique Used	Total Required WQv (cf)	Total Reduced WQv (cf)
<b>Total Required WQv</b>	-	<b>903</b>	-
None	-	-	-
Remaining To Be Treated	-	<b>903</b>	-

The proposed Green Infrastructure Techniques do not meet the minimum RRv requirement for the project. Standard SMP's with RRv capacity will be applied to the stormwater management design to treat the remaining WQv. The minimum RRv calculation and provided RRv calculation are included in *Appendix A, Exhibit 9*.

#### D. Step 4: Apply Standard Stormwater Management Practices to Address Remaining WQv

The remaining WQv for the project is reduced by the implementation of an infiltration trench. Stormwater will enter the trench through piping and runoff, be stored within the trench and encouraged to be infiltrated into the subsurface soils. A continuous overflow pipe is present within the trench and directs stormwater to the underground stormwater piping network.

The table below summarizes the RRv provided by the above SMP's with RRv capacity. Calculations for these systems and the overall HydroCAD model can be found in *Appendix A, Exhibit 9*.

SMP RRv Summary – Table 4			
Location	Treatment Technique Used	Required WQv (cf)	Total Treated WQv (cf)
Required WQv After GI Techniques	-	<b>903</b>	-
East of the Store	Infiltration Trench	-	908
Remaining WQv After SMP	-	<b>0 (excess of 5 cf)</b>	-

The proposed infiltration trench (as detailed within the Construction Documents) provides 908 cf of water quality treatment, exceeding the required 903 cf, and satisfying the requirements outlined in the NYS Stormwater Design Manual. All calculations can be found in *Appendix A, Exhibit 9*.

#### E. Step 5: Apply Volume and Peak Rate Control Practices if Still Needed to Meet Requirements

For the post-development 1-year, 24-hour storm, water conveyed to the stormwater management practices is designed to be stored and routed into the existing underground municipal stormwater networks within Center and Seneca Street. We are also reducing impervious cover within the site, and as a result, when compared to pre-development conditions, the runoff rate is reduced.

Channel Protection (CPv) is the 24-hour detention of the 1 year post-developed, 24-hour storm event for the control of channel erosion. In general accordance with the NYS SMDM, the required proposed CPv volume was calculated to be 0.08 ac-ft. From the proposed HydroCAD modeling, the infiltration trench stores and infiltrates approximately 0.01 ac-ft. In order to meet the requirements for CPv, nearly the entire 1-year, 24-hour storm would need to be stored on-site. This is not practical for a small commercial



development. Since the site is directly discharging to an underground municipal stormwater piping network and since the site is reducing overall runoff, the Engineer for the project has determined that achieving CPv requirements for this redevelopment is not possible. The overall runoff from a 1-year, 24-hour storm has been reduced by approximately 39%, as reflected in Table 5 below. The required CPv calculations and proposed HydroCAD modeling report can be found in *Appendix A, Exhibit 9*.

Overbank Flood (QP) is control of the peak discharge from the 10-year post-developed, 24-hour storm event to 10-year pre-development rates. As shown in Computed Runoff Rates – Table 5, the post-development 10 year, 24-hour runoff rate is reduced from pre-development 10-year, 24-hour rate by 36%.

Extreme Flood (QF) is control of the peak discharge from the 100 year post-developed, 24-hour storm event to the 100-year pre-development rates. As shown in Computed Runoff Rates – Table 5, the post-development 100 year, 24-hour runoff rate is reduced from pre-development 100 year, 24-hour rate by 24%.

Computed Runoff Rates – Table 5		
Protection / Storm Event	Existing Runoff Rate (cfs)	Proposed Runoff Rate (cfs)
Channel Protection / 1-Yr	2.82	1.73
Overbank Flood / 10-Yr	5.02	3.21
Extreme Flood / 100-Yr	8.58	6.56

\*Refer to Stormwater Drainage Report in *Appendix B* for existing and proposed HydraFlow modeling reports.

#### **IV. Pollution Prevention Measures**

The primary goal of pollution prevention efforts during project construction is to control soil and pollutants that originate on the site and prevent them from flowing to surface waters. The purpose of this SWPPP is to provide guidelines for achieving that goal. A successful pollution prevention program also relies upon careful inspection and adjustments during the construction process to enhance its effectiveness. Prior to the commencement of construction of the development, a NOI shall be filed with the NYSDEC to obtain coverage under SPDES GP-0-20-001 for storm water discharges from construction activity. The NOI shall be signed by the owner/operator, SWPPP preparer, and MS4 official, and submitted to NYSDEC.

The areas of disturbance are to be minimized as much as practical and limited to the areas depicted on the project drawings. The erosion and sediment control plan is included within the referenced construction plans.

Temporary stabilization of the project shall be employed, to the fullest extent practical, prior to freezing conditions. This shall include temporary seeding and establishment of vegetation wherever possible or other methods approved by the Qualified Professional, such as rolled erosion control products.

#### A. Erosion and Sedimentation Control

Construction operations shall be carried out in such a manner that erosion will be controlled and water and air pollution minimized. Federal, State and local laws concerning pollution abatement shall be followed. To provide for the stability and effectiveness of protective measures and practices specified in the SWPPP, during and after construction, erosion control measures shall be implemented in accordance with the construction sequence schedules included in this report and according to the NY SDESC. Relevant specifications are included in *Appendix A, Exhibit 10*.

A summary of the general construction sequencing is as follows:

1. The Owner/Operator shall submit a Notice of Intent to the NYSDEC for coverage under the SPDES General Permit for Stormwater Discharge from Construction Activities prior to construction activities. A copy of the acknowledgment of Notice of Intent from the NYSDEC, and the contractor's certifications shall be added to the site copy of the SWPPP.
2. The contractor shall host a pre-construction kick-off meeting, inviting sub-contractors that will be involved with site construction activities. The meeting will include a review of the SWPPP and the proposed erosion and sediment control measures to be implemented.
3. The contractor shall mark the location of storage/laydown areas, trailers, waste receptacles, temporary lavatory facilities, etc. on the construction drawings prior to commencing work.
4. Field located the Limits of Disturbance, important trees, associated rooting zones, and other existing site/environmental features designated to remain.
  - Tree protection material and installation must comply with the standard drawing and specifications.
5. Construct temporary perimeter erosion and sediment control measures (silt fence, filter sock, etc.)
  - Silt fence material and installation must comply with the standard details and specifications.
  - Install silt fence based on appropriate spacing intervals. Decrease this interval as the slope increases. The area below the silt fence should be undisturbed ground.
6. Construct stabilized construction entrances as depicted on the plans to capture mud and debris from construction vehicles before they enter the public highway.
  - Stabilize bare areas (entrances, construction routes, equipment areas) immediately as work takes place. Top these areas with gravel or maintain vegetative cover.
  - Sediment tracked onto public streets shall be removed or cleaned on a daily basis and as necessary throughout the day.
7. Construct temporary catchment erosion and sediment control measures (tree protection, storm drain inlet protection, etc.) for existing structures.

- Install storm drain inlet protection at existing storm inlets that are to remain in place.
8. Construct temporary sediment basins/traps and respective outlets and/or diversions.
  9. The Owner/Operator's Qualified Professional shall perform a pre-construction observation of the installed erosion and sediment control practices before commencing construction.
  10. Commence clearing and grubbing the site.
  11. Upon completion of clearing and grubbing, begin demolition of existing site features identified on the project drawings.
  12. After completion of demolition activities, remove and stockpile topsoil and vegetation from areas to be impacted by the construction activities. No organic debris shall be buried on site. The topsoil stockpile should be stabilized by seed, mulch, or other appropriate measures within 7 days of inactivity while more than 5 acres of soil is disturbed. When less than 5 acres of soil is disturbed, these actions must be achieved within 14 days of inactivity. In addition, silt fence should be installed around the perimeter of the stockpile beyond the toe of slope. The contractor shall mark topsoil locations on the construction drawings.
  13. Grade the site in accordance with the proposed site grading plan.
  14. Stabilize disturbed areas as soon as practical in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site where soil disturbance activities have temporarily or permanently ceased. While greater than 5 acres of soil is disturbed, stabilization procedures must occur within 7 days of inactivity. In order to obtain temporary stabilization status, 2 tons per acre or 3 bales per 1,000 square feet of straw mulch shall be tacked into place by a disk with blades set nearly straight or an approved equal method or product shall be used. Hydro seeding shall not be considered a means for providing temporary stabilization. This requirement does not apply in the following instances:
    - During less than 5 acres of soil disturbance: When the initiation of the stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions. If this condition occurs, the stabilization measures shall be initiated as soon as the ground is thawed.
    - During greater than 5 acres of soil disturbance: When the initiation of the stabilization measures by the 7th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions. If this condition occurs, the stabilization measures shall be initiated as soon as the ground is thawed.
  15. Construct concrete washout areas. The contractor shall mark concrete washout areas on the construction plans.
  16. Install utilities and inlet protection per the construction plans.

- Install storm drain inlet protection at proposed storm inlets once they are installed until the surrounding grade has been stabilized in accordance with the requirements of the permit.
17. Install stone bases for roads and other proposed impervious areas (parking lots, etc.).
  18. Grade and construct permanent stormwater management practices and stabilize side slopes within 14 days of inactivity if less than 5 acres of soil is disturbed. If greater than 5 acres of soil is disturbed, stabilize side slopes within 7 days of inactivity.
  19. Complete grading, apply topsoil, and perform soil restoration according to Table 5.3 of the NYS SMDM.
  20. Install permanent seed, fertilizer, and mulch on finish graded lawn or landscape areas.
  21. Install final hardscapes (asphalt, concrete, etc.).
  22. Remove accumulated sediment from permanent stormwater management practices including, but not limited to, detention basins, retention practices, stormwater structures, and storm sewers.
  23. The site shall be cleaned of construction debris prior to demobilization.
  24. Erosion and sediment control features shall be maintained until establishment of a substantial stand of grass on all green areas, in accordance with the general permit. On acceptance of restoration by the Qualified Professional, remove temporary erosion control features.

#### B. Other Pollution Prevention Controls

##### 1. Dust and Mud Control

Construction traffic must enter and exit the site at the stabilized construction entrances as depicted on the plan sheets and in accordance with the NY SDESC. The purpose is to trap dust and mud that would otherwise be carried off-site by construction traffic. Water trucks or other dust control agents will be used as needed during construction to reduce dust generated on the site. Mud or dust tracked onto public roadways shall be removed from the roadways on a daily basis. After construction, the site will be stabilized (as described in Section VI), which will reduce the potential for dust generation.

##### 2. Topsoiling, Seeding, Sodding, Planting, and Mulching

Topsoiling, seeding, sodding, planting and mulching shall be performed, as specified on the documents referenced in the TOC of this report. In addition, erosion control blankets shall be installed on disturbed areas having slopes of 1-vertical to 3-horizontal or greater to help establish lawn.

##### 3. Solid Waste Disposal

No solid materials, including building materials, are allowed to be discharged from the site with storm water. Solid waste, including disposable materials incidental to the major construction activities, must be collected and placed in containers. The containers will be emptied as necessary by a contract trash disposal service and hauled away from the site. Substances that have the potential to pollute surface and/or groundwater must be controlled to ensure that they are not discharged from the site.

#### 4. Sanitary Facilities

Personnel involved with construction activities must comply with state and local sanitary or septic system regulations. Temporary sanitary facilities shall be provided at the site throughout the construction phase and must be utilized by construction personnel. Temporary sanitary facilities shall be serviced by a commercial operator.

#### 5. Water Source

Non-storm water components of site discharge must be clean water. Water used for construction, which discharges from the site must originate from a public water supply or private well approved by the State Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site.

#### 6. Concrete Waste from Concrete Ready-Mix Trucks

Discharge of excess or waste concrete and/or wash water from concrete trucks will be allowed on the construction site, but only in specifically designated washout areas prepared to prevent contact between the concrete and/or wash water and storm water that will be discharged from the site. The washout area must be installed and maintained according to NY SDESC specifications. The cured residue from the concrete washout shall be disposed in accordance with applicable state and federal regulations.

#### 7. Fuel Tanks

Temporary on-site fuel tanks for construction vehicles shall meet state and federal regulations. Tanks shall have approved spill containment with the capacity required by the applicable regulations. The tank shall be in sound condition free of rust or other damage, which might compromise containment. Hoses, valves, fittings, caps, filler nozzles, and associated hardware shall be maintained in proper working condition.

#### 8. Hazardous Waste Management and Spill Reporting

Hazardous or potentially hazardous waste that is brought onto the construction site will be handled properly in order to reduce the potential for storm water pollution. Materials used on this construction site will be properly stored, handled and dispensed following applicable label directions. Material Safety Data Sheets (MSDS) information will be kept on site.

In the event of a spill, immediate action shall be taken by the General Contractor to contain and remove the spilled material. Hazardous materials shall be disposed of by the Contractor in the manner specified by local, state, and federal regulations and by the manufacturer of such

products. As soon as possible, the spill shall be reported to the appropriate state and local agencies. As required under the provisions of the Clean Water Act, any spill or discharge entering the waters of the United States shall be properly reported.

Any spills of hazardous materials in quantities in excess of Reportable Quantities as defined by EPA or the State Agency regulations, shall be immediately reported to the EPA National Response Center (1-800-424-8802) and the NYSDEC Division of Environmental Remediation (NYS Spill Hotline, 1-800-457-7362). The reportable quantity for petroleum products is 5-gal. Refer to Exhibit 1.1-1 of the NYSDEC Division of Environmental Remediation Technical Field Guidance Spill Reporting and Initial Notification Requirements for hazardous materials spill reportable quantities and procedures.

In order to minimize the potential for a spill of hazardous materials to come in contact with storm water, the following steps will be implemented:

- a. Materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) shall be stored in a secure location, under cover, when not in use.
- b. The minimum practical quantity of such materials shall be kept on the job site and scheduled for delivery as close to time of use as practical.
- c. A spill control and containment kit (containing for example, absorbents, such as kitty litter or sawdust, acid neutralizing agents, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) shall be provided at the storage site.
- d. The product in a container shall be used before the container is disposed of. Such containers shall be triple rinsed, with water prior to disposal. The rinse water used in these containers shall be disposed of in a manner in compliance with state and federal regulations and shall not be allowed to mix with storm water discharges.
- e. Products shall be stored in and used from the original container with the original product label.
- f. Products shall be used in strict compliance with instructions on the product label.
- g. The disposal of excess or used products shall be in strict compliance with instructions on the product label.

## **V. Construction Observation & Maintenance Procedures**

The Owner/Operator shall have a Qualified Inspector assess the site prior to the commencement of construction work and report the appropriate erosion and sediment controls described herein have been installed adequately for construction of the project to begin.

Construction observations shall be completed upon commencement of disturbance at least once every 7 days until final stabilization of the site is achieved for sites when disturbance is less than 5-acres, and twice every 7 days for sites when disturbances exceed 5-acres, if applicable.

Construction observation reports shall be performed by a Qualified Inspector after each observation and filed with the SWPPP. A digital photograph, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions shall be included with the inspection

report. In addition, the Qualified Inspector shall take a digital photograph, with date stamp, that clearly shows the condition of the practice after the corrective action has been completed. A copy of the required report form is included as part of *Appendix A, Exhibit 7*.

The following observation and maintenance practices shall be used to maintain the proposed erosion and sediment controls:

1. Silt Fence shall be observed for depth of sediment, tears, fabric burial depth, proper fence post tie-in practices, attachment of fabric to the fence posts, and to determine if the fence posts are secure in the ground. Built-up sediment shall be removed when it has reached one-third the height of the fence.
2. Stabilized construction entrance shall be observed for sediment accumulation and shall have sediment removed or clean stone installed to prevent tracking of debris onto public roadways.
3. Storm inlet protection practices shall be observed for sediment accumulation and shall have sediment removed and disposed of when sediment reaches one-third the height of the practice.
4. Temporary sump pits shall be observed for sediment accumulation and shall have sediment removed or clean stone installed when water is not able to drain into pit.
5. Sediment and debris removed from a practice shall be disposed of in accordance with applicable waste disposal regulations.
6. Temporary and Permanent Seeding, as well as Plantings shall be inspected for washouts, bare spots, and healthy growth. Washout areas shall be stabilized by erosion blanket, sod, or other approved energy dissipation means. Bare spots and unhealthy growth areas shall be re-established, as required.
7. Erosion and Sediment Control measures shall be maintained in good working order. If a repair is necessary, it shall be initiated within 24 hours of being reported and corrected within 48-hours thereafter.
8. Concrete washouts shall be observed for leaks or damage and for accumulation. Repair leaks and damages immediately. Clean out or replace washouts before overflow/spillage is imminent.

Construction observation reports shall be performed by the Qualified Professional after each observation and filed with the SWPPP on-site. A copy of the required inspection report form is included as part of *Appendix A, Exhibit 7*.

In accordance with the SPDES GP-0-20-001, the Owner/Operator or a duly authorized representative must have a Qualified Professional inspect the erosion and sediment controls identified in this SWPPP in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (SESC) to ensure that they are being maintained in effective operating condition. Note that a duly authorized representative must have written authorization from the Owner/Operator to sign documents and that a copy of the authorization must be submitted to NYSDEC.

For construction sites where soil disturbance activities have been temporarily suspended (winter shutdown) and temporary stabilization measures have been applied, the Owner/Operator can reduce the frequency of maintenance inspections to a rate of once every 30 calendar days. As soon as soil disturbance activities resume, the Owner/Operator shall resume maintenance inspections to the required rate based on disturbance acreage described earlier in this section.

The site shall be cleaned of all construction debris prior to demobilization. Temporary erosion and sediment control practices shall be removed when soils are stabilized, as determined by the Qualified Professional. After the Qualified Professional declares final stabilization of the site and reports temporary controls have been removed, the NOT shall be signed by the Qualified Inspector and Owner/Operator and filed with the NYSDEC. Permanent stormwater management structures, including required structures due to modifications of the SWPPP, shall be listed on the NOT.

Note that during construction this plan shall be updated, as necessary, to include permanent stormwater management structures listed on the NOT and that the plan shall include the operation and maintenance procedures necessary for the structures to function as designed after final stabilization, as described in the SPDES GP. Amendments to this SWPPP shall be added in *Appendix A, Exhibit 12*.

#### Town Right to Inspection Reports

The Town of West Seneca will receive an electronic copy of all SWPPP inspection reports performed for the project.

#### Town Right to Inspect

The Town of West Seneca reserves the right to inspect the project site during construction and post-construction restoration. The Town will conduct a final inspection separate from the final SWPPP Inspection required to be performed by the Owner prior to filing the NOT. The Town's signing of the NOT will be contingent on the Town's final inspection.

### **VI. Post-Construction Operation & Maintenance Procedures**

In accordance with the SPDES GP, the SWPPP shall include a maintenance schedule to achieve continuous and effective operation of each post-construction erosion and sediment control practice and stormwater control practice. The Owner/Operator shall properly operate and maintain, which includes adequate laboratory controls and appropriate quality assurance procedures, all facilities, systems of treatment, systems of control, and related appurtenances that were installed as a requirement of the SWPPP. *Appendix A, Exhibit 8* includes the Permanent Stormwater Maintenance Agreement signed by the Owner/Operator. Thus, the following post-construction operation and maintenance plan, which also includes the maintenance requirements included in the SMDM for the proposed facilities, has been prepared to fulfill the above referenced provisions:

1. Inspect the proposed erosion and sediment control practices at the end of each spring and during dry times of the year, as summarized below:
  - a. Lawn- Observe areas for bare spots, washouts, and healthy growth. Apply topsoil, seed, and mulch to areas, as necessary. Water as required to re-establish lawn as quick as possible. In highly erodible areas, install sod or an approved energy dissipating device until re-establishment is achieved. Maintenance includes regular seasonal



- mowing, fertilizing, liming, watering, weed and pest control, reseeding, removal of debris, and protection from trafficking in an unintended manner.
- b. Plantings- Observe for weak and unhealthy species. Maintenance includes regular seasonal fertilizing, liming, watering, pruning, plant replacement, when necessary, weed and pest control, removal of debris, and protection from trafficking in an unintended manner.
  - c. Mulch- Observe areas for bare and thin spots. Re-apply mulch, as necessary, to obtain a minimum depth of 4-inches over the entire area.
2. Inspect the proposed stormwater control practices at least one time per month during the spring, summer, and fall and after each 6-inch snow-melt event, as summarized:
- a. Stormwater Drainage Systems and Inlets
    - Inspect for standing water between storm events.
    - Monthly or as needed remove trash and debris accumulated in structure sumps and dispose of in accordance with all applicable regulations.
    - Repair or replace stormwater components as needed.
  - b. Underground Infiltration Systems
    - Inspect isolator row or accessible pipes immediately after completion of site's construction.
    - Once in normal service, the isolator row or accessible pipes should be inspected bi-annually.
    - JetVac maintenance is recommended after sediment accumulates to an average depth of 3" inside the isolator row or accessible pipes.
    - Inspection and maintenance should be conducted per manufacturer's recommendations, if applicable.

Operation, maintenance, and management reports should be made by the Owner/Operator after each inspection and filed with the SWPPP.

#### Record Retention

Per SPDES GP-0-20-001 Part VI.A, The Owner/Operator shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form, and any inspection reports prepared in conjunction with the SPDES GP-0-20-001 for at least five (5) years from the date NYSDEC receives a complete NOT.

#### SWPPP Amendments

Note that this plan shall be updated, as necessary, to include permanent stormwater management structures listed on the NOT and that the plan shall include the operation and maintenance procedures necessary for the structures to function as designed after final stabilization, as described in the SPDES GP. Amendments to this SWPPP shall be added in *Appendix A, Exhibit 12*.

## **APPENDIX A**

***Exhibit 1: Project Location Maps***



# Project Location Map

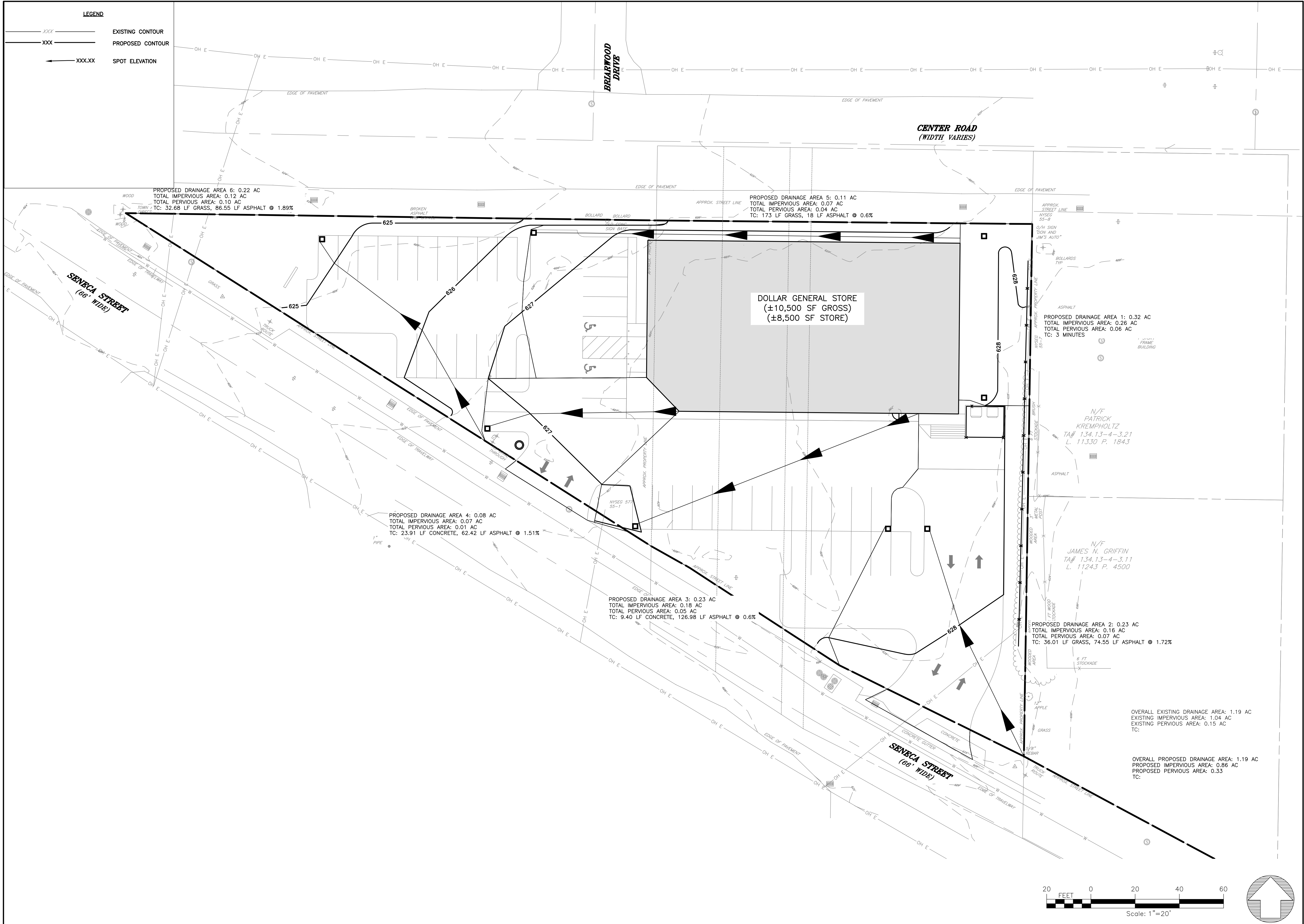
West Seneca Dollar General

Legend





FILE NAME: H:\Projects\22\220673-01-WSenecaDollarGen\Eng\CAD\220673.01 Grading Plan.dwg  
DATE/TIME: 12/14/2022 11:02:17 AM  
USER: Josh Schmidt



PROJECT		TITLE OF DRAWING		DRAWING NO.	
WEST SENECA - DOLLAR GENERAL STORE		DRAINAGE MAP		DA	
3030 SENECA STREET					
WEST SENECA, NY 14224					
DOLLAR GENERAL		The Dollar General Group			
FISHER ASSOCIATES		www.fisherassoc.com			
STATE OF NEW YORK		JOSHUA M. SCHMIDT			
LICENSED PROFESSIONAL ENGINEER		100574-01			
FA PROJECT NO.		PROJECT MANAGER		ISSUE DATE	
220673.01		J. SCHMIDT		11/2/2022	
DRAWN BY		SCALE		AS SHOWN	
J. SCHMIDT					
COPYRIGHT © 2022		The contents of this document are not		REV	
FISHER ASSOCIATES		part without the written permission of		1	
P.E. J. SCHMIDT		is granted to the client for the specified		2	
		and some cases only.		3	
				4	
				5	
				6	
				7	
				DATE	
				BY	

***Exhibit 2: Notice of Intent (NOI ) Application & NYSDEC  
Acknowledgment***

- Final Submitted/Reviewed Application
- Owner and Preparer Signature Pages
- NYSDEC Letter of Acknowledgment

# NOI for coverage under Stormwater General Permit for Construction Activity

version 1.35

(Submission #: HPP-XWR9-R6XZJ, version 1)

## Details

---

**Originally Started By** Joshua Schmidt  
**Alternate Identifier** West Seneca Dollar General  
**Submission ID** HPP-XWR9-R6XZJ  
**Submission Reason** New  
**Status** Draft

## Form Input

---

### Owner/Operator Information

**Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)**

The Broadway Group

**Owner/Operator Contact Person Last Name (NOT CONSULTANT)**

Mathias Bennett

**Owner/Operator Contact Person First Name**

Tara

**Owner/Operator Mailing Address**

216 Westside Square

**City**

Huntsville

**State**

AL

**Zip**

35801

**Phone**

256-533-7287

**Email**

tara.mathias@broadwaygroup.net

**Federal Tax ID**

20-4995213

**Project Location****Project/Site Name**

West Seneca Dollar General

**Street Address (Not P.O. Box)**

3030 Seneca Street

**Side of Street**

North

**City/Town/Village (THAT ISSUES BUILDING PERMIT)**

West Seneca

**State**

NY

**Zip**

14224

**DEC Region**

9

**County**

ERIE

**Name of Nearest Cross Street**

Center Road

**Distance to Nearest Cross Street (Feet)**

300

**Project In Relation to Cross Street**

East

**Tax Map Numbers Section-Block-Parcel**

134.13-4-1



## **Tax Map Numbers**

L 11273 P 2690

### **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**

42.8395471,-78.7817326

3030 Seneca St, Buffalo, NY 14224, USA

## **Project Details**

### **2. What is the nature of this project?**

Redevelopment with no increase in impervious area

### **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)**

1.19

#### **Total Area to be Disturbed (acres)**

1.19

**Existing Impervious Area to be Disturbed (acres)**

1.04

**Future Impervious Area Within Disturbed Area (acres)**

0.86

**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**

06/01/2023

**End Date**

10/01/2023

**9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.**

Cazenovia 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

**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 D (provided the map unit name is inclusive of slopes greater than 25%), 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?**

Town of West Seneca

**17. Does any runoff from the site enter a sewer classified as a Combined Sewer?**

Unknown

**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**

**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**

Joshua Schmidt, PE

**Contact Name (Last, Space, First)**

Schmidt, Joshua

**Mailing Address**

180 Charlotte Street

**City**

Rochester

**State**

NY

**Zip**

14607

**Phone**

585-334-1310

**Email**

jschmidt@fisherassoc.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
- 3) Scan the signed form
- 4) Upload the scanned document

[Download SWPPP Preparer Certification Form](#)

**Please upload the SWPPP Preparer Certification**

swppp\_preparer\_cert.pdf - 12/14/2022 10:37 AM

**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**

Silt Fence

Dust Control

Stabilized Construction Entrance

Storm Drain Inlet Protection

### **Biotechnical**

None

### **Vegetative Measures**

Mulching

Seeding

Topsoiling

### **Permanent Structural**

None

### **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.**

Reduction of Clearing and Grading  
Sidewalk Reduction  
Driveway 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).

**28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)**

0.02

**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)**

0.02

**31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?**

Yes

**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)**

NONE PROVIDED

**32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?**

NONE PROVIDED

**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; 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)**

NONE PROVIDED

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).**

NONE PROVIDED

**35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?**

NONE PROVIDED

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)**

0.08

**CPv Provided (acre-feet)**

0.01

**36a. The need to provide channel protection has been waived because:**

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.**

**Overbank Flood Control Criteria (Qp)**

**Pre-Development (CFS)**

5.02

**Post-Development (CFS)**

3.21

**Total Extreme Flood Control Criteria (Qf)**

**Pre-Development (CFS)**

8.58

**Post-Development (CFS)**

6.56

**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?**

Yes

**If Yes, Identify the entity responsible for the long term Operation and Maintenance**

The Broadway Group

**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.**

NONE PROVIDED

## **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)**

0

**Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)**

0

**Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)**

0

**Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)**

0

**Total Contributing Acres for Tree Planting/Tree Pit (RR-3)**

0

**Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)**

0

**Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)**

0

**RR Techniques (Volume Reduction)**

---

**Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)**

0

**Total Contributing Impervious Acres for Vegetated Swale (RR-5)**

0

**Total Contributing Impervious Acres for Rain Garden (RR-6)**

0

**Total Contributing Impervious Acres for Stormwater Planter (RR-7)**

0

**Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)**

0

**Total Contributing Impervious Acres for Porous Pavement (RR-9)**

0

**Total Contributing Impervious Acres for Green Roof (RR-10)**

0

**Standard SMPs with RRv Capacity**

---

**Total Contributing Impervious Acres for Infiltration Trench (I-1)**

0.26

**Total Contributing Impervious Acres for Infiltration Basin (I-2)**

0

**Total Contributing Impervious Acres for Dry Well (I-3)**

0

**Total Contributing Impervious Acres for Underground Infiltration System (I-4)**

0

**Total Contributing Impervious Acres for Bioretention (F-5)**

0

**Total Contributing Impervious Acres for Dry Swale (O-1)**

0

#### **Standard SMPs**

---

**Total Contributing Impervious Acres for Micropool Extended Detention (P-1)**

0

**Total Contributing Impervious Acres for Wet Pond (P-2)**

0

**Total Contributing Impervious Acres for Wet Extended Detention (P-3)**

0

**Total Contributing Impervious Acres for Multiple Pond System (P-4)**

0

**Total Contributing Impervious Acres for Pocket Pond (P-5)**

0

**Total Contributing Impervious Acres for Surface Sand Filter (F-1)**

0

**Total Contributing Impervious Acres for Underground Sand Filter (F-2)**

0

**Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)**

0

**Total Contributing Impervious Acres for Organic Filter (F-4)**

0

**Total Contributing Impervious Acres for Shallow Wetland (W-1)**

0

**Total Contributing Impervious Acres for Extended Detention Wetland (W-2)**

0

**Total Contributing Impervious Acres for Pond/Wetland System (W-3)**

0

**Total Contributing Impervious Acres for Pocket Wetland (W-4)**

0

**Total Contributing Impervious Acres for Wet Swale (O-2)**

0

**Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR  
PRETREATMENT ONLY)**

---

**Total Contributing Impervious Area for Hydrodynamic**

0

**Total Contributing Impervious Area for Wet Vault**

0

**Total Contributing Impervious Area for Media Filter**

0

**"Other" Alternative SMP?**

NONE PROVIDED

**Total Contributing Impervious Area for "Other"**

NONE PROVIDED

**Provide the name and manufacturer 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

**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**

NONE PROVIDED

**Comment**

NONE PROVIDED

## **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 \(PDF, 45KB\)](#)

**Upload Owner/Operator Certification Form**

NONE PROVIDED

**Comment**

NONE PROVIDED

## Attachments

---

Date	Attachment Name	Context	User
12/14/2022 10:37 AM	swppp preparer cert.pdf	Attachment	Joshua Schmidt

***Exhibit 3: MS4 SWPPP Acceptance***

***Exhibit 4: SPDES GP-0-20-001***



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

A handwritten signature in black ink, appearing to be "John J. Ferguson", written over a horizontal line.

Authorized Signature

1-23-20  
Date

Address: NYS DEC  
Division of Environmental Permits  
625 Broadway, 4th Floor  
Albany, N.Y. 12233-1750



## 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.**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM  
CONSTRUCTION ACTIVITIES**

**Table of Contents**

Part 1. PERMIT COVERAGE AND LIMITATIONS .....	1
A. Permit Application .....	1
B. Effluent Limitations Applicable to Discharges from Construction Activities .....	1
C. Post-construction Stormwater Management Practice Requirements .....	4
D. Maintaining Water Quality .....	8
E. Eligibility Under This General Permit.....	9
F. Activities Which Are Ineligible for Coverage Under This General Permit .....	9
Part II. PERMIT COVERAGE .....	12
A. How to Obtain Coverage .....	12
B. Notice of Intent (NOI) Submittal .....	13
C. Permit Authorization .....	13
D. General Requirements For Owners or Operators With Permit Coverage .....	15
E. Permit Coverage for Discharges Authorized Under GP-0-15-002.....	17
F. Change of Owner or Operator .....	17
Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP) .....	18
A. General SWPPP Requirements .....	18
B. Required SWPPP Contents .....	20
C. Required SWPPP Components by Project Type.....	24
Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS .....	24
A. General Construction Site Inspection and Maintenance Requirements .....	24
B. Contractor Maintenance Inspection Requirements .....	24
C. Qualified Inspector Inspection Requirements .....	25
Part V. TERMINATION OF PERMIT COVERAGE .....	29
A. Termination of Permit Coverage .....	29
Part VI. REPORTING AND RETENTION RECORDS .....	31
A. Record Retention .....	31
B. Addresses .....	31
Part VII. STANDARD PERMIT CONDITIONS.....	31
A. Duty to Comply.....	31
B. Continuation of the Expired General Permit.....	32
C. Enforcement.....	32
D. Need to Halt or Reduce Activity Not a Defense.....	32
E. Duty to Mitigate .....	33
F. Duty to Provide Information.....	33
G. Other Information .....	33
H. Signatory Requirements.....	33
I. Property Rights .....	35
J. Severability.....	35

K.	Requirement to Obtain Coverage Under an Alternative Permit .....	35
L.	Proper Operation and Maintenance .....	36
M.	Inspection and Entry .....	36
N.	Permit Actions .....	37
O.	Definitions .....	37
P.	Re-Opener Clause .....	37
Q.	Penalties for Falsification of Forms and Reports .....	37
R.	Other Permits .....	38
APPENDIX A – Acronyms and Definitions .....		39
Acronyms.....		39
Definitions.....		40
APPENDIX B – Required SWPPP Components by Project Type .....		48
Table 1.....		48
Table 2.....		50
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal.....		52
APPENDIX D – Watersheds with Lower Disturbance Threshold .....		58
APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s) .....		59
APPENDIX F – List of NYS DEC Regional Offices .....		65

## 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

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 discharges*;
  - (ii) Control stormwater *discharges*, 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 *discharges* from the site;
  - (vi) Provide and maintain *natural buffers* around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharges*, 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

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;

- (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.

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



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 *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.

### 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

**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 *discharges* 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 *discharges* 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 *discharges* 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 *discharges* 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.

## **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 *discharges*; 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 *discharges* 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. *Discharges* 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*

*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 *discharges* 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 *discharges* 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.

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:

- (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. *Discharges 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.

## **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, 4<sup>th</sup> 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



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.

- 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*

*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

*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*

*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;

- 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

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"

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

- 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



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;

- 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.

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

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

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.

- 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:

- 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

- I. 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;



- 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,

- 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

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.

### **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:

- (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,

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

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

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.



## **R. Other Permits**

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

## **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

## 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

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.

**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.

**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 .

**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

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.



**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 sources*. 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 sources*, 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

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.

## 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**

<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:</b></p> <ul style="list-style-type: none"><li>• Single family home <u>not</u> located in one of the watersheds listed in Appendix C or <u>not directly discharging</u> to one of the 303(d) segments listed in Appendix E</li><li>• Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E</li><li>• Construction of a barn or other <i>agricultural building</i>, silo, stock yard or pen.</li></ul>
<p><b>The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:</b></p> <p>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.</p>
<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land:</b></p> <ul style="list-style-type: none"><li>• Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains</li><li>• Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects</li><li>• Pond construction</li><li>• Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover</li><li>• Cross-country ski trails and walking/hiking trails</li><li>• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;</li><li>• 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.</li><li>• Slope stabilization projects</li><li>• Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics</li></ul>

**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

**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

Table 2 (Continued)

**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES  
POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

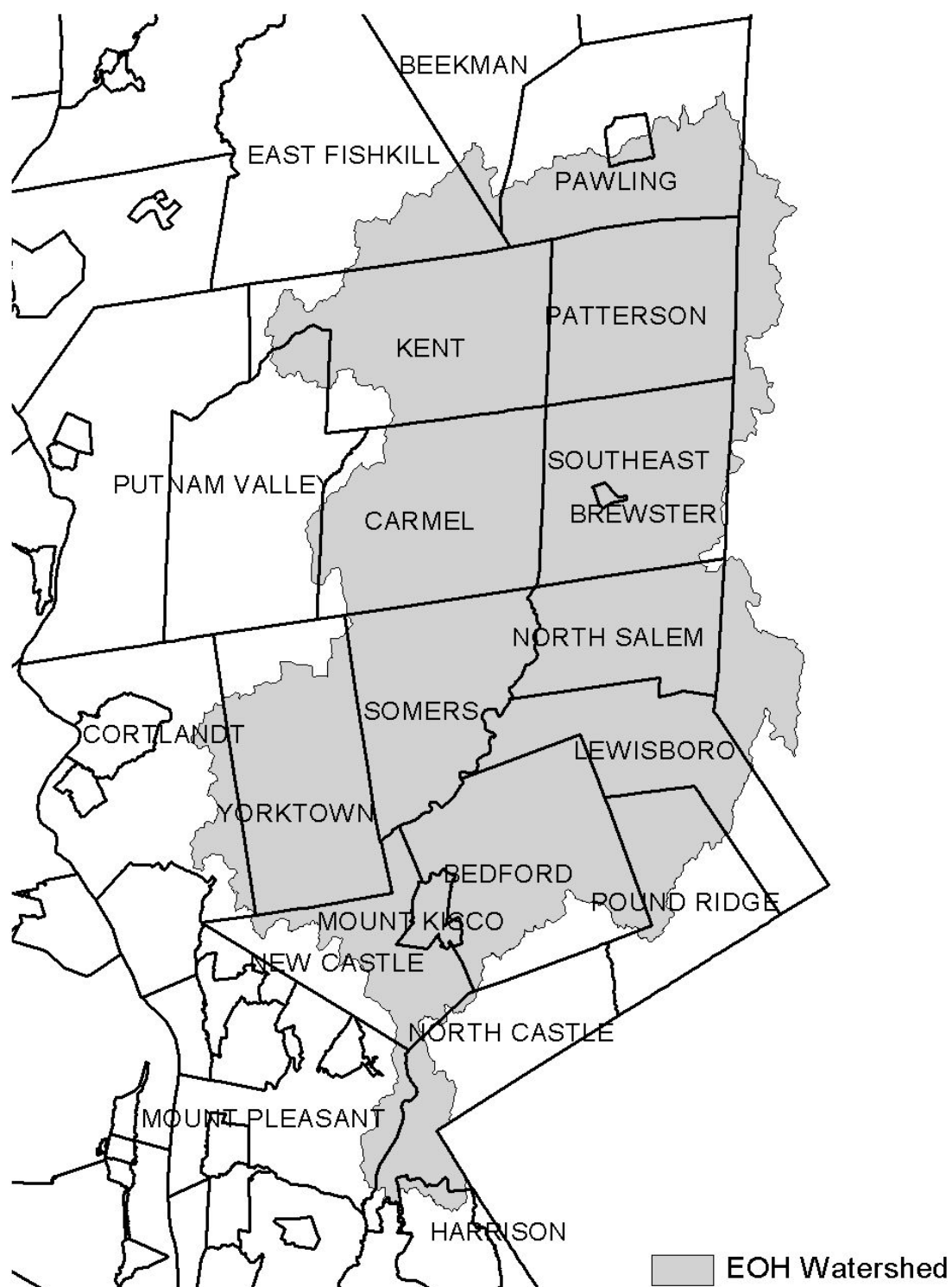
**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- 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

## 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”).**

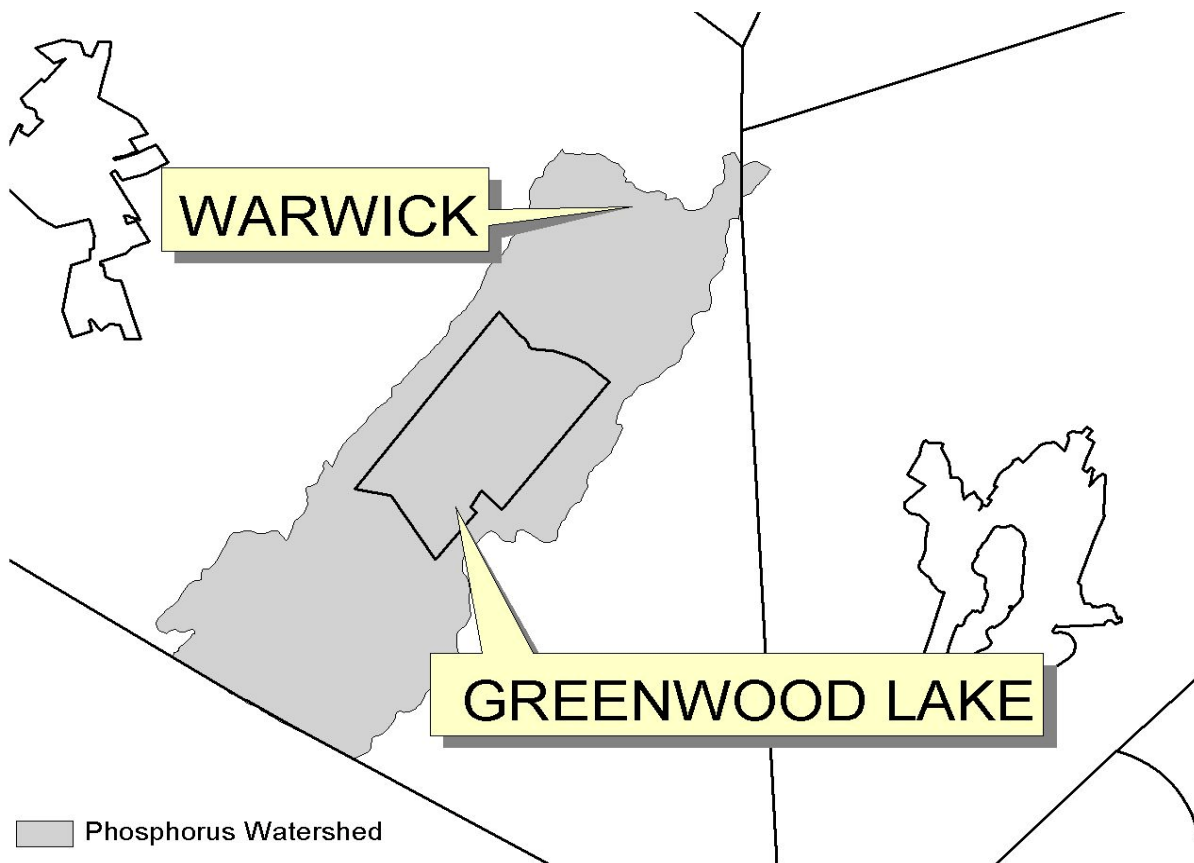
- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

**Figure 1 - New York City Watershed East of the Hudson**

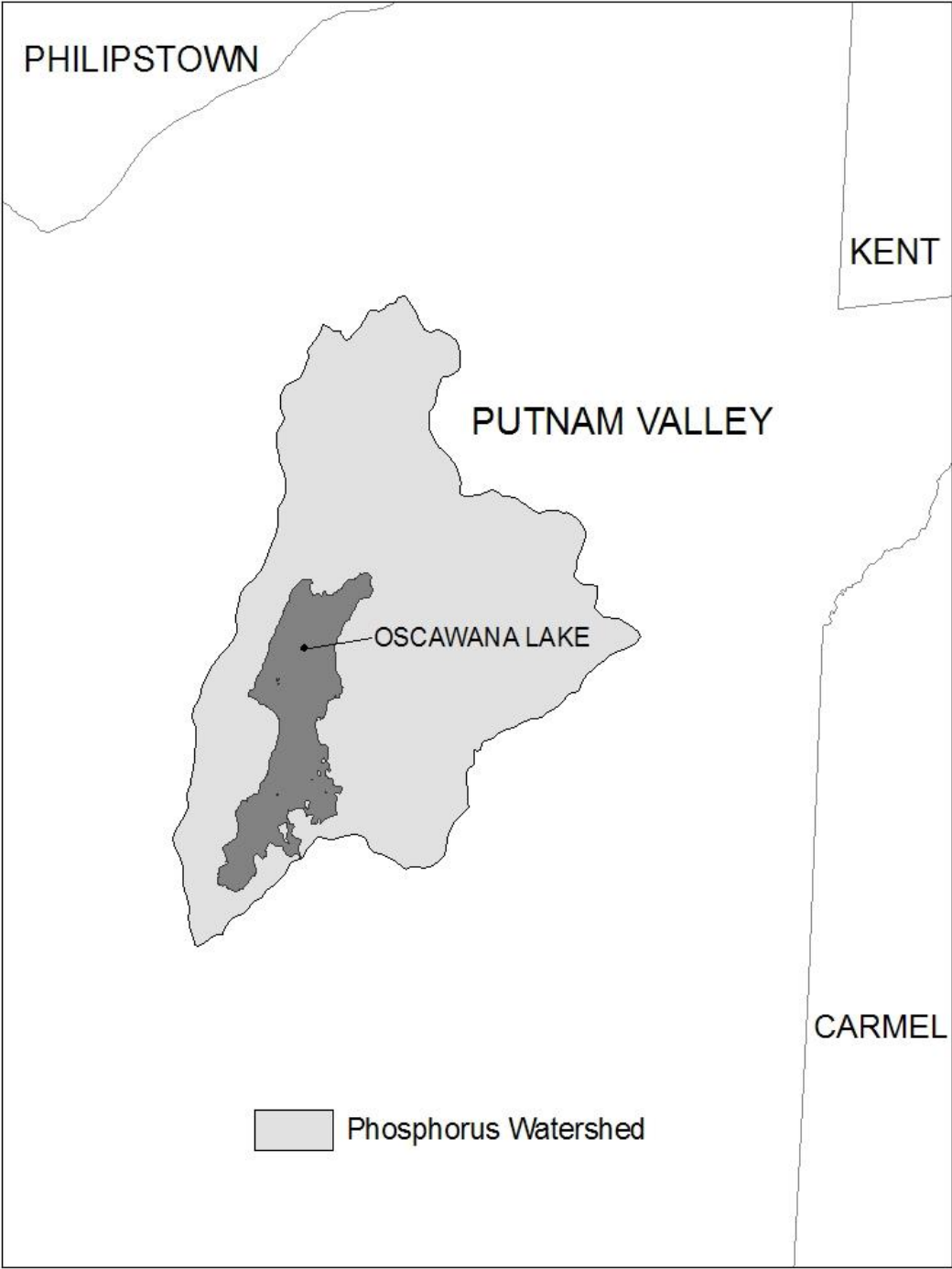


**Figure 2 - Onondaga Lake Watershed**

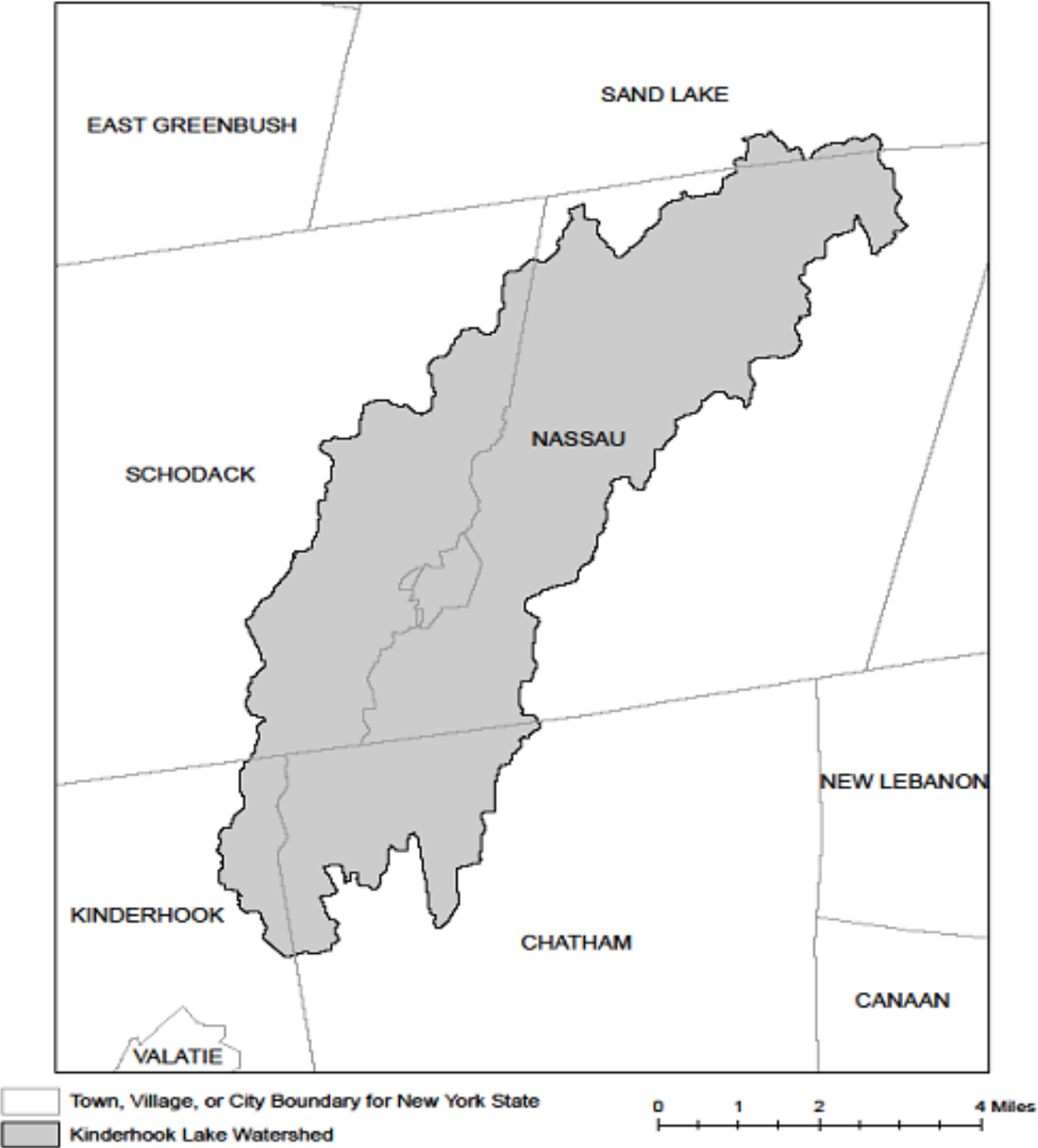
**Figure 3 - Greenwood Lake Watershed**



**Figure 4 - Oscawana Lake Watershed**



**Figure 5 - Kinderhook Lake Watershed**



## **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
--

## 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

### 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

### 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



### 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	Tribes to Lake Lonely	Nutrients

### 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

### 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

## APPENDIX F – List of NYS DEC Regional Offices

<u>Region</u>	<u>COVERING THE FOLLOWING COUNTIES:</u>	<u>DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS</u>	<u>DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM</u>
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

***Exhibit 5: Notice of Termination (NOT) Form***

**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)?

\_\_\_\_\_

**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:

**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)



***Exhibit 6: Certification(s)***

### **CERTIFICATION(S)**

"I hereby certify 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 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 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. "

#### **Owner/Operator**

Company Name: \_\_\_\_\_ Phone No: \_\_\_\_\_  
Company Address: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Print Name & Title \_\_\_\_\_

#### **General Contractor**

Company Name: \_\_\_\_\_ Phone No: \_\_\_\_\_  
Company Address: \_\_\_\_\_  
Company Address: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Print Name & Title \_\_\_\_\_

#### **Subcontractor**

Company Name: \_\_\_\_\_ Phone No: \_\_\_\_\_  
Company Address: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Print Name & Title \_\_\_\_\_

#### **Subcontractor**

Company Name: \_\_\_\_\_ Phone No: \_\_\_\_\_  
Company Address: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Print Name & Title \_\_\_\_\_

#### **Subcontractor**

Company Name: \_\_\_\_\_ Phone No: \_\_\_\_\_  
Company Address: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Print Name & Title \_\_\_\_\_

#### **Signature-**

a. For a corporation: by (1) president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person authorized to and who performs similar policy or decisions making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$250,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer or the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA)

***Exhibit 7: Inspection Report Form***

Project Title: \_\_\_\_\_

**PERMIT NUMBER: NYR-**

**INSPECTION REPORT # :**

**Location**

**Date and Time of Inspection**

**Qualified Inspector**

*The above signed acknowledges that, to the best of his/her knowledge, all information provided on the following forms is accurate and complete.*

**Qualified Inspector Signature**

☐ **Weekly Inspection**

**Current Phase of Construction (if applicable):** of

**Estimated Current Total Disturbed Area:** acres

**IMMEDIATE ACTION ITEMS / INSPECTION SUMMARY:**

**It is the responsibility of the Qualified Inspector to notify the owner/operator and appropriate contractor of any corrective actions that need to be taken within one (1) business day of the completion of an inspection. It is the responsibility of the contractor (subcontractor) to begin implementing the corrective actions within one (1) business day of this notification and complete the corrective action within a reasonable time frame. If there are action items from the previous inspection which have not been addressed, so note.**


## 1. GENERAL HOUSEKEEPING

*Includes description of the weather and soil conditions (e.g. dry, wet, saturated) during the time of the inspection, a description of the condition of the runoff at all points of discharge from the construction site (including identification of any discharges of sediments from construction site), inspection for stream/pond turbidity, oil and floating substances, visible oil film, or globules or grease, contractor preparedness for implementation of erosion and sediment control, impact on adjacent property, and dust control.*

Yes No

☐☐

Is there immediate action required regarding General Housekeeping?

Notes:


## 2. TEMPORARY STREAM CROSSING

*Includes inspection ensuring that crossing pipes are properly sized, installed with non-woven geotextile fabric beneath approaches, have 20 feet minimum approach length, minimum 6 inch depth of rock, 18 inch maximum fill depth over pipes, have diversion dike/swale through both approaches 50 feet (max) from top of bank, have fill composed of clean shot rock or KTC Class III channel lining, and have rock clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.*

Yes No

☐☐

Is there immediate action required regarding a Temporary Stream Crossing?

Notes:


## 3. EXCAVATION DEWATERING

*Includes inspection ensuring that clean water from upstream pool is being pumped to the downstream pool, that sediment laden water from work area is being discharged to a silt-trapping device, and that constructed upstream berm has one-foot minimum freeboard.*

Yes No

☐☐

Is there immediate action required regarding Excavation Dewatering?

Notes:


Project Title: \_\_\_\_\_

#### 4. VEGETATED FILTER STRIPS

*Includes inspection ensuring that vegetation is dense and there are no signs of erosion, that width of filter strip is per the approved plan, and that ground slope of the filter strip is between 1% and 5%.*

Yes No

☐☐

Is there immediate action required regarding Vegetated Filter Strips?

Notes:


#### 5. LEVEL SPREADERS

*Includes inspection ensuring that level spreaders are installed per plan, constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow, and that flow sheets out of level spreader without erosion on downstream edge.*

Yes No

☐☐

Is there immediate action required regarding a Level Spreader?

Notes:


#### 6. INTERCEPTOR DIKES AND SWALES

*Includes inspection ensuring that dikes and swales are installed per plan with minimum side slopes 2H:1V or flatter, are stabilized by geotextile fabric, seed, or mulch with no erosion occurring, and that sediment-laden runoff is directed to sediment trapping structure.*

Yes No

☐☐

Is there immediate action required regarding an Interceptor Dike or Swale?

Notes:


## 7. EROSION & SEDIMENT CONTROL

*Includes inspection ensuring that erosion and sediment control practices are located and installed correctly, BMPs are maintained per specifications, stockpiles are stabilized and contained, de-watering operations prevent direct discharges to sensitive features, and that clearing and grading operations are divided into stages for large areas. Identification of all erosion and sediment control practices that need repair or maintenance.*

Yes      No

☐      ☐ Is there immediate action required regarding Erosion & Sediment Control?

Notes:


## 8. AREAS OF DISTURBANCE

*Includes 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 last inspection.*

Yes      No

☐      ☐ Is there immediate action required regarding stabilizing disturbed areas?

Notes:


## 9. OFFSITE IMPACTS AND OFFSITE DEGRADATION

*Includes inspection ensuring that work is within the limits of the approved plans, including clearing and blasting, and that ponds, streams, wetlands and sinkholes are free of sediment the from site and that sediment is kept out of roadways, adjacent property, storm sewers, or air (dust).*

Yes      No

☐      ☐ Is there immediate action required regarding Offsite Impacts or Offsite Degradation?

Notes:


## 10. STABILIZED CONSTRUCTION ENTRANCE

*Includes inspection ensuring that stone is clean enough to effectively remove mud from vehicles, is installed per standards and specifications, that all traffic use the stabilized entrance to enter and leave site, and that adequate drainage is provided to prevent ponding at entrance.*

Yes      No

☐☐

Is there immediate action required regarding a Stabilized Construction Entrance?

Notes:


## 11. REINFORCED SILT FENCE

*Includes inspection ensuring that silt fence is installed on contour, 10 feet from toe of slope, joints are constructed by wrapping the two ends together for continuous support, steel posts installed ( if applicable), installed on downstream side of slope, maximum 6' intervals with 6 x 6 inch 14 gage wire, fabric is buried minimum of 6 inches, posts are stable, fabric is tight and without rips or frayed areas, and that sediment accumulation is less than 1/3 the height of the silt fence.*

Yes      No

☐☐

Is there immediate action required regarding Silt Fence?

Notes:


## 12. STONE CHECK DAM

*Includes inspection ensuring that stone check dam channels are without erosion (i.e., flow is not eroding soil underneath or around the structure), that check dam is in good condition (i.e., rocks have not been displaced and no permanent pools behind the structure), and that sediment accumulation is less than design capacity.*

Yes      No

☐☐

Is there immediate action required regarding a Stone Check Dam?

Notes:




### 13. BLOCK AND GRAVEL DROP INLET PROTECTION

*Includes inspection ensuring that concrete blocks are installed lengthwise so open ends face outward, not upward, has wire screen between No. 3 crushed stone and concrete blocks, and that sediment accumulation is within design capacity.*

Yes      No

☐      ☐ Is there immediate action required regarding Block and Gravel Drop Inlet Protection?

Notes:


### 14. FILTER FABRIC (DROP) INLET PROTECTION

*Includes inspection ensuring that protection is installed with 2-inch x 4-inch wood frame and wood posts, with maximum 3-foot spacing, is buried a minimum of 8 inches and secured to frame/posts with staples at max 8-inch spacing, has posts with 3-foot maximum spacing between posts, has posts that are stable, fabric is tight and without rips or frayed areas, and that sediment accumulation is within design capacity.*

Yes      No

☐      ☐ Is there immediate action required regarding Filter Fabric (Drop) Inlet Protection?

Notes:


### 15. EXCAVATED DROP INLET PROTECTION

*Includes inspection ensuring that protection is excavated to a 1-foot minimum depth, but no more than 2-feet maximum, that gravel is supported by hardware cloth to allow drainage and restrict sediment movement, and that excavated side slopes are 2:1.*

Yes      No

☐      ☐ Is there immediate action required regarding Excavated Drop Inlet Protection?

Notes:


Project Title: \_\_\_\_\_

## 16. TEMPORARY SEDIMENT TRAP

*Includes inspection ensuring that outlet structure is constructed per the approved plan or drawing, that geotextile fabric has been placed beneath rock fill, and that sediment accumulation is within design capacity.*

Yes      No

☐☐

Is there immediate action required regarding Temporary Sediment Traps?

Notes:


## 17. TEMPORARY SEDIMENT BASIN

*Includes inspection ensuring that basin and outlet structure are constructed per the approved plan, that basin side slopes are stabilized with seed/mulch, that sediment accumulation is within design capacity, and that the drainage structure is flushed and the basin surface restored upon removal of sediment basin facility.*

Yes      No

☐☐

Is there immediate action required regarding Temporary Sediment Basins?

Notes:


## 18. STORMWATER BASIN

*Includes inspection ensuring that Permanent Stormwater Basins are installed per plans and specifications.*

Yes      No

☐☐

Is there immediate action required regarding Stormwater Basins?

Notes:


Project Title:

## 19. EROSION CONTROL BLANKETS

*Includes inspection ensuring that erosion control blankets are properly installed.*

Yes No

☐☐

Is there immediate action required regarding Erosion Control Blankets?

Notes:


## 20. CURRENT PHASE OF POST-CONSTRUCTION STORMWATER PRACTICES

*Includes inspection of current phase of all post-construction stormwater management practices, identification of all construction that is not in conformance with the SWPPP and technical standards, identify 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 post-construction stormwater management practice(s).*

Yes No

☐☐

Is there immediate action required regarding the current phase of post-construction stormwater management practices?

Notes:


## ADDITIONAL NOTES / MODIFICATIONS


***Exhibit 8: Permanent SMP Maintenance Agreement***

## Permanent SMP Maintenance Agreement

I accept responsibility for ownership and proper maintenance of each permanent Stormwater Management Practice (SMP) located at (Address) \_\_\_\_\_ and I will update the maintenance plan, as required by the Stormwater Pollution Prevention Plan (SWPPP) upon final stabilization of the site.

I will complete any necessary repairs and, or preventative maintenance procedures in a timely manner to achieve proper functioning of each SMP, as recommended by the SWPPP.

It is my understanding that the maintenance plan may be amended/revised at any time by the New York State Department of Environmental Conservation (DEC) and I will abide by any reasonable prescribed changes.

I will continue to own and maintain the stormwater practice until the New York State DEC is notified in writing of a transfer in ownership and maintenance responsibility. The notification will include a date for the transfer of responsibility and a letter of acceptance from the new owner.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
Date

### ***Exhibit 9: Calculations***

- Required Water Quality Calculations Sheet
- Provided Water Quality Calculations Sheet
- Applicable NYSDEC Runoff Reduction Worksheets
- Required CPv Calculation
- Stormwater Model Report

# STORMWATER MANAGEMENT CALCULATIONS

PROJECT NAME: West Seneca Dollar General  
 DATE: 11/1/2022  
 BY: H. Chamberlain



## Required Water Quality Volume Calculations

### Compute Original Water Quality Volume (WQv)

#### Existing Impervious Area

Drainage Area 1.19 ac.  
 Impervious Area 1.04 ac.  
 Runoff Coefficient (Rv) =  $0.05 + 0.009 \times I$   
 $I = 87.4$   
 $Rv = 0.837$   
 $WQv = ((P)(Rv)(A))/12$   
 $P \text{ Value} = 1$  From Fig. 4.1 of the NYSDEC SMDM

Pre-Development WQv	0.083 ac-ft	3614 cf
25% of WQv (Req'd)	0.021 ac-ft	903 cf

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....

No

Design Point:

P=

1.00

inch

*Manually enter P, Total Area and Impervious Cover.***Breakdown of Subcatchments**

Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft <sup>3</sup> )	Description
1	0.32	0.26	81%	0.78	908	Da 1
2						
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	0.32	0.26	81%	0.78	908	Subtotal 1
<b>Total</b>	0.32	0.26	81%	0.78	908	<b>Initial WQv</b>

**Identify Runoff Reduction Techniques By Area**

Technique	Total Contributing Area	Contributing Impervious Area	Notes
	(Acre)	(Acre)	
Conservation of Natural Areas	0.00	0.00	minimum 10,000 sf
Riparian Buffers	0.00	0.00	maximum contributing length 75 feet to 150 feet
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	Up to 100 sf directly connected impervious area may be subtracted per tree
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	

**Recalculate WQv after application of Area Reduction Techniques**

	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Runoff Coefficient Rv	WQv (ft <sup>3</sup> )
"<<Initial WQv"	0.32	0.26	81%	0.78	908
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	<b>0.32</b>	<b>0.26</b>	81%	0.78	908
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	0.32	0.26	81%	0.78	<b>908</b>
WQv reduced by Area Reduction techniques					0



0.02	af
------	----

0.02	af
0.00	af

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techniques/Standard SMPs		Total Contributing Area	Total Contributing Impervious Area	WQv Reduced (RRv)	WQv Treated
			(acres)	(acres)	cf	cf
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.32	0.26	908	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.32			
	Bioretention & Infiltration Bioretention	F-5	0.00	0.00	0	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4)	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2)	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			0.00	0.00	0	
Totals by Volume Reduction →			0.00	0.00	0	
Totals by Standard SMP w/RRV →			0.64	0.26	908	0
Totals by Standard SMP →			0.00	0.00		0
Totals ( Area + Volume + all SMPs) →			0.64	0.26	908	0
	Impervious Cover v	okay				

	Total Area $v$	error				
--	----------------	-------	--	--	--	--

# Infiltration Trench Worksheet

<b>Design Point:</b>							
<b>Enter Site Data For Drainage Area to be Treated by Practice</b>							
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft <sup>3</sup> )	Precipitation (in)	Description
1	0.32	0.26	0.81	0.78	907.50	1.00	Da 1
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	81%	0.78	908	<<WQv after adjusting for Disconnected Rooftops	
<b>Design Elements</b>							
<b>Pretreatment Techniques to Prevent Clogging</b>							
Infiltration Rate			0.50	in/hr	Okay		
Pretreatment Sizing			25%	of WQv	25% minimum 50% if >2 in/hr; 100% if >5in/hour		
Required Pretreatment Volume			227	ft <sup>3</sup>			
Pretreatment Provided			250	ft <sup>3</sup>			
Pretreatment techniques utilized			Grass Channel and Sump		Pretreatment can be provided in the form of a sedimentation basin, sump pit, grass channel, plunge pool or other measure		
<b>Size the Infiltration Trench</b>							
<b>Ap = Vw / (ndt)</b>							
Design Volume		Vw	908	ft <sup>3</sup>			
Porosity		n	0.4				
Design Depth		dt	3.8	ft	maximum of four feet		
Depth to Groundwater			7.0	ft	>3 feet from seasonally high water table		
Required Surface Area		Ap	597	ft <sup>2</sup>			
Width		W	9	ft	Provide the dimensions here		
Length		L	75	ft	Provide the dimensions here		
Surface Area Provided			675	ft <sup>2</sup>	Okay		
Volume Provided			1,026	ft <sup>3</sup>	Storage Volume provided in infiltration trench not including pretreatment.		
<b>Determine Runoff Reduction</b>							
<b>RRv</b>	<b>908</b>	<b>ft<sup>3</sup></b>	<b>90% of the storage provided</b>				
Volume Treated	0	ft <sup>3</sup>	This is the portion of the WQv that is not reduced/infiltrated				

# REQUIRED CHANNEL PROTECTION VOLUME (CPV) CALCULATIONS

PROJECT NAME: West Seneca Dollar General  
 FA PROJECT #: 220673  
 DATE: 11/1/2022  
 CALCULATED BY: H. Chamberlain  
 CHECKED BY:



## Compute Required Storage Volume for 1-Year, 24-Hour Storm Event (CPV):

### Calculate Weighted Curve Number (CN<sub>w</sub>)

CN <sub>w</sub> =	$[\sum CN_i \times A_i] / A_T$
CN <sub>1</sub> =	80
CN <sub>2</sub> =	98
A <sub>1</sub> =	0.33 ac
A <sub>2</sub> =	0.86 ac
A <sub>T</sub> =	1.19 ac
CN <sub>w</sub> =	93

Grass - > 75% Cover, Poor Condition, D Soils  
 Impervious Cover (Building, Pavement)

### Calculate Maximum Retention (S)

S =	$(1000 / CN_w) - 10$
CN <sub>w</sub> =	93
S =	0.752

### Calculate Initial Abstraction (I<sub>a</sub>)

I <sub>a</sub> =	0.2 x S
S =	0.752
I <sub>a</sub> =	0.1503

### Calculate Volumetric Runoff Coefficient (R<sub>v</sub>)

R <sub>v</sub> =	0.05 + 0.009 (% Imp)
% Impervious Cover (%Imp) =	72 %
R <sub>v</sub> =	0.70

### Calculate Runoff Volume, V (in)

$$V = ((P \times R_v \times A_T) \times 43560 \text{ sf/ac}) / 12 \text{ in/ft}$$

1-Yr, 24-Hr Storm Precip., P (in)	1.83 in
R <sub>v</sub> =	0.70
A <sub>T</sub> =	1.19 ac
V =	5537 cf

\*From precip.net data

### Calculate Runoff Depth (Q)

Q =	$[(V / A_T) \times 12 \text{ in/ft}] / 43560 \text{ sf/ac}$
V =	5537 cf
A <sub>T</sub> =	1.19 ac
Q =	1.28 in (watershed)

### Find Unit Peak Discharge, q<sub>u</sub> (cfs/mi<sup>2</sup>/inch)

1-Yr, 24-Hr Storm Precip., P (in)	1.83 in
I <sub>a</sub> / P =	0.08
Time of Concentration (t <sub>c</sub> ) =	0.50 hrs
q <sub>u</sub> =	550 csm/in

30.0 min

\*Computed via HydroCAD

\* Estimated from TR-55, Chapter 4,

## REQUIRED CHANNEL PROTECTION VOLUME (CP<sub>v</sub>) CALCULATIONS

PROJECT NAME: West Seneca Dollar General  
 FA PROJECT #: 220673  
 DATE: 11/1/2022  
 CALCULATED BY: H. Chamberlain  
 CHECKED BY:



### Compute Required Storage Volume for 1-Year, 24-Hour Storm Event (CP<sub>v</sub>):

Exhibit 4-II, Type II Rainfall

#### Find Inflow/Outflow Ratio (q<sub>o</sub>/q<sub>i</sub>)

q<sub>u</sub> = 550 csm/in  
 Detention Time, T = 24 hr  
 q<sub>o</sub>/q<sub>i</sub> = 0.040

\*1-Year, 24-Hour Storm Event  
 \*Estimated from SMDM Figure 8.5

#### Calculate Storage Volume/Runoff Volume Ratio (V<sub>s</sub>/V<sub>r</sub>)

V<sub>s</sub>/V<sub>r</sub> = 0.682 - 1.43(q<sub>o</sub>/q<sub>i</sub>) + 1.64(q<sub>o</sub>/q<sub>i</sub>)<sup>2</sup> - 0.804(q<sub>o</sub>/q<sub>i</sub>)<sup>3</sup>  
 q<sub>o</sub>/q<sub>i</sub> = 0.040  
 V<sub>s</sub>/V<sub>r</sub> = 0.627

#### Calculate Channel Protection Volume (CP<sub>v</sub>)

V<sub>s</sub> = CP<sub>v</sub> = 0.627 x V<sub>r</sub> x (1ft/12in) x A<sub>T</sub>  
 V<sub>r</sub> = Q = 1.282 in (watershed)  
 A<sub>T</sub> = 1.19 ac  
 CP<sub>v</sub> = 0.08 ac-ft  
 CP<sub>v</sub> = 3473.67 cf

#### Define Average Release Rate (Q<sub>A</sub>)

Q<sub>A</sub> = CP<sub>v</sub> / (T x 3600 sec/hr)  
 CP<sub>v</sub> = 3473.67 cf  
 T = 24.00 hrs  
 Q<sub>A</sub> = 0.04 cfs



## **West Seneca HYDROCAD**

Prepared by Fisher Associates

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

Printed 12/14/2022

Page 2

---

### **Project Notes**

Rainfall events imported from "NRCS-Rain.txt" for 7041 NY Erie

Rainfall events imported from "NRCS-Rain.txt" for 7041 NY Erie



**West Seneca HYDROCAD**

Prepared by Fisher Associates

Printed 12/14/2022

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

Page 3

**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	NRCC 24-hr	A	Default	24.00	1	1.87	2
2	10-Year	NRCC 24-hr	A	Default	24.00	1	3.14	2
3	100-Year	NRCC 24-hr	A	Default	24.00	1	5.23	2

## West Seneca HYDROCAD

Prepared by Fisher Associates

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

Printed 12/14/2022

Page 4

### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.810	80	>75% Grass cover, Good, HSG D (1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S)
2.500	98	Paved parking, HSG A (1S, 2S, 4S, 5S, 6S, 7S, 8S)
0.260	98	Unconnected roofs, HSG A (3S)
<b>3.570</b>	<b>94</b>	<b>TOTAL AREA</b>

## West Seneca HYDROCAD

Prepared by Fisher Associates

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

Printed 12/14/2022

Page 5

### Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.760	HSG A	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S
0.000	HSG B	
0.000	HSG C	
0.810	HSG D	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S
0.000	Other	
<b>3.570</b>		<b>TOTAL AREA</b>

**West Seneca HYDROCAD**

Prepared by Fisher Associates

Printed 12/14/2022

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

Page 6

**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	0.000	0.810	0.000	0.810	>75% Grass cover, Good	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S
2.500	0.000	0.000	0.000	0.000	2.500	Paved parking	1S, 2S, 4S, 5S, 6S, 7S, 8S
0.260	0.000	0.000	0.000	0.000	0.260	Unconnected roofs	3S
<b>2.760</b>	<b>0.000</b>	<b>0.000</b>	<b>0.810</b>	<b>0.000</b>	<b>3.570</b>	<b>TOTAL AREA</b>	

**West Seneca HYDROCAD**

Prepared by Fisher Associates

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

Printed 12/14/2022

Page 7

**Pipe Listing (all nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	9P	625.44	625.08	71.0	0.0051	0.013	0.0	12.0	0.0
2	11P	624.68	624.53	15.0	0.0100	0.013	0.0	12.0	0.0
3	12P	624.48	623.36	112.0	0.0100	0.013	0.0	12.0	0.0
4	13P	623.31	622.70	61.0	0.0100	0.013	0.0	12.0	0.0
5	14P	622.83	622.70	13.0	0.0100	0.013	0.0	12.0	0.0
6	16P	622.77	621.84	93.0	0.0100	0.013	0.0	12.0	0.0
7	17P	621.74	621.58	16.0	0.0100	0.013	0.0	12.0	0.0
8	19P	624.10	623.79	61.0	0.0051	0.013	0.0	12.0	0.0
9	21P	622.60	622.47	13.0	0.0100	0.013	0.0	12.0	0.0

**West Seneca HYDROCAD**

Prepared by Fisher Associates

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

NRCC 24-hr A 1-Year Rainfall=1.87"

Printed 12/14/2022

Page 8

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment 1S: OVERALL EXISTING</b>	Runoff Area=1.190 ac 87.39% Impervious Runoff Depth>1.38" Tc=0.0 min CN=96 Runoff=2.82 cfs 0.137 af
<b>Subcatchment 2S: OVERALL PROPOSED</b>	Runoff Area=1.190 ac 72.27% Impervious Runoff Depth>1.13" Tc=6.8 min CN=93 Runoff=2.08 cfs 0.112 af
<b>Subcatchment 3S: PROP AREA 1</b>	Runoff Area=0.320 ac 81.25% Impervious Runoff Depth>1.29" Tc=3.0 min CN=95 Runoff=0.71 cfs 0.034 af
<b>Subcatchment 4S: PROP AREA 2</b>	Runoff Area=0.230 ac 69.57% Impervious Runoff Depth>1.13" Flow Length=111' Slope=0.0172 '/' Tc=6.8 min CN=93 Runoff=0.40 cfs 0.022 af
<b>Subcatchment 5S: PROP AREA 3</b>	Runoff Area=0.230 ac 78.26% Impervious Runoff Depth>1.21" Flow Length=136' Slope=0.0060 '/' Tc=2.9 min CN=94 Runoff=0.49 cfs 0.023 af
<b>Subcatchment 6S: PROP AREA 4</b>	Runoff Area=0.080 ac 87.50% Impervious Runoff Depth>1.38" Flow Length=86' Slope=0.0151 '/' Tc=1.6 min CN=96 Runoff=0.19 cfs 0.009 af
<b>Subcatchment 7S: PROP AREA 5</b>	Runoff Area=0.110 ac 63.64% Impervious Runoff Depth>0.98" Flow Length=191' Slope=0.0060 '/' Tc=21.7 min CN=91 Runoff=0.11 cfs 0.009 af
<b>Subcatchment 8S: PROP AREA 6</b>	Runoff Area=0.220 ac 54.55% Impervious Runoff Depth>0.92" Flow Length=119' Slope=0.0189 '/' Tc=6.2 min CN=90 Runoff=0.33 cfs 0.017 af
<b>Pond 9P: CB 2.5</b>	Peak Elev=625.95' Inflow=0.71 cfs 0.034 af 12.0" Round Culvert n=0.013 L=71.0' S=0.0051 '/' Outflow=0.71 cfs 0.034 af
<b>Pond 11P: CB 2.3</b>	Peak Elev=625.21' Inflow=0.79 cfs 0.046 af 12.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=0.79 cfs 0.046 af
<b>Pond 12P: CB 2.2</b>	Peak Elev=625.00' Inflow=0.79 cfs 0.046 af 12.0" Round Culvert n=0.013 L=112.0' S=0.0100 '/' Outflow=0.79 cfs 0.046 af
<b>Pond 13P: CB 2.1</b>	Peak Elev=623.97' Inflow=1.20 cfs 0.070 af 12.0" Round Culvert n=0.013 L=61.0' S=0.0100 '/' Outflow=1.20 cfs 0.070 af
<b>Pond 14P: CB 2.0.1</b>	Peak Elev=623.07' Inflow=0.19 cfs 0.009 af 12.0" Round Culvert n=0.013 L=13.0' S=0.0100 '/' Outflow=0.19 cfs 0.009 af
<b>Pond 16P: CB 1.1</b>	Peak Elev=622.95' Inflow=0.11 cfs 0.009 af 12.0" Round Culvert n=0.013 L=93.0' S=0.0100 '/' Outflow=0.11 cfs 0.009 af
<b>Pond 17P: CB 1.0</b>	Peak Elev=622.09' Inflow=0.39 cfs 0.026 af 12.0" Round Culvert n=0.013 L=16.0' S=0.0100 '/' Outflow=0.39 cfs 0.026 af
<b>Pond 19P: PERF. PIPE IN STONE</b>	Peak Elev=625.14' Storage=236 cf Inflow=0.71 cfs 0.034 af Discarded=0.02 cfs 0.009 af Primary=0.39 cfs 0.025 af Outflow=0.41 cfs 0.034 af

**West Seneca HYDROCAD***NRCC 24-hr A 1-Year Rainfall=1.87"*

Prepared by Fisher Associates

Printed 12/14/2022

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

Page 9

**Pond 21P: mh2.0**

Peak Elev=623.35' Inflow=1.38 cfs 0.079 af  
12.0" Round Culvert n=0.013 L=13.0' S=0.0100 '/' Outflow=1.38 cfs 0.079 af

**Link 20L: OVERALL**

Inflow=1.73 cfs 0.105 af  
Primary=1.73 cfs 0.105 af

**Total Runoff Area = 3.570 ac   Runoff Volume = 0.363 af   Average Runoff Depth = 1.22"**  
**22.69% Pervious = 0.810 ac   77.31% Impervious = 2.760 ac**

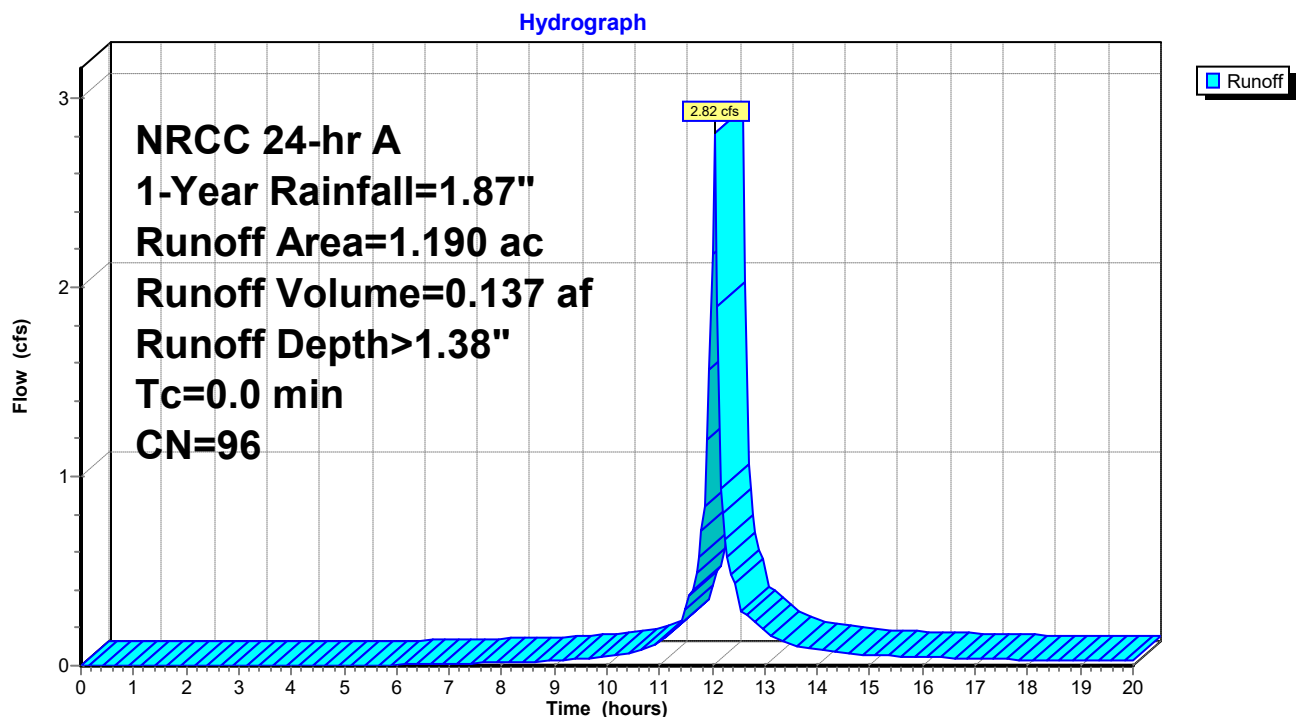
**Summary for Subcatchment 1S: OVERALL EXISTING**

[46] Hint:  $T_c=0$  (Instant runoff peak depends on  $dt$ )

Runoff = 2.82 cfs @ 12.05 hrs, Volume= 0.137 af, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
NRCC 24-hr A 1-Year Rainfall=1.87"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG A
0.150	80	>75% Grass cover, Good, HSG D
1.190	96	Weighted Average
0.150		12.61% Pervious Area
1.040		87.39% Impervious Area

**Subcatchment 1S: OVERALL EXISTING**



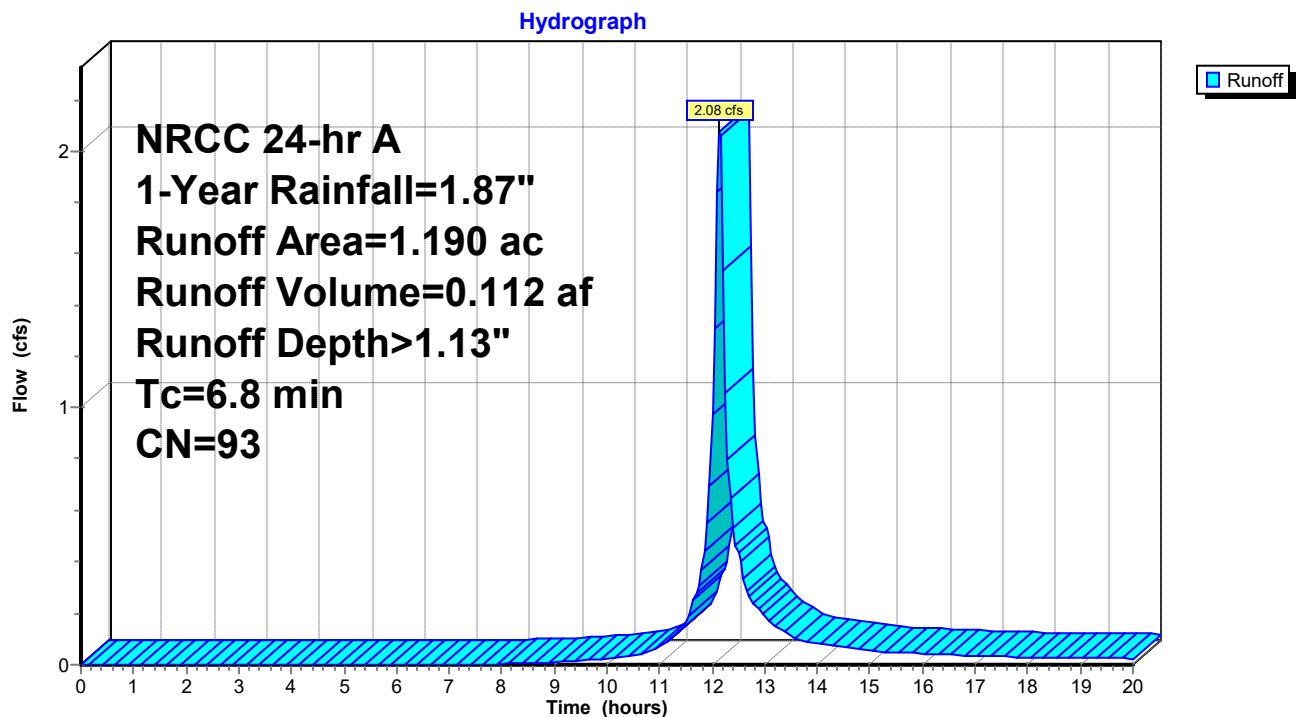
**Summary for Subcatchment 2S: OVERALL PROPOSED (DNU)**

Runoff = 2.08 cfs @ 12.14 hrs, Volume= 0.112 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
NRCC 24-hr A 1-Year Rainfall=1.87"

Area (ac)	CN	Description
0.860	98	Paved parking, HSG A
0.330	80	>75% Grass cover, Good, HSG D
1.190	93	Weighted Average
0.330		27.73% Pervious Area
0.860		72.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8					Direct Entry,

**Subcatchment 2S: OVERALL PROPOSED (DNU)**

**Summary for Subcatchment 3S: PROP AREA 1**[49] Hint:  $T_c < 2dt$  may require smaller  $dt$ 

Runoff = 0.71 cfs @ 12.09 hrs, Volume= 0.034 af, Depth> 1.29"  
 Routed to Pond 9P : CB 2.5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
 NRCC 24-hr A 1-Year Rainfall=1.87"

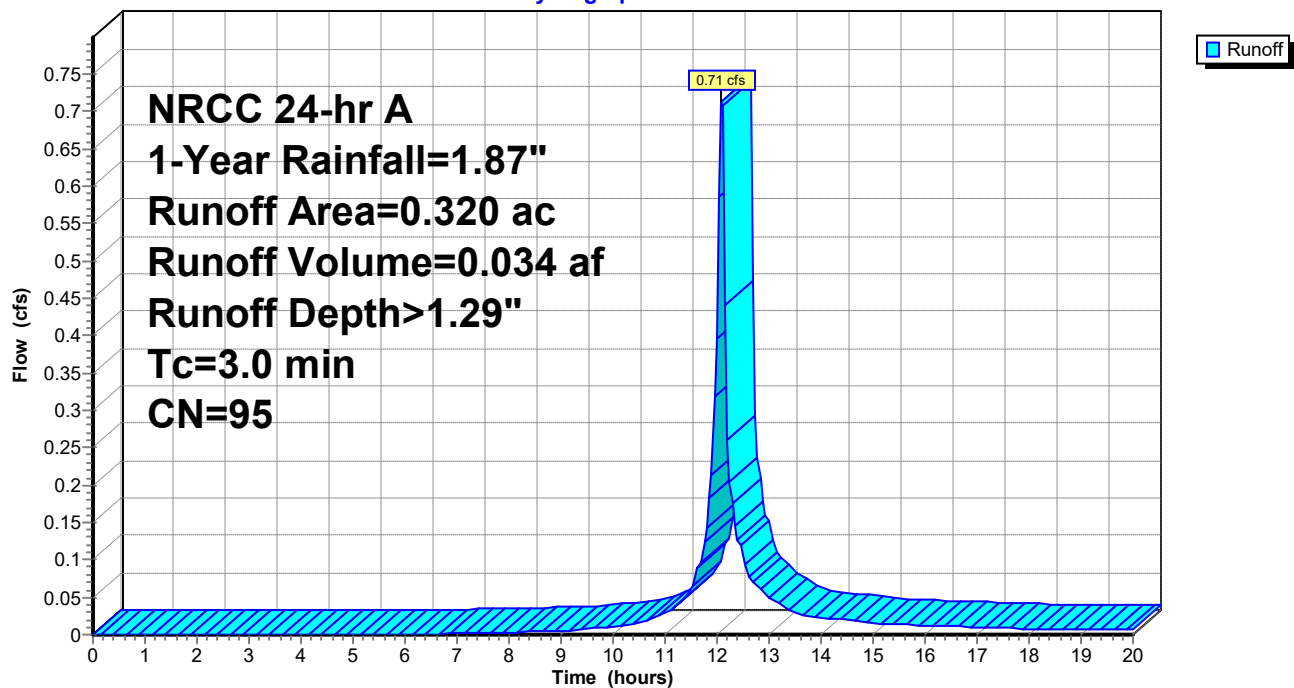
Area (ac)	CN	Description
0.260	98	Unconnected roofs, HSG A
0.060	80	>75% Grass cover, Good, HSG D
0.320	95	Weighted Average
0.060		18.75% Pervious Area
0.260		81.25% Impervious Area
0.260		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0					Direct Entry, Roof drainage

**Subcatchment 3S: PROP AREA 1**

Hydrograph



**Summary for Subcatchment 4S: PROP AREA 2**

Runoff = 0.40 cfs @ 12.14 hrs, Volume= 0.022 af, Depth> 1.13"  
 Routed to Pond 11P : CB 2.3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 NRCC 24-hr A 1-Year Rainfall=1.87"

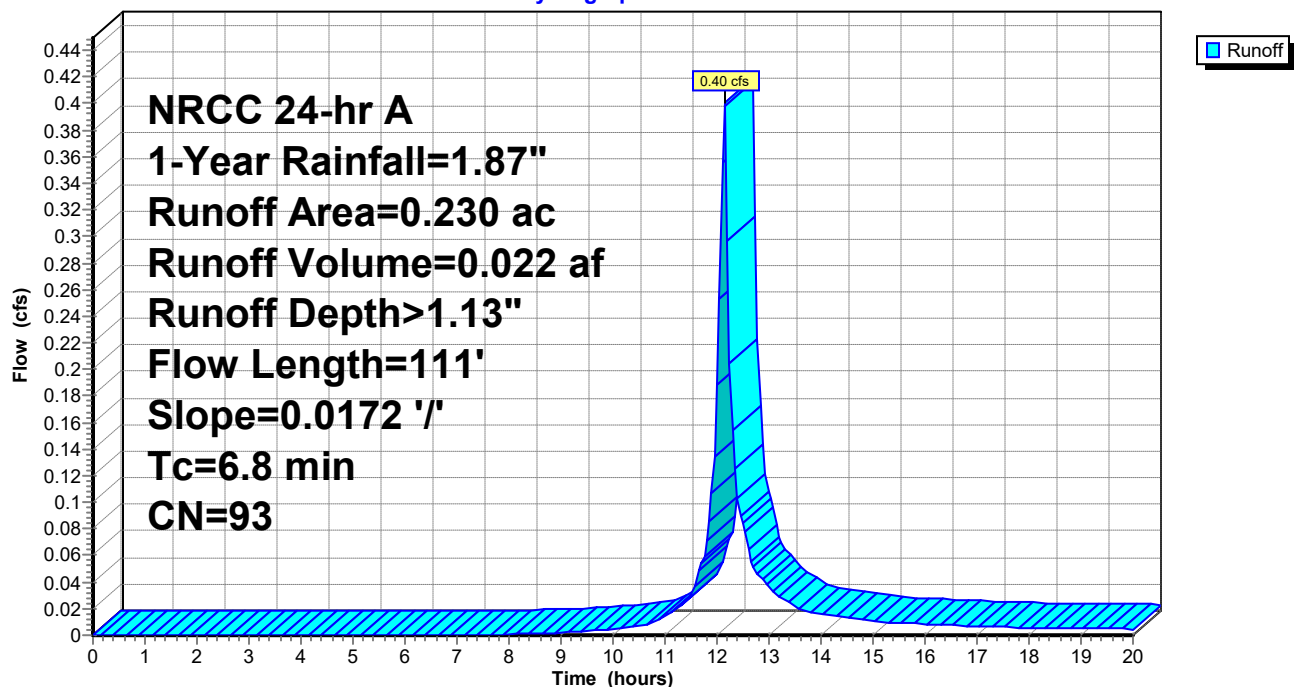
Area (ac)	CN	Description
0.160	98	Paved parking, HSG A
0.070	80	>75% Grass cover, Good, HSG D
0.230	93	Weighted Average
0.070		30.43% Pervious Area
0.160		69.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	36	0.0172	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.17"
1.1	64	0.0172	0.98		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 2.17"
0.1	11	0.0172	2.66		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
6.8	111	Total			

**Subcatchment 4S: PROP AREA 2**

Hydrograph



**Summary for Subcatchment 5S: PROP AREA 3**[49] Hint:  $T_c < 2dt$  may require smaller  $dt$ 

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.023 af, Depth> 1.21"  
 Routed to Pond 13P : CB 2.1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
 NRCC 24-hr A 1-Year Rainfall=1.87"

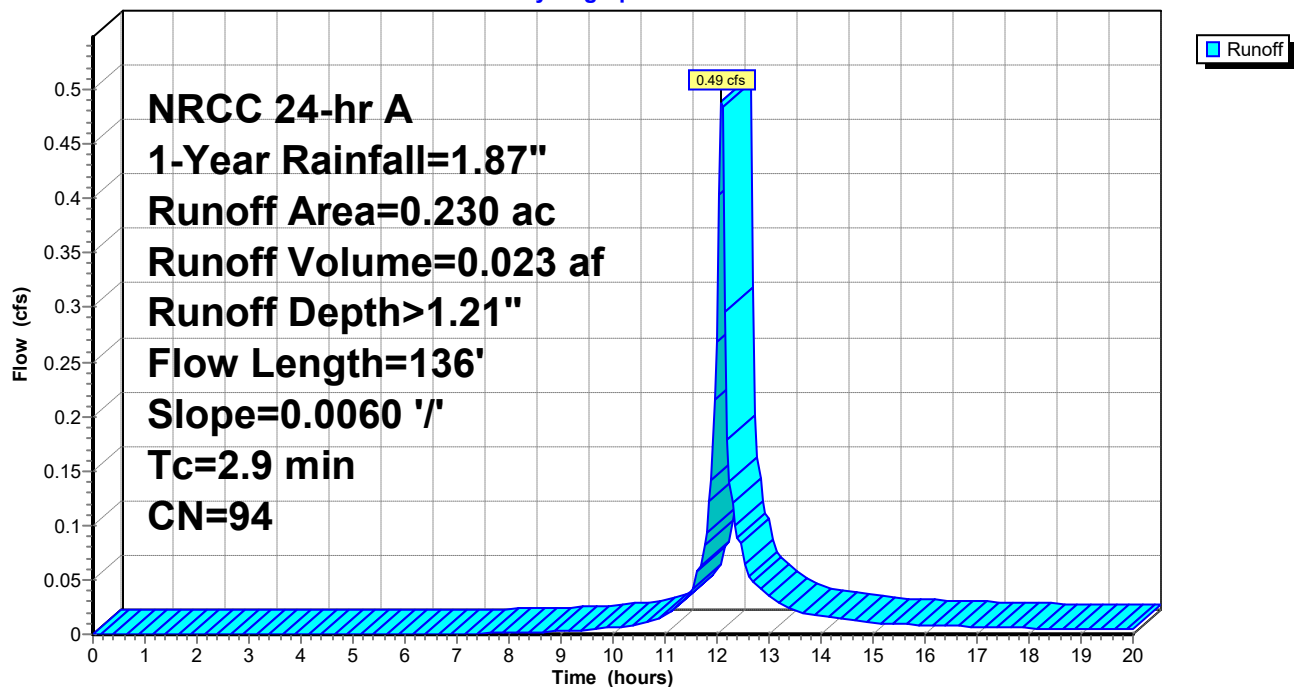
Area (ac)	CN	Description
0.180	98	Paved parking, HSG A
0.050	80	>75% Grass cover, Good, HSG D
0.230	94	Weighted Average
0.050		21.74% Pervious Area
0.180		78.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	9	0.0060	0.43		<b>Sheet Flow,</b> Smooth surfaces $n=0.011$ $P2=2.17"$
2.2	91	0.0060	0.69		<b>Sheet Flow,</b> Smooth surfaces $n=0.011$ $P2=2.17"$
0.4	36	0.0060	1.57		<b>Shallow Concentrated Flow,</b> Paved $K_v=20.3$ fps
2.9	136	Total			

**Subcatchment 5S: PROP AREA 3**

Hydrograph



**Summary for Subcatchment 6S: PROP AREA 4**[49] Hint:  $T_c < 2dt$  may require smaller  $dt$ 

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 0.009 af, Depth> 1.38"  
 Routed to Pond 14P : CB 2.0.1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
 NRCC 24-hr A 1-Year Rainfall=1.87"

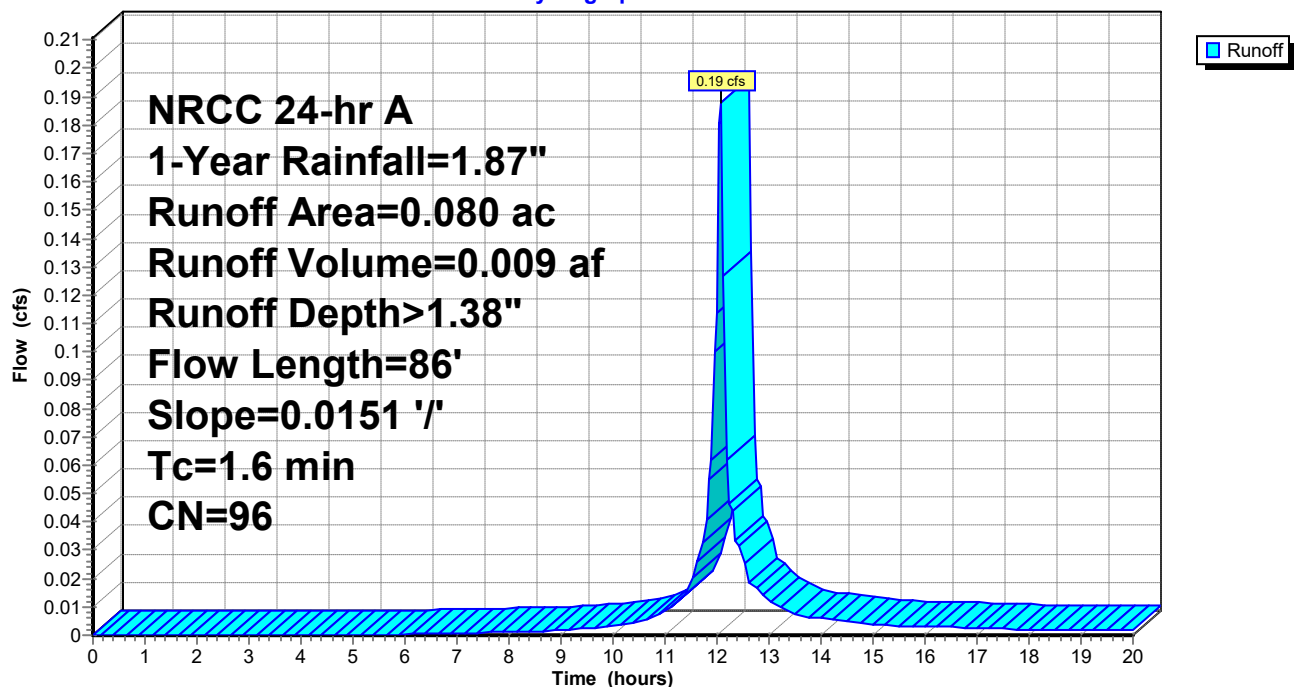
Area (ac)	CN	Description
0.070	98	Paved parking, HSG A
0.010	80	>75% Grass cover, Good, HSG D
0.080	96	Weighted Average
0.010		12.50% Pervious Area
0.070		87.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	24	0.0151	0.76		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.17"
1.1	62	0.0151	0.92		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.17"
1.6	86	Total			

**Subcatchment 6S: PROP AREA 4**

Hydrograph



**Summary for Subcatchment 7S: PROP AREA 5**

Runoff = 0.11 cfs @ 12.32 hrs, Volume= 0.009 af, Depth> 0.98"  
 Routed to Pond 16P : CB 1.1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 NRCC 24-hr A 1-Year Rainfall=1.87"

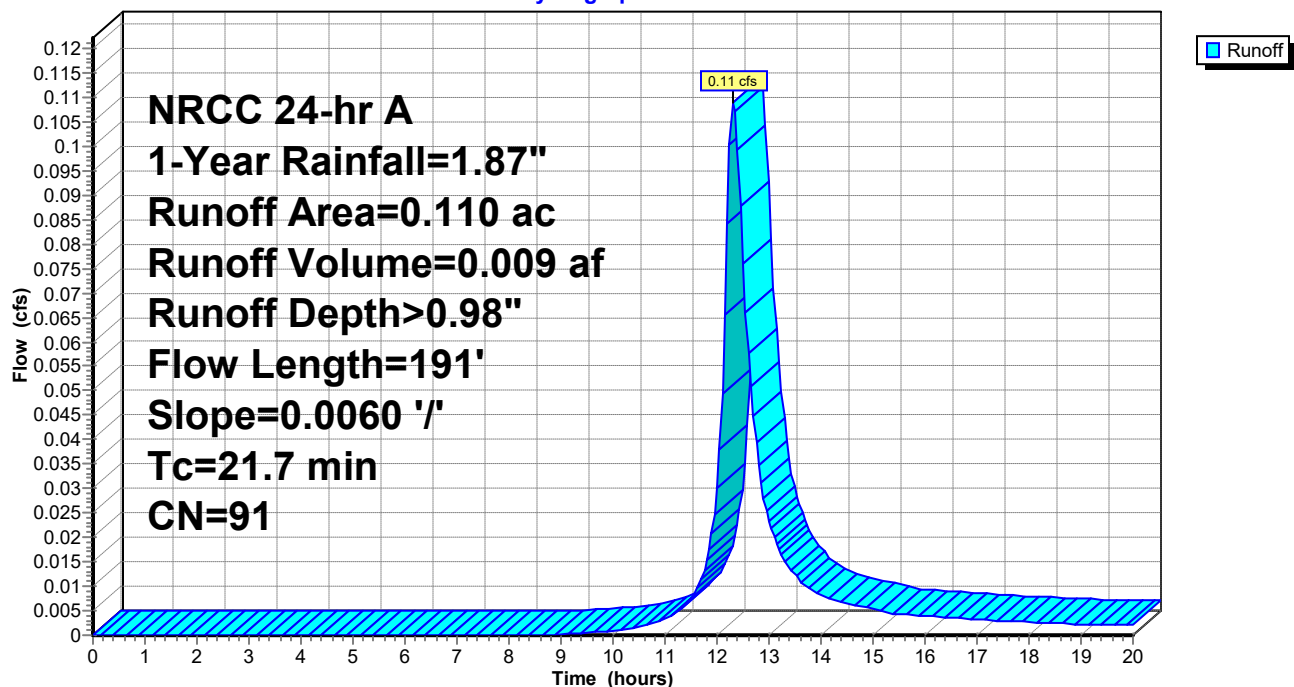
Area (ac)	CN	Description
0.070	98	Paved parking, HSG A
0.040	80	>75% Grass cover, Good, HSG D
0.110	91	Weighted Average
0.040		36.36% Pervious Area
0.070		63.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.3	100	0.0060	0.09		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.17"
2.2	73	0.0060	0.54		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.2	18	0.0060	1.57		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
21.7	191	Total			

**Subcatchment 7S: PROP AREA 5**

Hydrograph



**Summary for Subcatchment 8S: PROP AREA 6**

Runoff = 0.33 cfs @ 12.14 hrs, Volume= 0.017 af, Depth> 0.92"  
 Routed to Pond 17P : CB 1.0

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 NRCC 24-hr A 1-Year Rainfall=1.87"

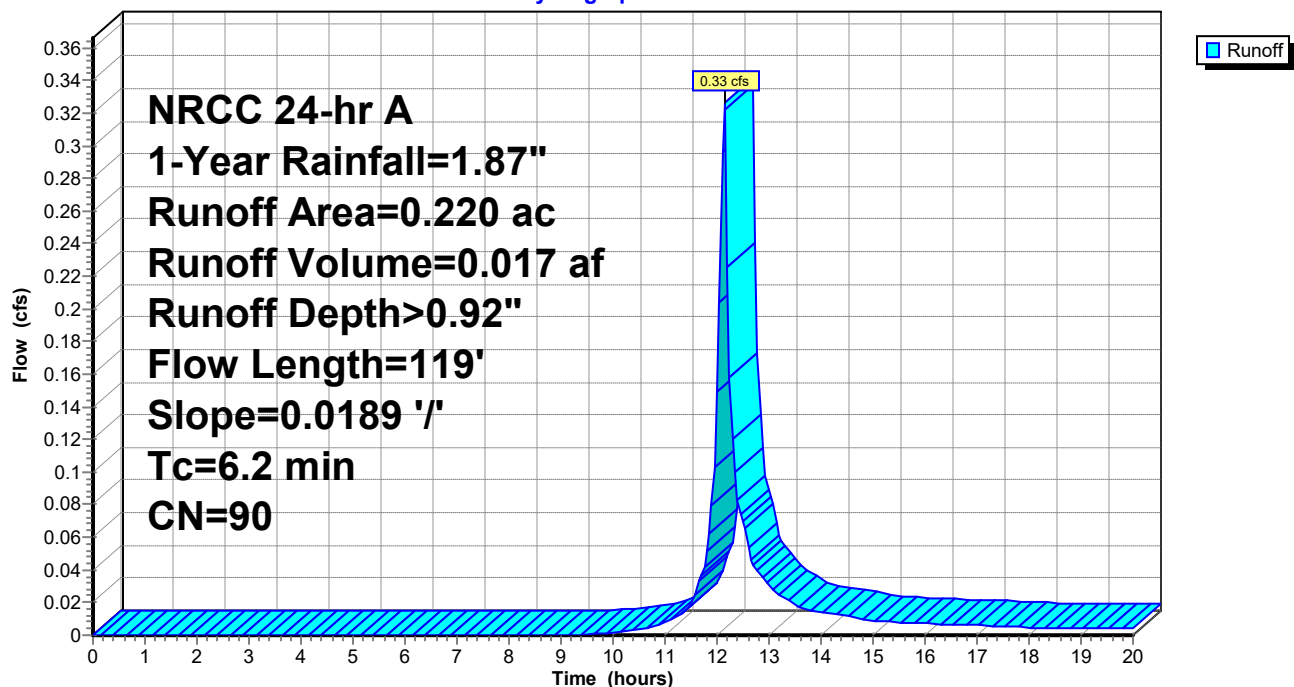
Area (ac)	CN	Description
0.120	98	Paved parking, HSG A
0.100	80	>75% Grass cover, Good, HSG D
0.220	90	Weighted Average
0.100		45.45% Pervious Area
0.120		54.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	33	0.0189	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.17"
1.1	67	0.0189	1.02		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 2.17"
0.1	19	0.0189	2.79		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
6.2	119	Total			

**Subcatchment 8S: PROP AREA 6**

Hydrograph



**Summary for Pond 9P: CB 2.5**

[57] Hint: Peaked at 625.95' (Flood elevation advised)

Inflow Area = 0.320 ac, 81.25% Impervious, Inflow Depth > 1.29" for 1-Year event  
 Inflow = 0.71 cfs @ 12.09 hrs, Volume= 0.034 af  
 Outflow = 0.71 cfs @ 12.09 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.71 cfs @ 12.09 hrs, Volume= 0.034 af  
 Routed to Pond 19P : PERF. PIPE IN STONE INFILTRATION TRENCH

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 625.95' @ 12.09 hrs

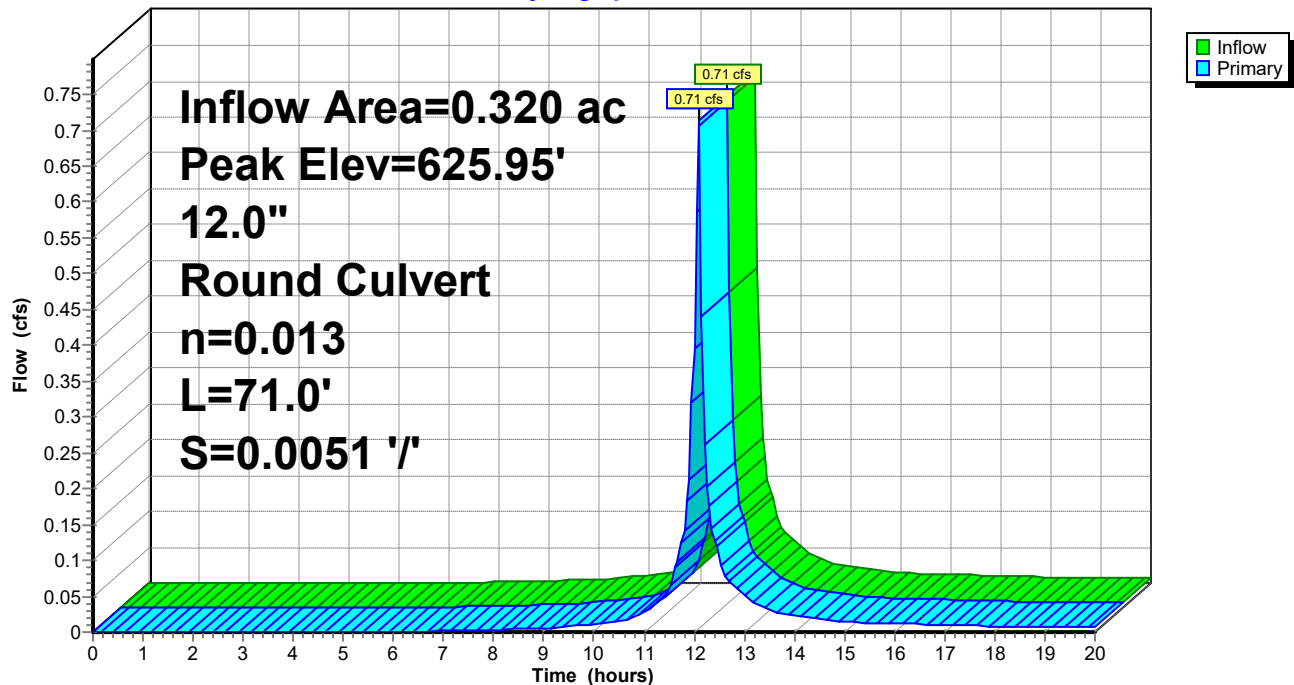
Device	Routing	Invert	Outlet Devices
#1	Primary	625.44'	<b>12.0" Round Culvert</b> L= 71.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 625.44' / 625.08' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.68 cfs @ 12.09 hrs HW=625.94' (Free Discharge)

↑1=Culvert (Barrel Controls 0.68 cfs @ 2.54 fps)

**Pond 9P: CB 2.5**

Hydrograph





**Summary for Pond 11P: CB 2.3**

[57] Hint: Peaked at 625.21' (Flood elevation advised)

[81] Warning: Exceeded Pond 19P by 0.61' @ 15.75 hrs

Inflow Area = 0.550 ac, 76.36% Impervious, Inflow Depth > 1.01" for 1-Year event  
 Inflow = 0.79 cfs @ 12.15 hrs, Volume= 0.046 af  
 Outflow = 0.79 cfs @ 12.15 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.79 cfs @ 12.15 hrs, Volume= 0.046 af  
 Routed to Pond 12P : CB 2.2

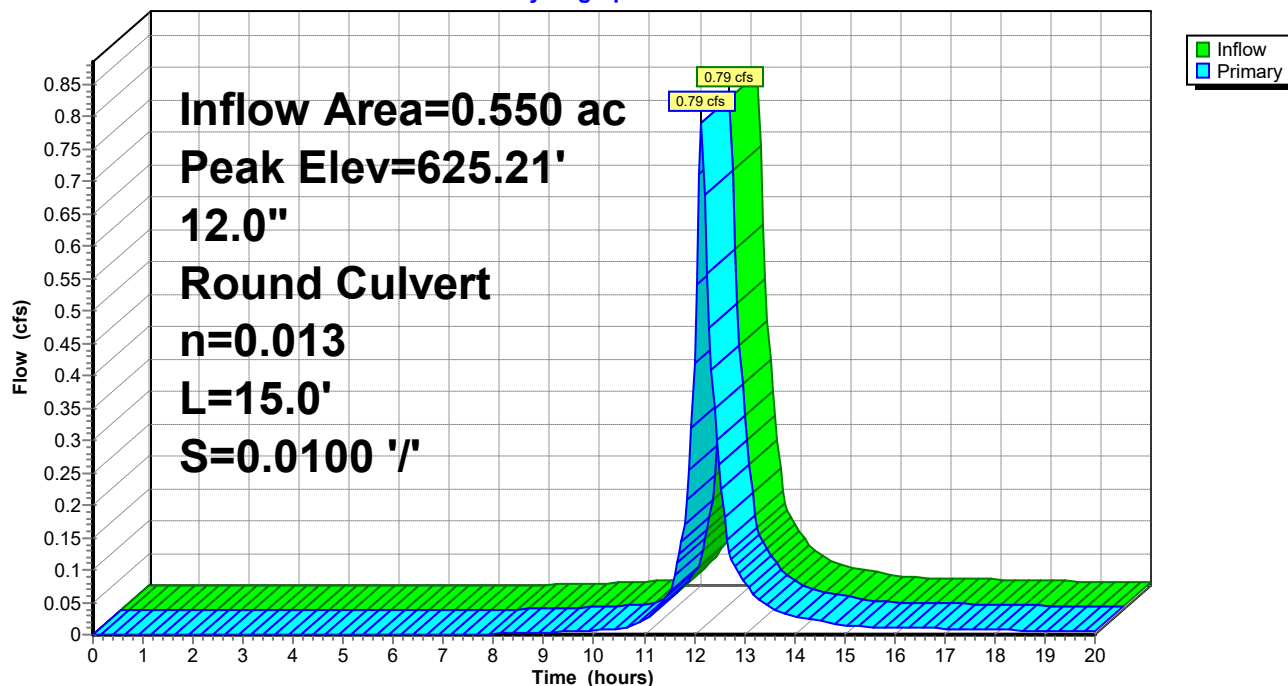
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 625.21' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	624.68'	<b>12.0" Round Culvert</b> L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 624.68' / 624.53' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.78 cfs @ 12.15 hrs HW=625.21' (Free Discharge)

↑1=Culvert (Barrel Controls 0.78 cfs @ 2.70 fps)

**Pond 11P: CB 2.3****Hydrograph**

**Summary for Pond 12P: CB 2.2**

[57] Hint: Peaked at 625.00' (Flood elevation advised)

[79] Warning: Submerged Pond 11P Primary device # 1 INLET by 0.32'

Inflow Area = 0.550 ac, 76.36% Impervious, Inflow Depth > 1.01" for 1-Year event  
 Inflow = 0.79 cfs @ 12.15 hrs, Volume= 0.046 af  
 Outflow = 0.79 cfs @ 12.15 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.79 cfs @ 12.15 hrs, Volume= 0.046 af  
 Routed to Pond 13P : CB 2.1

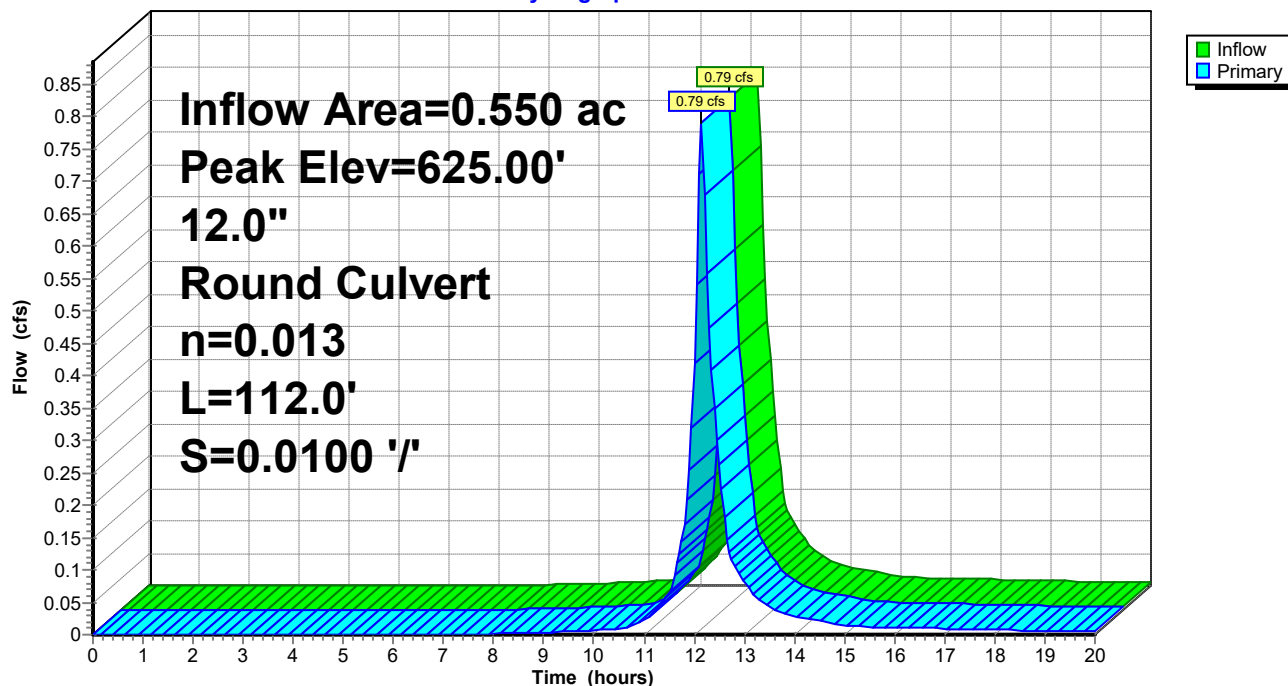
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 625.00' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	624.48'	<b>12.0" Round Culvert</b> L= 112.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 624.48' / 623.36' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.78 cfs @ 12.15 hrs HW=624.99' (Free Discharge)

↑1=Culvert (Inlet Controls 0.78 cfs @ 1.93 fps)

**Pond 12P: CB 2.2****Hydrograph**

**Summary for Pond 13P: CB 2.1**

[57] Hint: Peaked at 623.97' (Flood elevation advised)

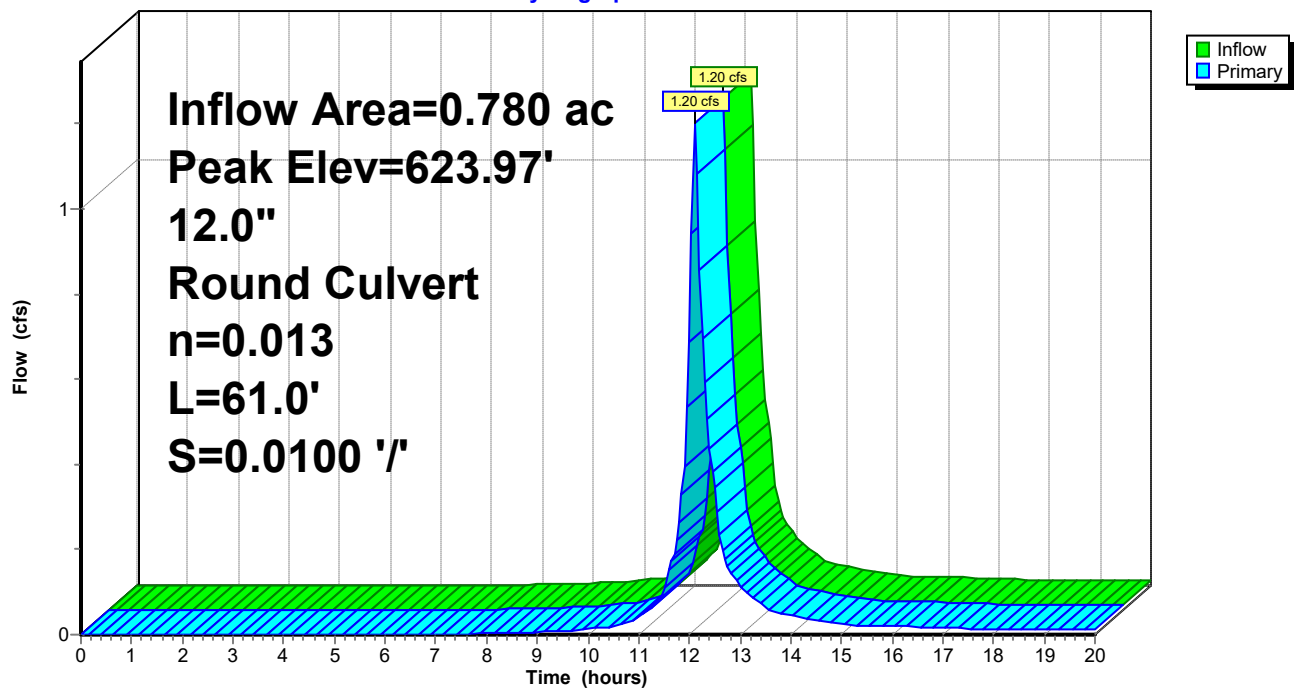
[79] Warning: Submerged Pond 12P Primary device # 1 OUTLET by 0.61'

Inflow Area = 0.780 ac, 76.92% Impervious, Inflow Depth > 1.07" for 1-Year event  
 Inflow = 1.20 cfs @ 12.11 hrs, Volume= 0.070 af  
 Outflow = 1.20 cfs @ 12.11 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.20 cfs @ 12.11 hrs, Volume= 0.070 af  
 Routed to Pond 21P : mh2.0

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 623.97' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	623.31'	<b>12.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 623.31' / 622.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.17 cfs @ 12.11 hrs HW=623.96' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 1.17 cfs @ 2.17 fps)

**Pond 13P: CB 2.1****Hydrograph**

**Summary for Pond 14P: CB 2.0.1**

[57] Hint: Peaked at 623.07' (Flood elevation advised)

Inflow Area = 0.080 ac, 87.50% Impervious, Inflow Depth > 1.38" for 1-Year event  
 Inflow = 0.19 cfs @ 12.07 hrs, Volume= 0.009 af  
 Outflow = 0.19 cfs @ 12.07 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.19 cfs @ 12.07 hrs, Volume= 0.009 af  
 Routed to Pond 21P : mh2.0

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 623.07' @ 12.07 hrs

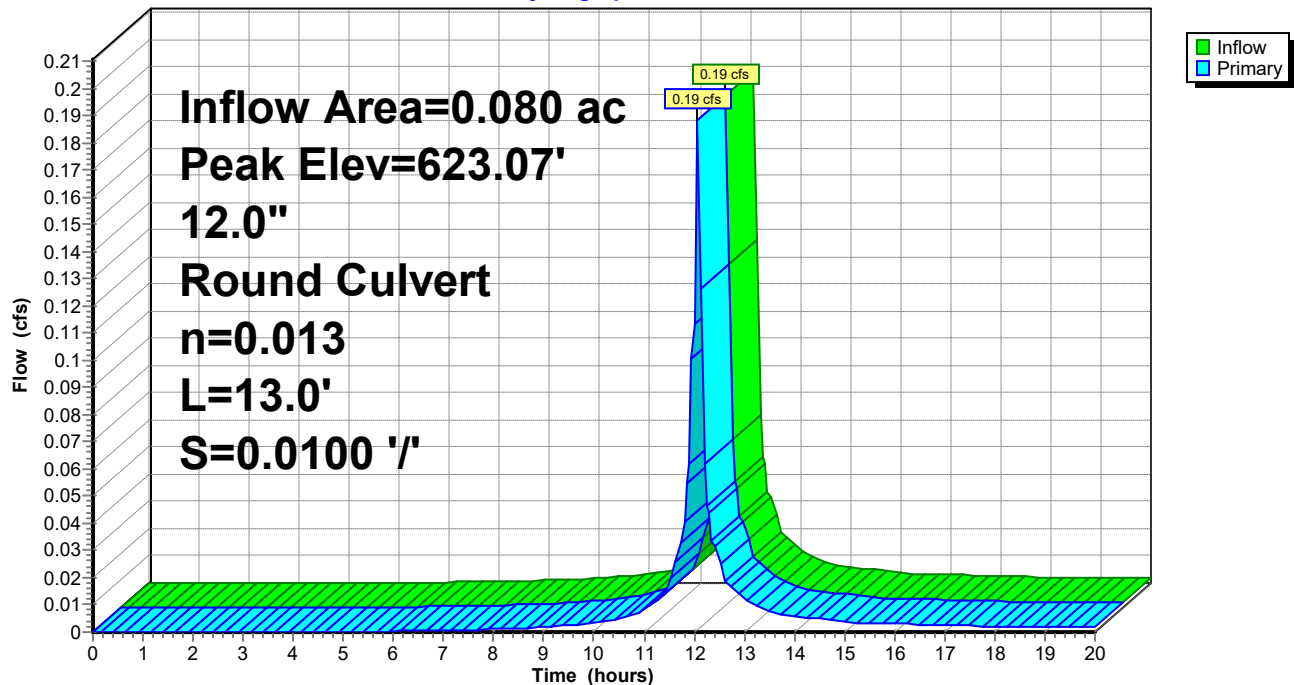
Device	Routing	Invert	Outlet Devices
#1	Primary	622.83'	<b>12.0" Round Culvert</b> L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 622.83' / 622.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.18 cfs @ 12.07 hrs HW=623.06' (Free Discharge)

↑1=Culvert (Barrel Controls 0.18 cfs @ 1.95 fps)

**Pond 14P: CB 2.0.1**

Hydrograph



**Summary for Pond 16P: CB 1.1**

[57] Hint: Peaked at 622.95' (Flood elevation advised)

Inflow Area = 0.110 ac, 63.64% Impervious, Inflow Depth > 0.98" for 1-Year event  
 Inflow = 0.11 cfs @ 12.32 hrs, Volume= 0.009 af  
 Outflow = 0.11 cfs @ 12.32 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.11 cfs @ 12.32 hrs, Volume= 0.009 af  
 Routed to Pond 17P : CB 1.0

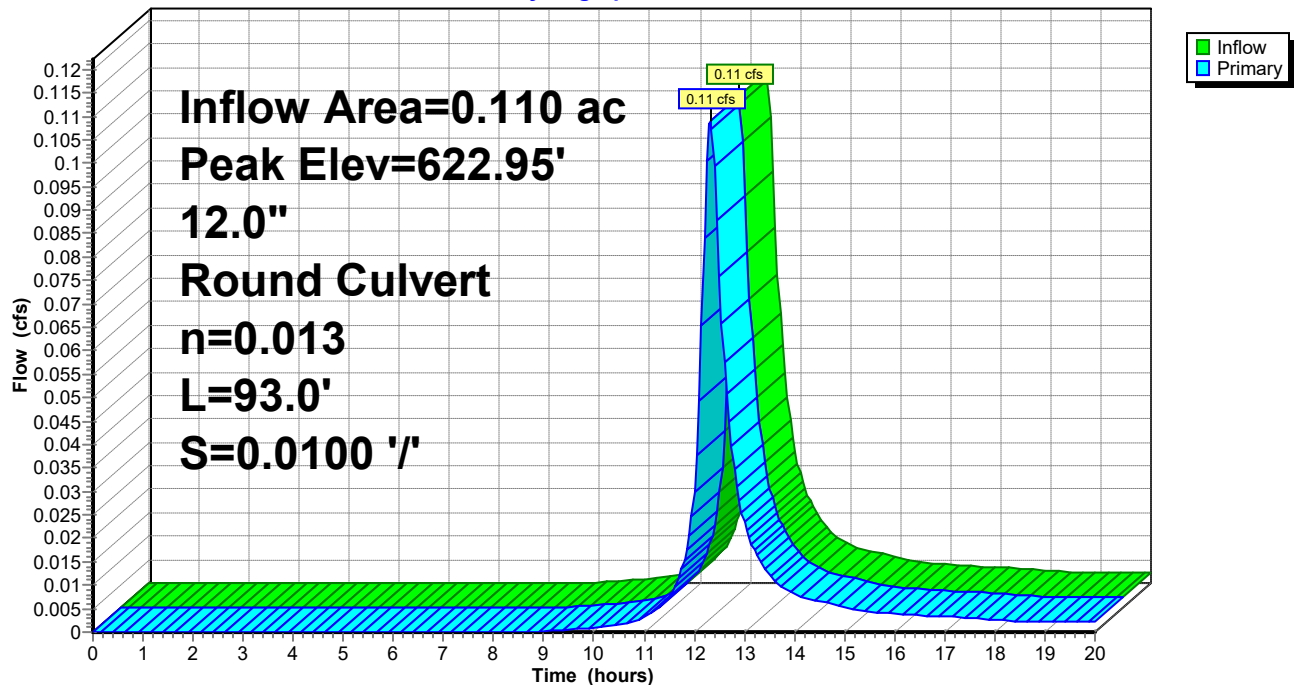
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 622.95' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	622.77'	<b>12.0" Round Culvert</b> L= 93.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 622.77' / 621.84' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.11 cfs @ 12.32 hrs HW=622.95' (Free Discharge)

↑1=Culvert (Inlet Controls 0.11 cfs @ 1.14 fps)

**Pond 16P: CB 1.1****Hydrograph**

**Summary for Pond 17P: CB 1.0**

[57] Hint: Peaked at 622.09' (Flood elevation advised)

[79] Warning: Submerged Pond 16P Primary device # 1 OUTLET by 0.25'

Inflow Area = 0.330 ac, 57.58% Impervious, Inflow Depth > 0.94" for 1-Year event  
 Inflow = 0.39 cfs @ 12.14 hrs, Volume= 0.026 af  
 Outflow = 0.39 cfs @ 12.14 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.39 cfs @ 12.14 hrs, Volume= 0.026 af  
 Routed to Link 20L : OVERALL

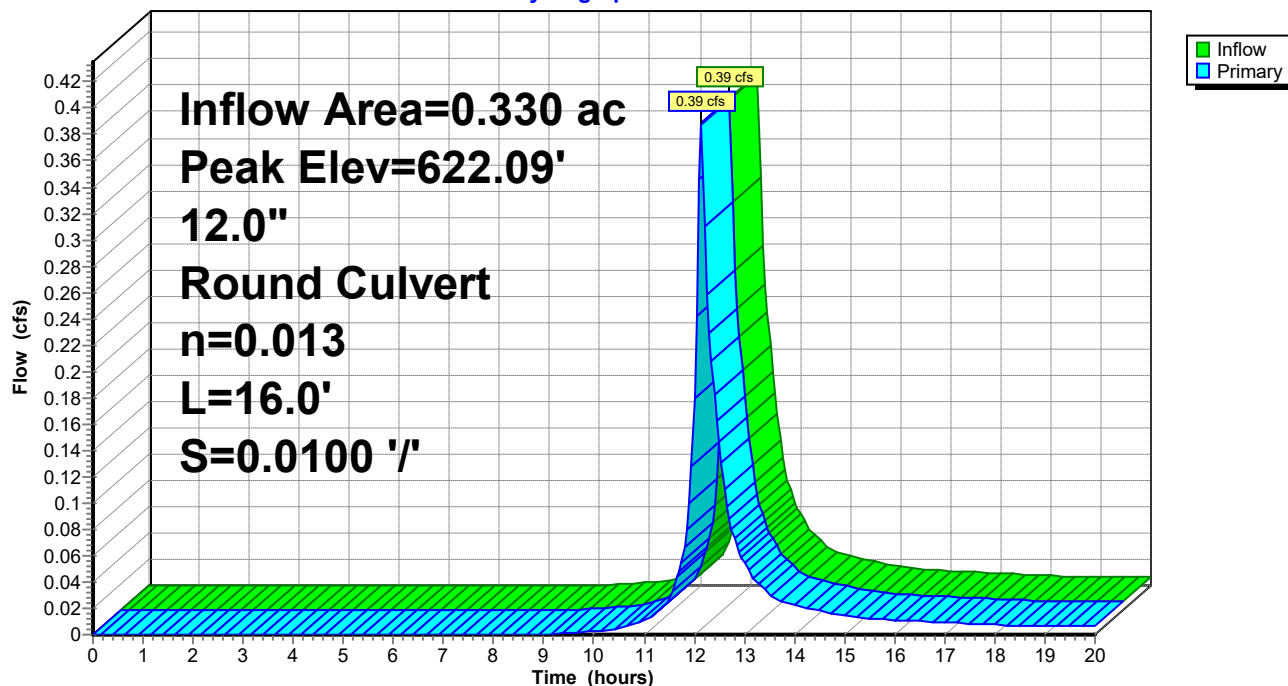
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 622.09' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	621.74'	<b>12.0" Round Culvert</b> L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 621.74' / 621.58' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.38 cfs @ 12.14 hrs HW=622.09' (Free Discharge)

↑1=Culvert (Barrel Controls 0.38 cfs @ 2.35 fps)

**Pond 17P: CB 1.0****Hydrograph**

**Summary for Pond 19P: PERF. PIPE IN STONE INFILTRATION TRENCH**

[79] Warning: Submerged Pond 9P Primary device # 1 OUTLET by 0.05'

Inflow Area = 0.320 ac, 81.25% Impervious, Inflow Depth > 1.29" for 1-Year event  
 Inflow = 0.71 cfs @ 12.09 hrs, Volume= 0.034 af  
 Outflow = 0.41 cfs @ 12.16 hrs, Volume= 0.034 af, Atten= 43%, Lag= 4.4 min  
 Discarded = 0.02 cfs @ 12.16 hrs, Volume= 0.009 af  
 Primary = 0.39 cfs @ 12.16 hrs, Volume= 0.025 af  
 Routed to Pond 11P : CB 2.3

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 625.14' @ 12.16 hrs Surf.Area= 568 sf Storage= 236 cf

Plug-Flow detention time= 8.5 min calculated for 0.034 af (100% of inflow)  
 Center-of-Mass det. time= 7.5 min ( 769.3 - 761.7 )

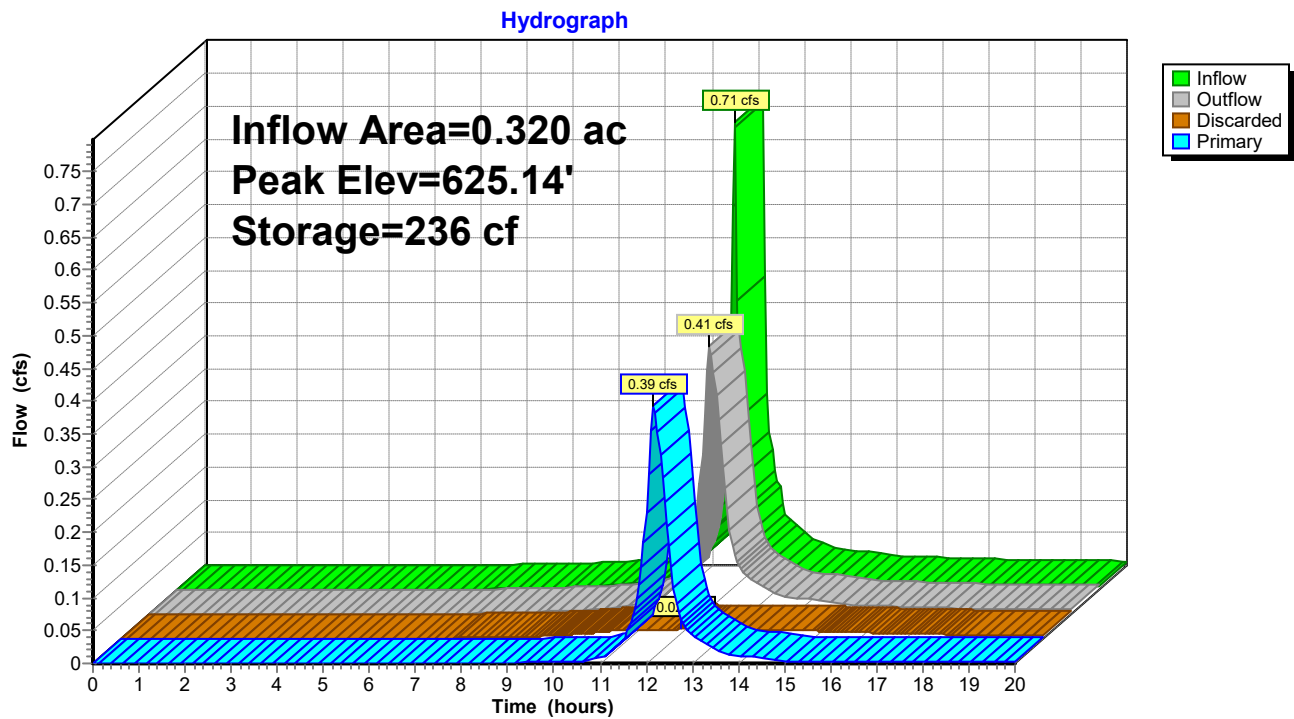
Volume	Invert	Avail.Storage	Storage Description
#1	624.10'	841 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 2,158 cf Overall - 56 cf Embedded = 2,103 cf x 40.0% Voids
#2	625.08'	56 cf	<b>12.0" Round Pipe Storage</b> Inside #1 L= 71.0' S= 0.0100 '/
		897 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
624.10	568	0	0
627.90	568	2,158	2,158

Device	Routing	Invert	Outlet Devices
#1	Primary	624.10'	<b>12.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 624.10' / 623.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	624.10'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Discarded	624.10'	<b>1.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 618.00'

**Discarded OutFlow** Max=0.02 cfs @ 12.16 hrs HW=625.12' (Free Discharge)  
 ↑ **3=Exfiltration** ( Controls 0.02 cfs)

**Primary OutFlow** Max=0.39 cfs @ 12.16 hrs HW=625.12' (Free Discharge)  
 ↑ **1=Culvert** (Passes 0.39 cfs of 2.11 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Orifice Controls 0.39 cfs @ 4.44 fps)

**Pond 19P: PERF. PIPE IN STONE INFILTRATION TRENCH**



**Summary for Pond 21P: mh2.0**

[57] Hint: Peaked at 623.35' (Flood elevation advised)

[79] Warning: Submerged Pond 13P Primary device # 1 INLET by 0.04'

[81] Warning: Exceeded Pond 14P by 0.30' @ 12.15 hrs

Inflow Area = 0.860 ac, 77.91% Impervious, Inflow Depth > 1.10" for 1-Year event  
 Inflow = 1.38 cfs @ 12.10 hrs, Volume= 0.079 af  
 Outflow = 1.38 cfs @ 12.10 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.38 cfs @ 12.10 hrs, Volume= 0.079 af  
 Routed to Link 20L : OVERALL

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 623.35' @ 12.10 hrs

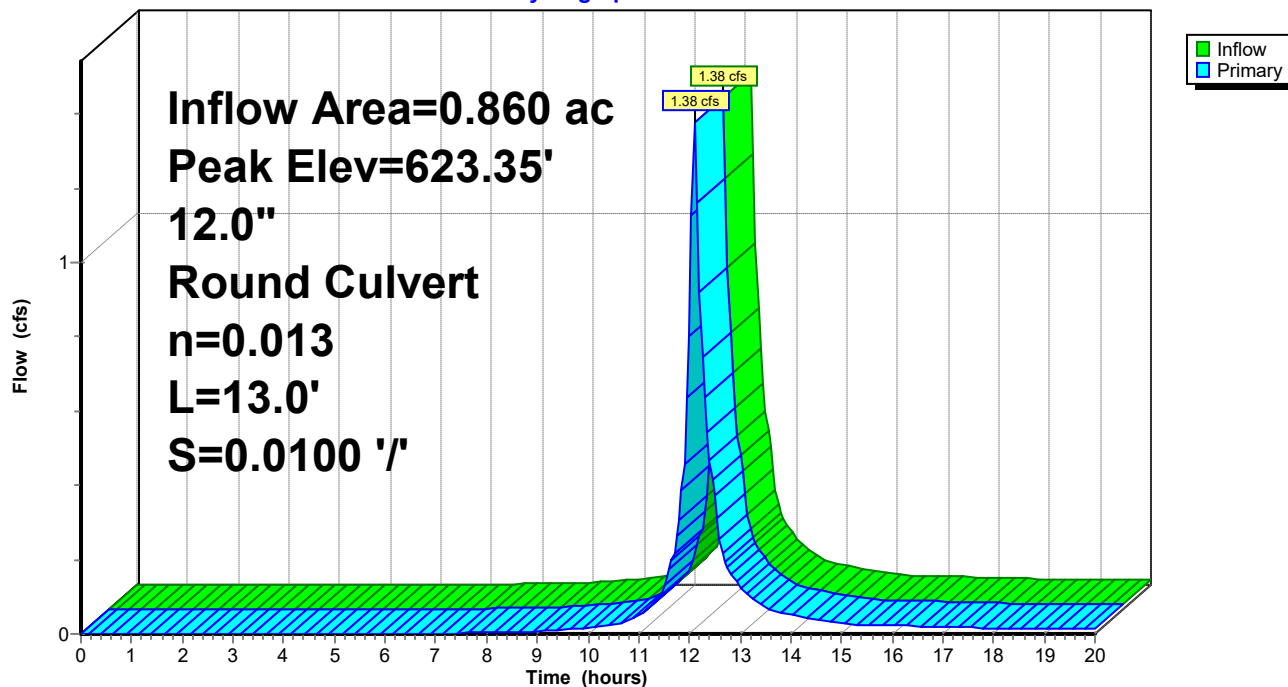
Device	Routing	Invert	Outlet Devices
#1	Primary	622.60'	<b>12.0" Round Culvert</b> L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 622.60' / 622.47' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.37 cfs @ 12.10 hrs HW=623.35' (Free Discharge)

1=Culvert (Barrel Controls 1.37 cfs @ 3.00 fps)

**Pond 21P: mh2.0**

Hydrograph



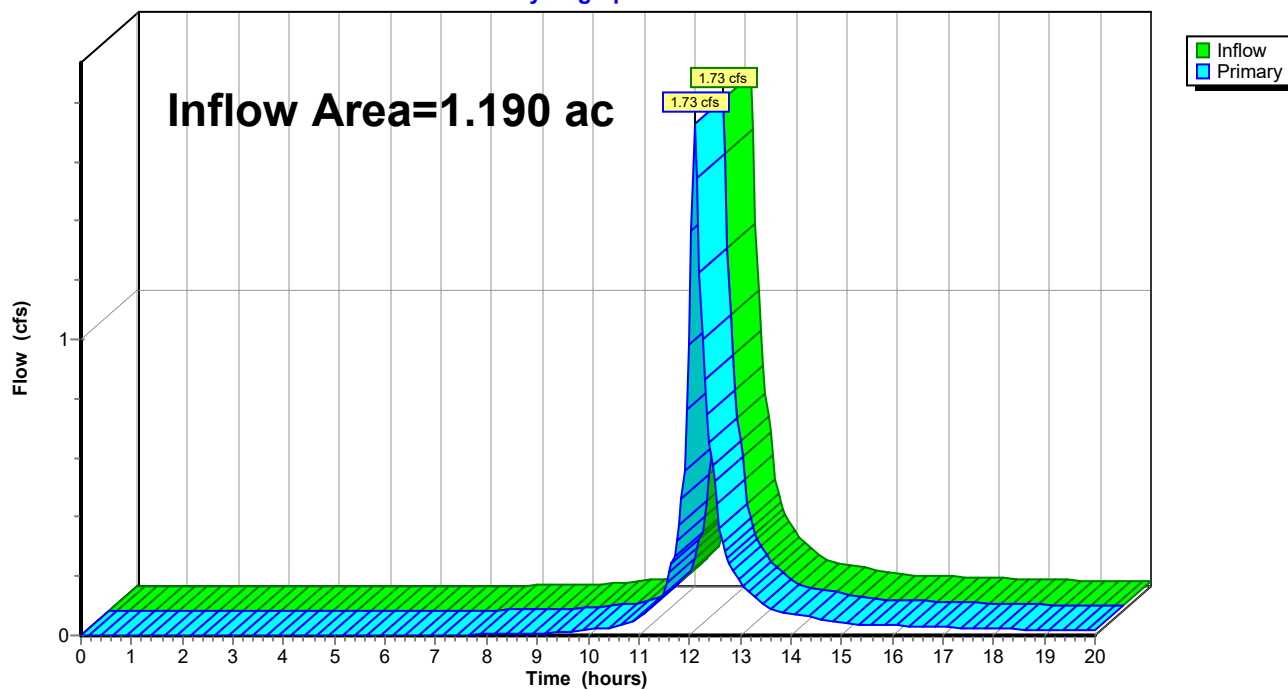
**Summary for Link 20L: OVERALL**

Inflow Area = 1.190 ac, 72.27% Impervious, Inflow Depth > 1.06" for 1-Year event  
Inflow = 1.73 cfs @ 12.11 hrs, Volume= 0.105 af  
Primary = 1.73 cfs @ 12.11 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

**Link 20L: OVERALL**

Hydrograph



Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment 1S: OVERALL EXISTING</b>	Runoff Area=1.190 ac 87.39% Impervious Runoff Depth>2.57" Tc=0.0 min CN=96 Runoff=5.02 cfs 0.255 af
<b>Subcatchment 2S: OVERALL PROPOSED</b>	Runoff Area=1.190 ac 72.27% Impervious Runoff Depth>2.27" Tc=6.8 min CN=93 Runoff=4.00 cfs 0.225 af
<b>Subcatchment 3S: PROP AREA 1</b>	Runoff Area=0.320 ac 81.25% Impervious Runoff Depth>2.47" Tc=3.0 min CN=95 Runoff=1.30 cfs 0.066 af
<b>Subcatchment 4S: PROP AREA 2</b>	Runoff Area=0.230 ac 69.57% Impervious Runoff Depth>2.27" Flow Length=111' Slope=0.0172 '/' Tc=6.8 min CN=93 Runoff=0.77 cfs 0.043 af
<b>Subcatchment 5S: PROP AREA 3</b>	Runoff Area=0.230 ac 78.26% Impervious Runoff Depth>2.37" Flow Length=136' Slope=0.0060 '/' Tc=2.9 min CN=94 Runoff=0.92 cfs 0.045 af
<b>Subcatchment 6S: PROP AREA 4</b>	Runoff Area=0.080 ac 87.50% Impervious Runoff Depth>2.57" Flow Length=86' Slope=0.0151 '/' Tc=1.6 min CN=96 Runoff=0.34 cfs 0.017 af
<b>Subcatchment 7S: PROP AREA 5</b>	Runoff Area=0.110 ac 63.64% Impervious Runoff Depth>2.08" Flow Length=191' Slope=0.0060 '/' Tc=21.7 min CN=91 Runoff=0.23 cfs 0.019 af
<b>Subcatchment 8S: PROP AREA 6</b>	Runoff Area=0.220 ac 54.55% Impervious Runoff Depth>2.00" Flow Length=119' Slope=0.0189 '/' Tc=6.2 min CN=90 Runoff=0.68 cfs 0.037 af
<b>Pond 9P: CB 2.5</b>	Peak Elev=626.17' Inflow=1.30 cfs 0.066 af 12.0" Round Culvert n=0.013 L=71.0' S=0.0051 '/' Outflow=1.30 cfs 0.066 af
<b>Pond 11P: CB 2.3</b>	Peak Elev=625.42' Inflow=1.36 cfs 0.096 af 12.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=1.36 cfs 0.096 af
<b>Pond 12P: CB 2.2</b>	Peak Elev=625.19' Inflow=1.36 cfs 0.096 af 12.0" Round Culvert n=0.013 L=112.0' S=0.0100 '/' Outflow=1.36 cfs 0.096 af
<b>Pond 13P: CB 2.1</b>	Peak Elev=624.32' Inflow=2.14 cfs 0.141 af 12.0" Round Culvert n=0.013 L=61.0' S=0.0100 '/' Outflow=2.14 cfs 0.141 af
<b>Pond 14P: CB 2.0.1</b>	Peak Elev=623.16' Inflow=0.34 cfs 0.017 af 12.0" Round Culvert n=0.013 L=13.0' S=0.0100 '/' Outflow=0.34 cfs 0.017 af
<b>Pond 16P: CB 1.1</b>	Peak Elev=623.03' Inflow=0.23 cfs 0.019 af 12.0" Round Culvert n=0.013 L=93.0' S=0.0100 '/' Outflow=0.23 cfs 0.019 af
<b>Pond 17P: CB 1.0</b>	Peak Elev=622.28' Inflow=0.82 cfs 0.056 af 12.0" Round Culvert n=0.013 L=16.0' S=0.0100 '/' Outflow=0.82 cfs 0.056 af
<b>Pond 19P: PERF. PIPE IN STONE</b>	Peak Elev=626.25' Storage=517 cf Inflow=1.30 cfs 0.066 af Discarded=0.02 cfs 0.014 af Primary=0.59 cfs 0.052 af Outflow=0.61 cfs 0.066 af

**West Seneca HYDROCAD***NRCC 24-hr A 10-Year Rainfall=3.14"*

Prepared by Fisher Associates

Printed 12/14/2022

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

Page 30

**Pond 21P: mh2.0**

Peak Elev=623.78' Inflow=2.45 cfs 0.158 af  
12.0" Round Culvert n=0.013 L=13.0' S=0.0100 '/' Outflow=2.45 cfs 0.158 af

**Link 20L: OVERALL**

Inflow=3.21 cfs 0.214 af  
Primary=3.21 cfs 0.214 af

**Total Runoff Area = 3.570 ac   Runoff Volume = 0.707 af   Average Runoff Depth = 2.38"**  
**22.69% Pervious = 0.810 ac   77.31% Impervious = 2.760 ac**

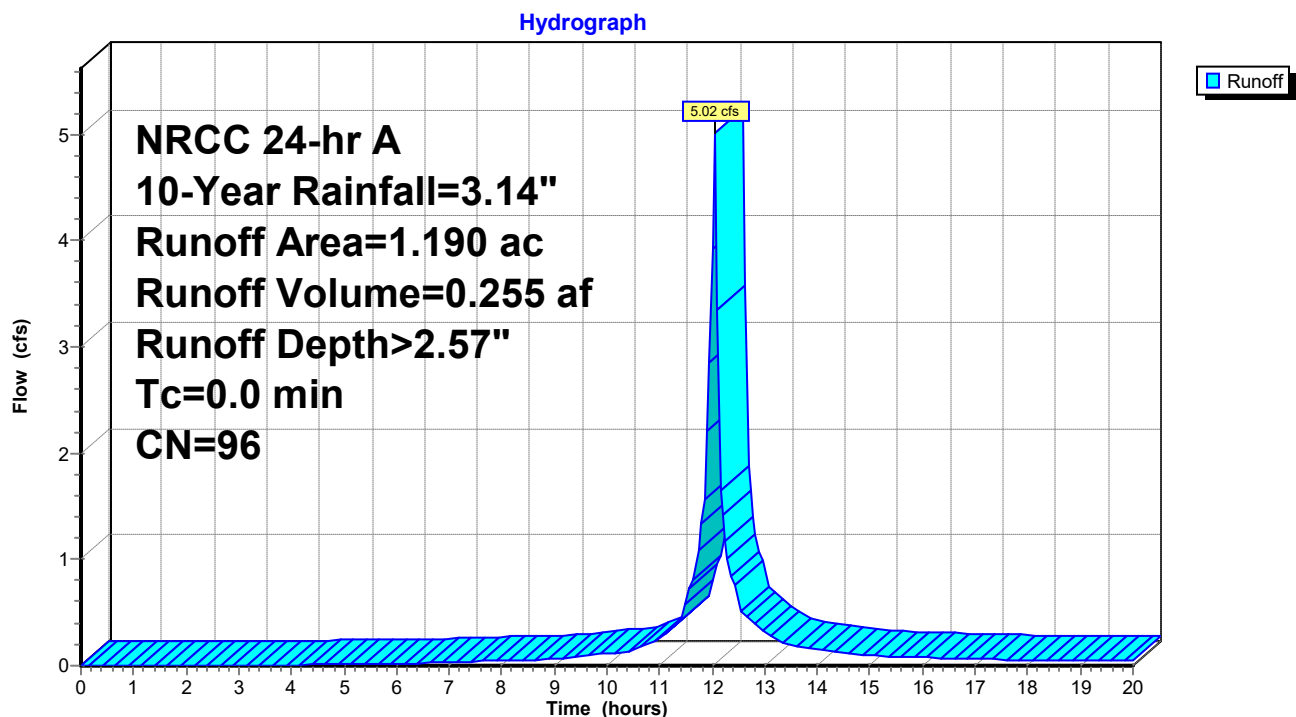
**Summary for Subcatchment 1S: OVERALL EXISTING**

[46] Hint:  $T_c=0$  (Instant runoff peak depends on  $dt$ )

Runoff = 5.02 cfs @ 12.04 hrs, Volume= 0.255 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
NRCC 24-hr A 10-Year Rainfall=3.14"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG A
0.150	80	>75% Grass cover, Good, HSG D
1.190	96	Weighted Average
0.150		12.61% Pervious Area
1.040		87.39% Impervious Area

**Subcatchment 1S: OVERALL EXISTING**

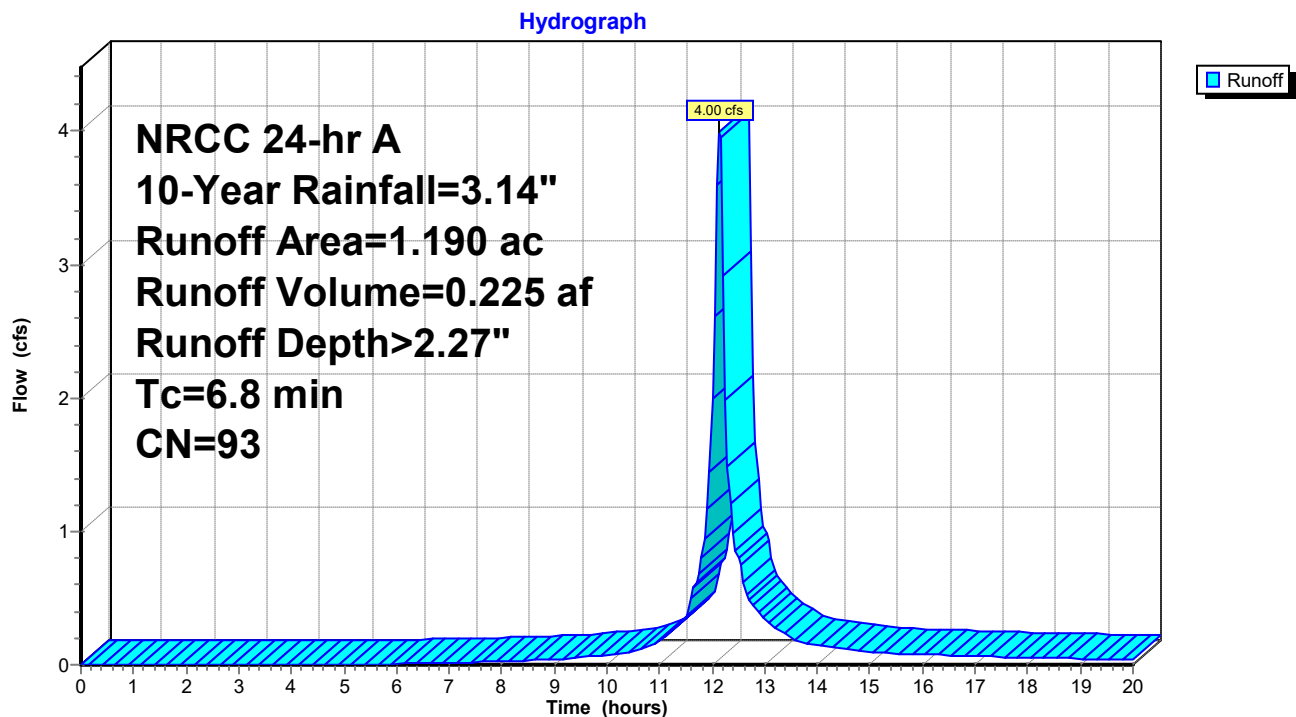
**Summary for Subcatchment 2S: OVERALL PROPOSED (DNU)**

Runoff = 4.00 cfs @ 12.14 hrs, Volume= 0.225 af, Depth> 2.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
NRCC 24-hr A 10-Year Rainfall=3.14"

Area (ac)	CN	Description
0.860	98	Paved parking, HSG A
0.330	80	>75% Grass cover, Good, HSG D
1.190	93	Weighted Average
0.330		27.73% Pervious Area
0.860		72.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8					Direct Entry,

**Subcatchment 2S: OVERALL PROPOSED (DNU)**

**Summary for Subcatchment 3S: PROP AREA 1**

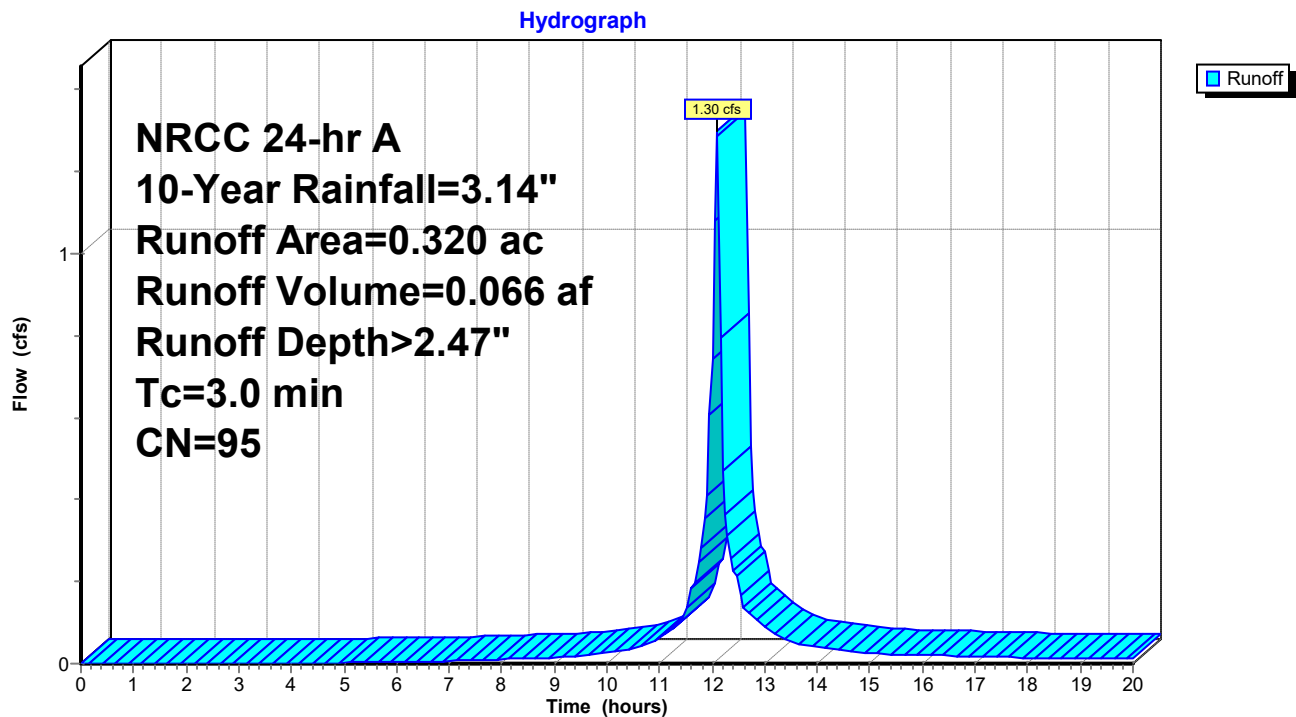
[49] Hint:  $T_c < 2dt$  may require smaller  $dt$

Runoff = 1.30 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 2.47"  
 Routed to Pond 9P : CB 2.5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
 NRCC 24-hr A 10-Year Rainfall=3.14"

Area (ac)	CN	Description
0.260	98	Unconnected roofs, HSG A
0.060	80	>75% Grass cover, Good, HSG D
0.320	95	Weighted Average
0.060		18.75% Pervious Area
0.260		81.25% Impervious Area
0.260		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0					Direct Entry, Roof drainage

**Subcatchment 3S: PROP AREA 1**

**Summary for Subcatchment 4S: PROP AREA 2**

Runoff = 0.77 cfs @ 12.14 hrs, Volume= 0.043 af, Depth> 2.27"  
 Routed to Pond 11P : CB 2.3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 NRCC 24-hr A 10-Year Rainfall=3.14"

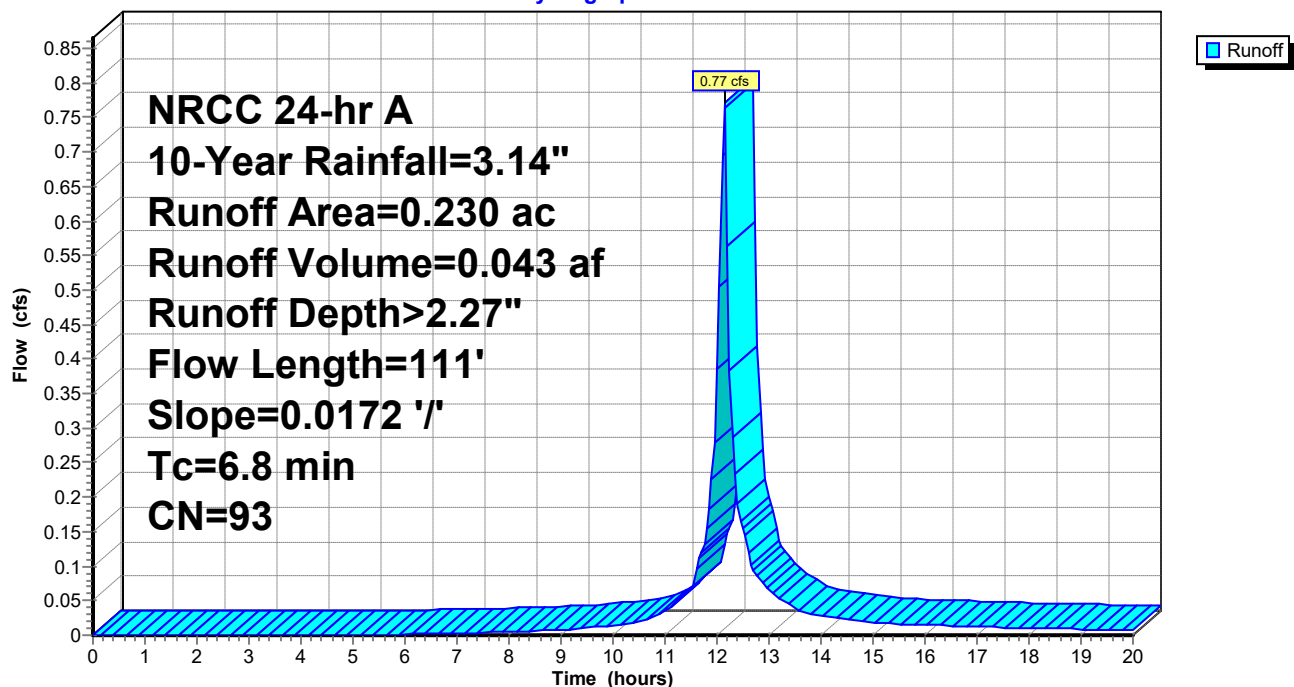
Area (ac)	CN	Description
0.160	98	Paved parking, HSG A
0.070	80	>75% Grass cover, Good, HSG D
0.230	93	Weighted Average
0.070		30.43% Pervious Area
0.160		69.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	36	0.0172	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.17"
1.1	64	0.0172	0.98		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 2.17"
0.1	11	0.0172	2.66		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
6.8	111	Total			

**Subcatchment 4S: PROP AREA 2**

Hydrograph





**Summary for Subcatchment 5S: PROP AREA 3**[49] Hint:  $T_c < 2dt$  may require smaller  $dt$ 

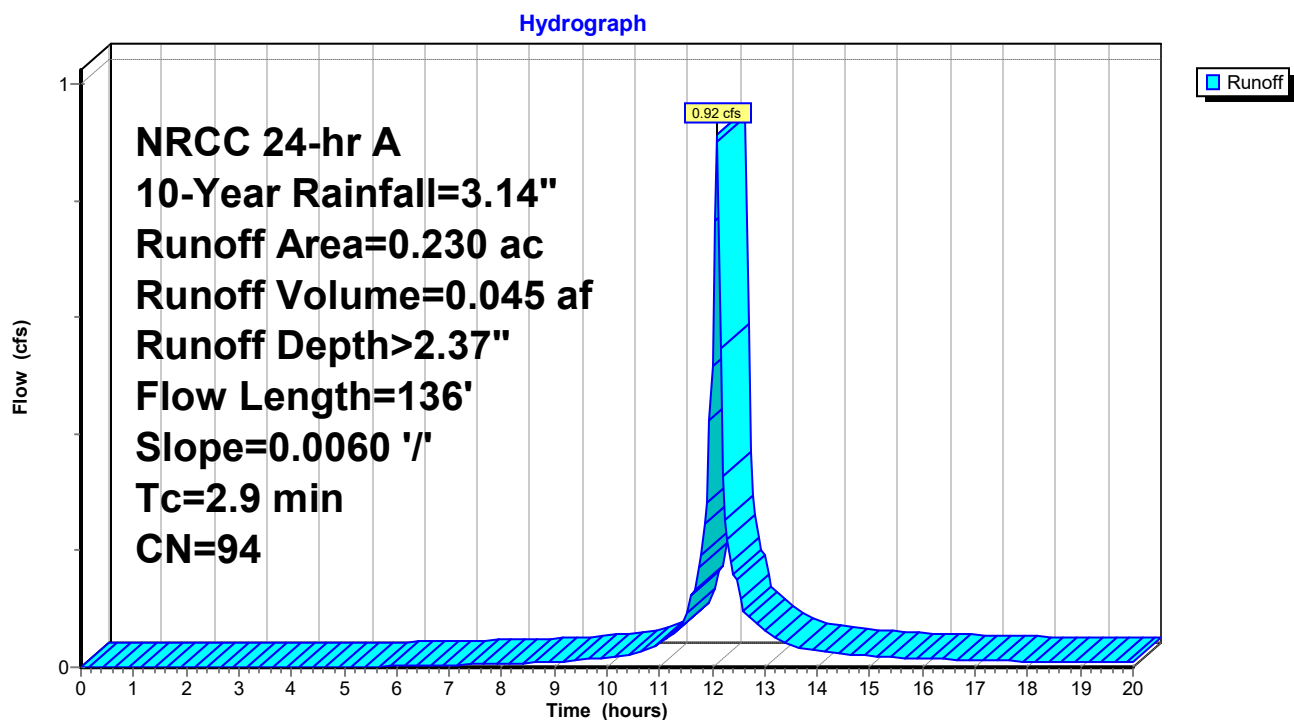
Runoff = 0.92 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 2.37"  
 Routed to Pond 13P : CB 2.1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
 NRCC 24-hr A 10-Year Rainfall=3.14"

Area (ac)	CN	Description
0.180	98	Paved parking, HSG A
0.050	80	>75% Grass cover, Good, HSG D
0.230	94	Weighted Average
0.050		21.74% Pervious Area
0.180		78.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	9	0.0060	0.43		<b>Sheet Flow,</b> Smooth surfaces $n=0.011$ $P2=2.17"$
2.2	91	0.0060	0.69		<b>Sheet Flow,</b> Smooth surfaces $n=0.011$ $P2=2.17"$
0.4	36	0.0060	1.57		<b>Shallow Concentrated Flow,</b> Paved $K_v=20.3$ fps
2.9	136	Total			

**Subcatchment 5S: PROP AREA 3**

**Summary for Subcatchment 6S: PROP AREA 4**[49] Hint:  $T_c < 2dt$  may require smaller  $dt$ 

Runoff = 0.34 cfs @ 12.07 hrs, Volume= 0.017 af, Depth> 2.57"  
 Routed to Pond 14P : CB 2.0.1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
 NRCC 24-hr A 10-Year Rainfall=3.14"

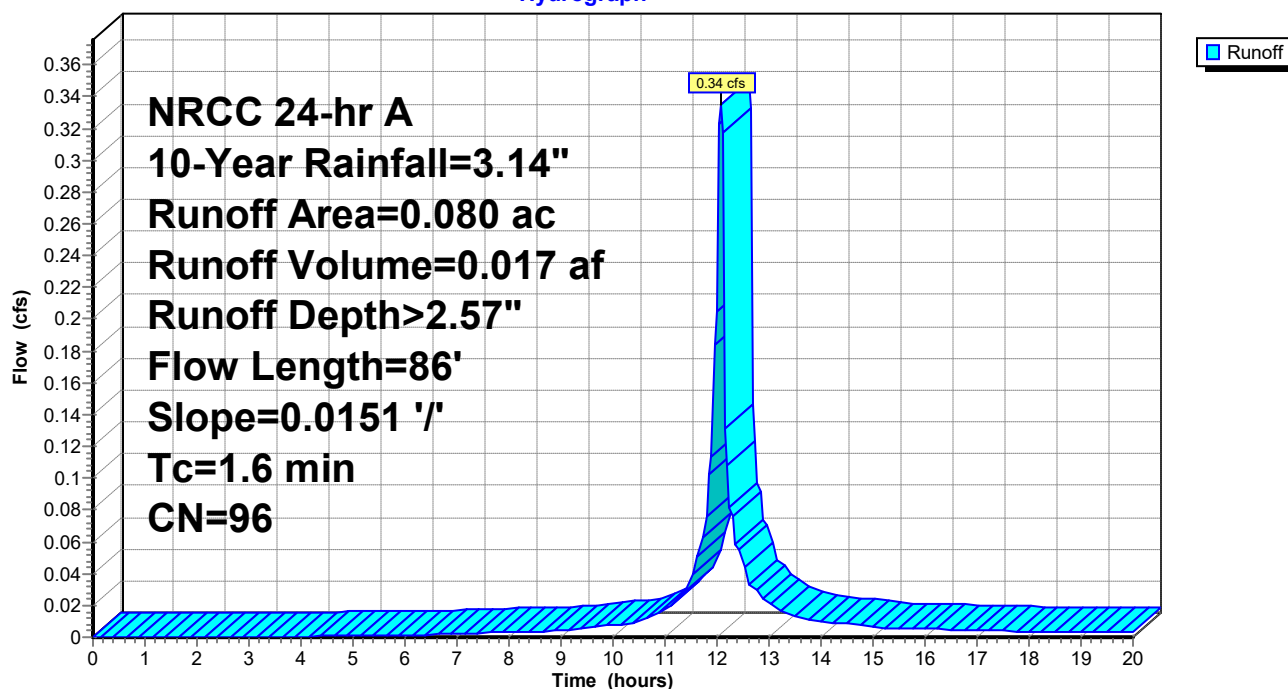
Area (ac)	CN	Description
0.070	98	Paved parking, HSG A
0.010	80	>75% Grass cover, Good, HSG D
0.080	96	Weighted Average
0.010		12.50% Pervious Area
0.070		87.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	24	0.0151	0.76		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.17"
1.1	62	0.0151	0.92		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.17"
1.6	86	Total			

**Subcatchment 6S: PROP AREA 4**

Hydrograph



**Summary for Subcatchment 7S: PROP AREA 5**

Runoff = 0.23 cfs @ 12.31 hrs, Volume= 0.019 af, Depth> 2.08"  
 Routed to Pond 16P : CB 1.1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 NRCC 24-hr A 10-Year Rainfall=3.14"

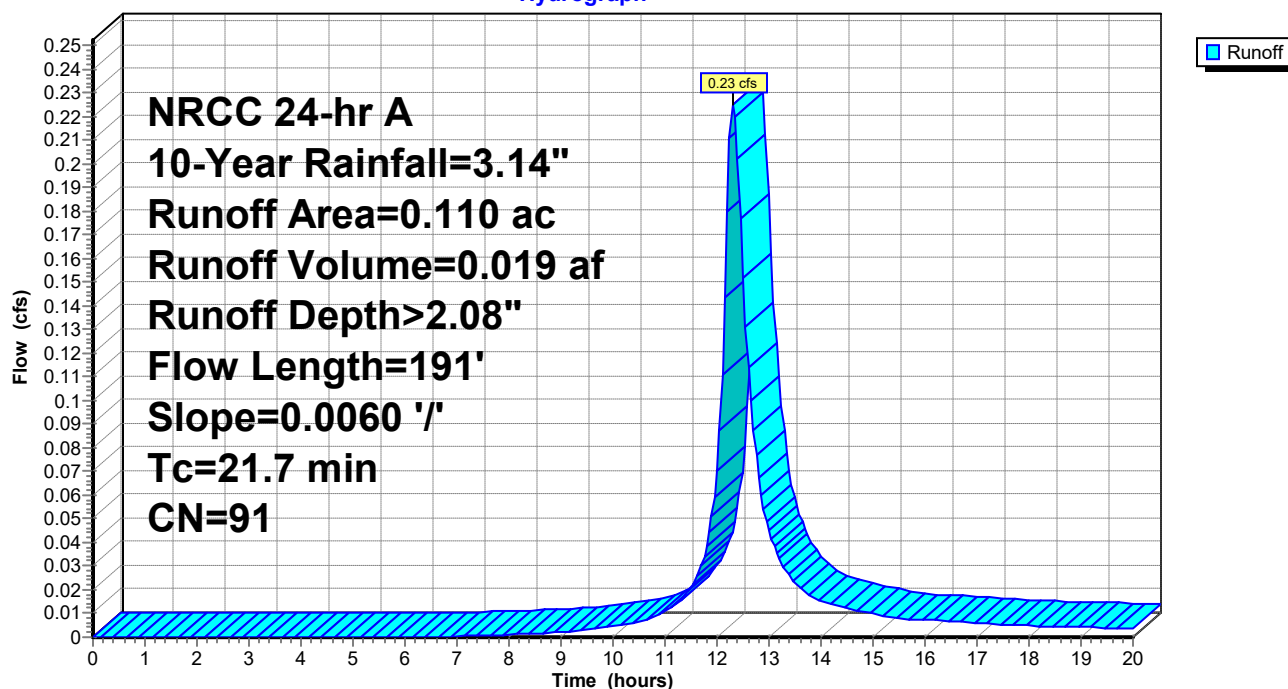
Area (ac)	CN	Description
0.070	98	Paved parking, HSG A
0.040	80	>75% Grass cover, Good, HSG D
0.110	91	Weighted Average
0.040		36.36% Pervious Area
0.070		63.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.3	100	0.0060	0.09		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.17"
2.2	73	0.0060	0.54		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.2	18	0.0060	1.57		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
21.7	191	Total			

**Subcatchment 7S: PROP AREA 5**

Hydrograph



**Summary for Subcatchment 8S: PROP AREA 6**

Runoff = 0.68 cfs @ 12.13 hrs, Volume= 0.037 af, Depth> 2.00"  
 Routed to Pond 17P : CB 1.0

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 NRCC 24-hr A 10-Year Rainfall=3.14"

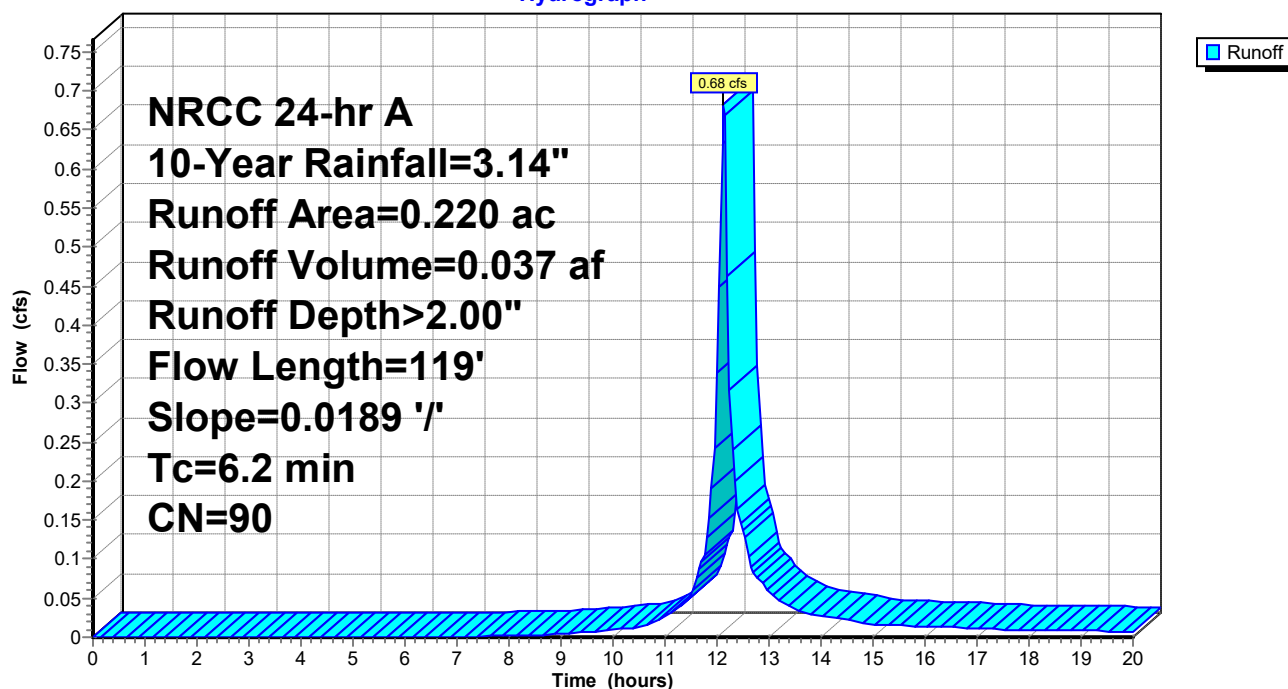
Area (ac)	CN	Description
0.120	98	Paved parking, HSG A
0.100	80	>75% Grass cover, Good, HSG D
0.220	90	Weighted Average
0.100		45.45% Pervious Area
0.120		54.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	33	0.0189	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.17"
1.1	67	0.0189	1.02		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 2.17"
0.1	19	0.0189	2.79		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
6.2	119	Total			

**Subcatchment 8S: PROP AREA 6**

Hydrograph



**Summary for Pond 9P: CB 2.5**

[57] Hint: Peaked at 626.17' (Flood elevation advised)

Inflow Area = 0.320 ac, 81.25% Impervious, Inflow Depth > 2.47" for 10-Year event  
 Inflow = 1.30 cfs @ 12.09 hrs, Volume= 0.066 af  
 Outflow = 1.30 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.30 cfs @ 12.09 hrs, Volume= 0.066 af  
 Routed to Pond 19P : PERF. PIPE IN STONE INFILTRATION TRENCH

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 626.17' @ 12.09 hrs

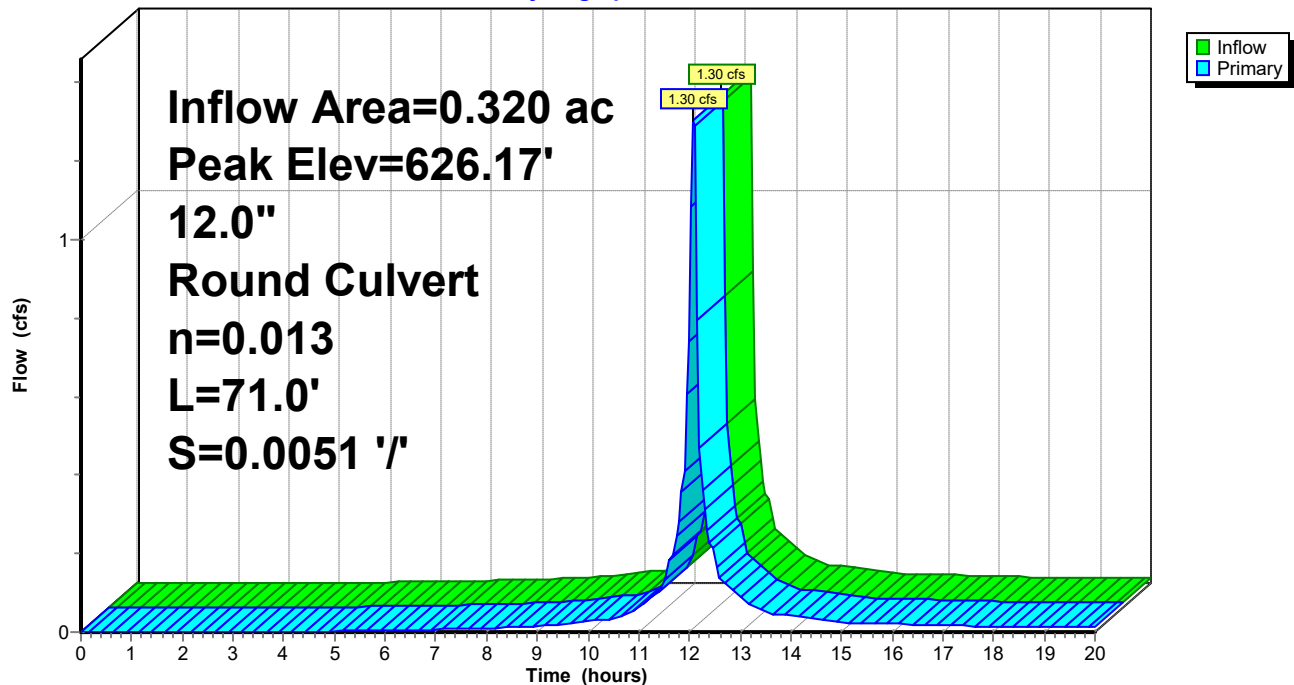
Device	Routing	Invert	Outlet Devices
#1	Primary	625.44'	<b>12.0" Round Culvert</b> L= 71.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 625.44' / 625.08' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.24 cfs @ 12.09 hrs HW=626.15' (Free Discharge)

↑1=Culvert (Barrel Controls 1.24 cfs @ 2.93 fps)

**Pond 9P: CB 2.5**

Hydrograph



**Summary for Pond 11P: CB 2.3**

[57] Hint: Peaked at 625.42' (Flood elevation advised)

[81] Warning: Exceeded Pond 19P by 0.61' @ 18.55 hrs

Inflow Area = 0.550 ac, 76.36% Impervious, Inflow Depth > 2.09" for 10-Year event  
 Inflow = 1.36 cfs @ 12.14 hrs, Volume= 0.096 af  
 Outflow = 1.36 cfs @ 12.14 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.36 cfs @ 12.14 hrs, Volume= 0.096 af  
 Routed to Pond 12P : CB 2.2

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 625.42' @ 12.14 hrs

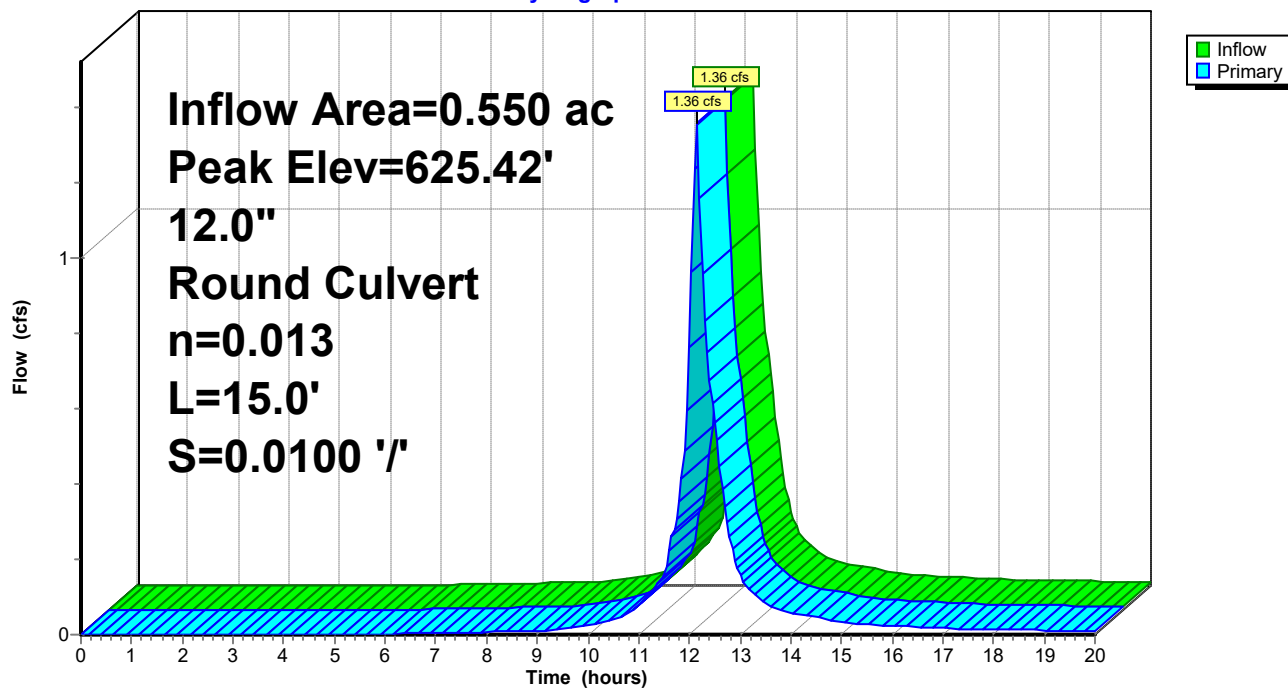
Device	Routing	Invert	Outlet Devices
#1	Primary	624.68'	<b>12.0" Round Culvert</b> L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 624.68' / 624.53' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.34 cfs @ 12.14 hrs HW=625.41' (Free Discharge)

↑1=Culvert (Barrel Controls 1.34 cfs @ 3.03 fps)

**Pond 11P: CB 2.3**

Hydrograph



**Summary for Pond 12P: CB 2.2**

[57] Hint: Peaked at 625.19' (Flood elevation advised)

[79] Warning: Submerged Pond 11P Primary device # 1 INLET by 0.51'

Inflow Area = 0.550 ac, 76.36% Impervious, Inflow Depth > 2.09" for 10-Year event  
 Inflow = 1.36 cfs @ 12.14 hrs, Volume= 0.096 af  
 Outflow = 1.36 cfs @ 12.14 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.36 cfs @ 12.14 hrs, Volume= 0.096 af  
 Routed to Pond 13P : CB 2.1

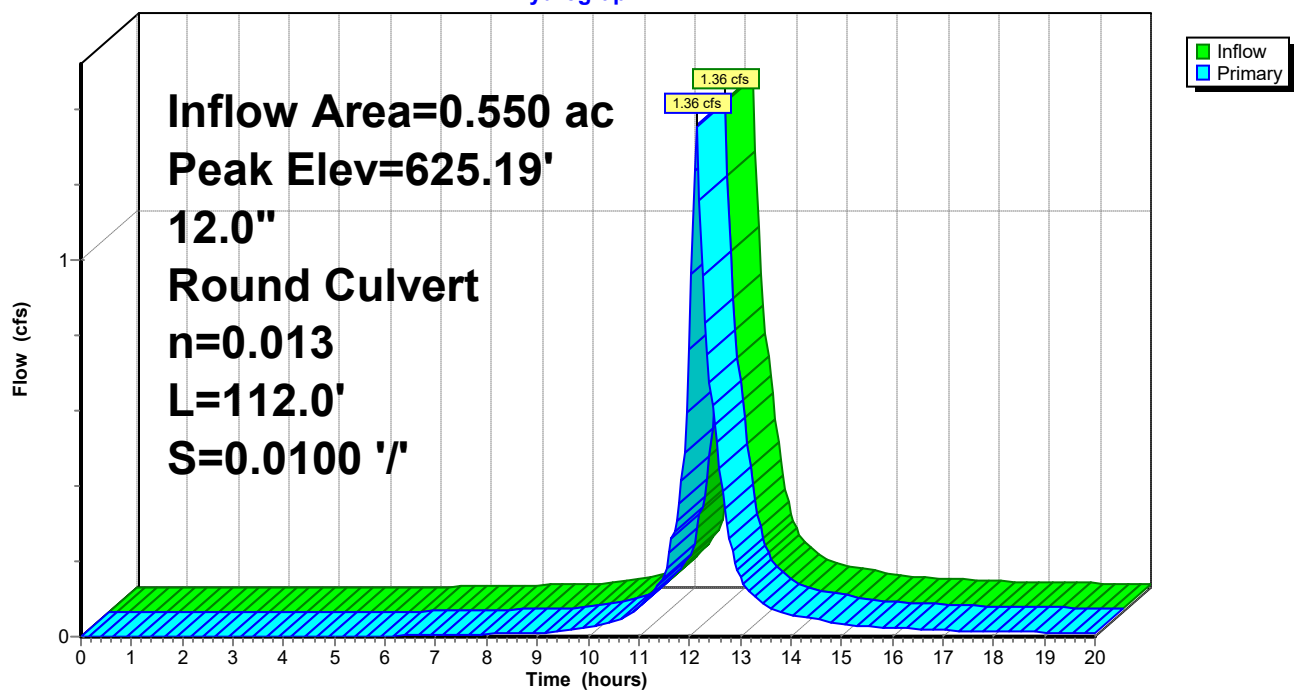
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 625.19' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	624.48'	<b>12.0" Round Culvert</b> L= 112.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 624.48' / 623.36' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.34 cfs @ 12.14 hrs HW=625.19' (Free Discharge)

↑1=Culvert (Inlet Controls 1.34 cfs @ 2.26 fps)

**Pond 12P: CB 2.2****Hydrograph**

**Summary for Pond 13P: CB 2.1**

[57] Hint: Peaked at 624.32' (Flood elevation advised)

[79] Warning: Submerged Pond 12P Primary device # 1 OUTLET by 0.96'

Inflow Area = 0.780 ac, 76.92% Impervious, Inflow Depth > 2.17" for 10-Year event  
 Inflow = 2.14 cfs @ 12.11 hrs, Volume= 0.141 af  
 Outflow = 2.14 cfs @ 12.11 hrs, Volume= 0.141 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.14 cfs @ 12.11 hrs, Volume= 0.141 af  
 Routed to Pond 21P : mh2.0

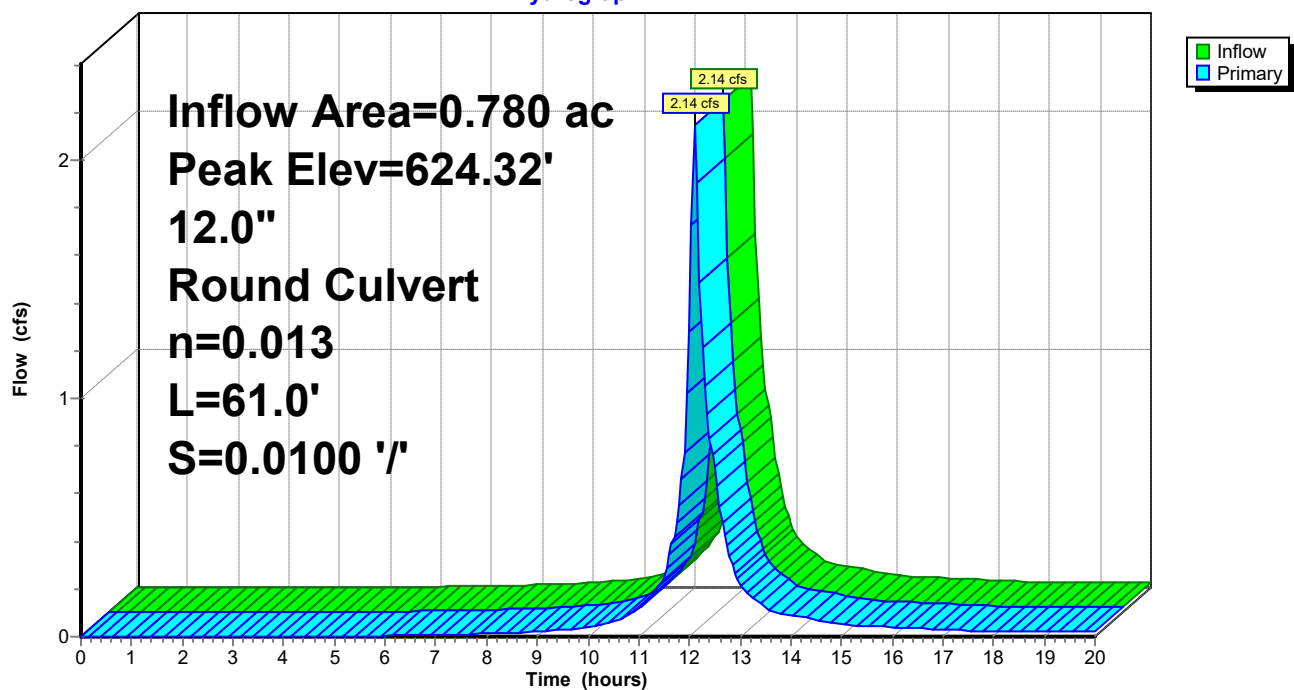
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 624.32' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	623.31'	<b>12.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 623.31' / 622.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.11 cfs @ 12.11 hrs HW=624.31' (Free Discharge)

↑1=Culvert (Inlet Controls 2.11 cfs @ 2.68 fps)

**Pond 13P: CB 2.1****Hydrograph**



**Summary for Pond 14P: CB 2.0.1**

[57] Hint: Peaked at 623.16' (Flood elevation advised)

Inflow Area = 0.080 ac, 87.50% Impervious, Inflow Depth > 2.57" for 10-Year event  
 Inflow = 0.34 cfs @ 12.07 hrs, Volume= 0.017 af  
 Outflow = 0.34 cfs @ 12.07 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.34 cfs @ 12.07 hrs, Volume= 0.017 af  
 Routed to Pond 21P : mh2.0

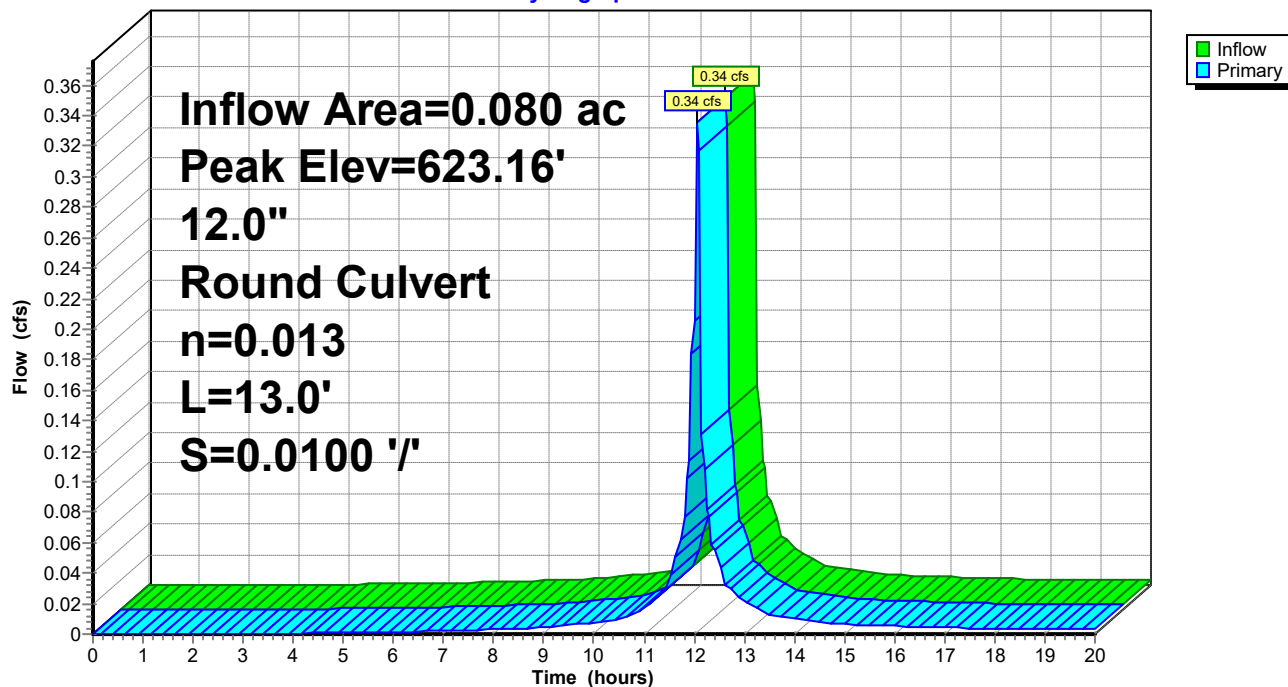
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 623.16' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	622.83'	<b>12.0" Round Culvert</b> L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 622.83' / 622.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.32 cfs @ 12.07 hrs HW=623.15' (Free Discharge)  
 ↑1=Culvert (Barrel Controls 0.32 cfs @ 2.21 fps)

**Pond 14P: CB 2.0.1**

Hydrograph



**Summary for Pond 16P: CB 1.1**

[57] Hint: Peaked at 623.03' (Flood elevation advised)

Inflow Area = 0.110 ac, 63.64% Impervious, Inflow Depth > 2.08" for 10-Year event  
 Inflow = 0.23 cfs @ 12.31 hrs, Volume= 0.019 af  
 Outflow = 0.23 cfs @ 12.31 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.23 cfs @ 12.31 hrs, Volume= 0.019 af  
 Routed to Pond 17P : CB 1.0

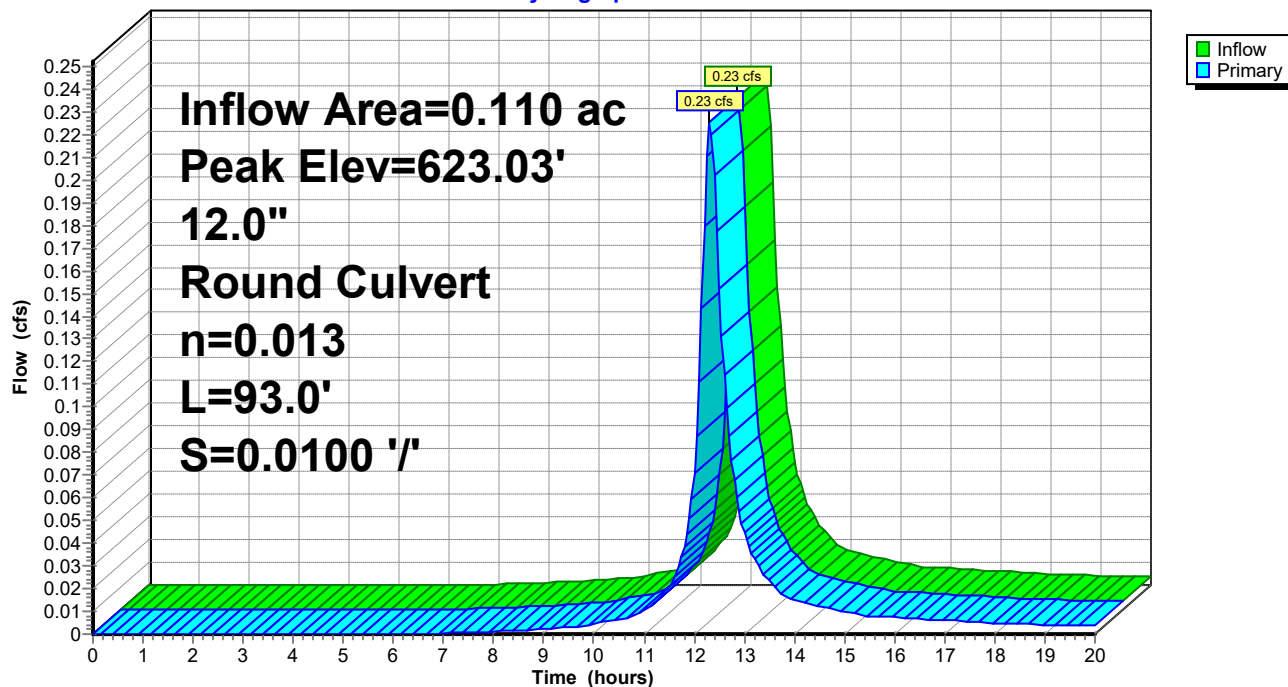
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 623.03' @ 12.31 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	622.77'	<b>12.0" Round Culvert</b> L= 93.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 622.77' / 621.84' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.22 cfs @ 12.31 hrs HW=623.03' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 0.22 cfs @ 1.37 fps)

**Pond 16P: CB 1.1**

Hydrograph



**Summary for Pond 17P: CB 1.0**

[57] Hint: Peaked at 622.28' (Flood elevation advised)

[79] Warning: Submerged Pond 16P Primary device # 1 OUTLET by 0.44'

Inflow Area = 0.330 ac, 57.58% Impervious, Inflow Depth > 2.02" for 10-Year event  
 Inflow = 0.82 cfs @ 12.14 hrs, Volume= 0.056 af  
 Outflow = 0.82 cfs @ 12.14 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.82 cfs @ 12.14 hrs, Volume= 0.056 af  
 Routed to Link 20L : OVERALL

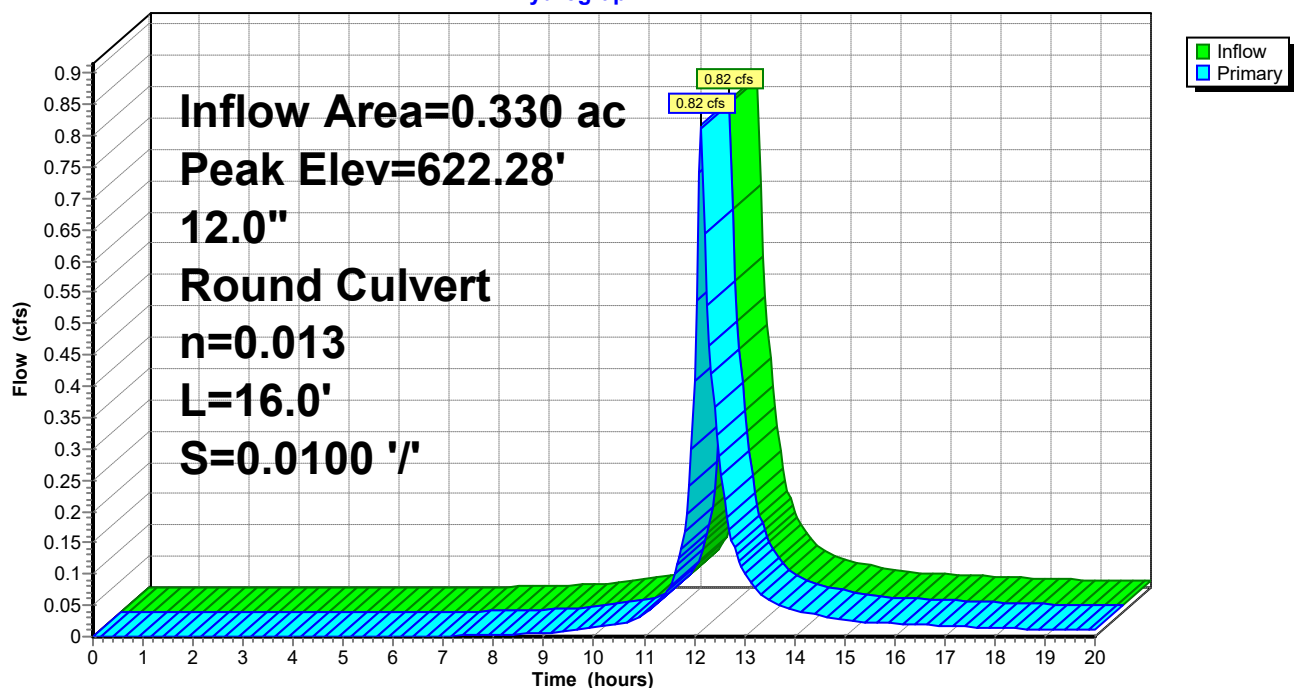
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 622.28' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	621.74'	<b>12.0" Round Culvert</b> L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 621.74' / 621.58' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.80 cfs @ 12.14 hrs HW=622.27' (Free Discharge)

↑1=Culvert (Barrel Controls 0.80 cfs @ 2.73 fps)

**Pond 17P: CB 1.0****Hydrograph**

**Summary for Pond 19P: PERF. PIPE IN STONE INFILTRATION TRENCH**

[81] Warning: Exceeded Pond 9P by 0.40' @ 12.20 hrs

Inflow Area = 0.320 ac, 81.25% Impervious, Inflow Depth > 2.47" for 10-Year event  
 Inflow = 1.30 cfs @ 12.09 hrs, Volume= 0.066 af  
 Outflow = 0.61 cfs @ 12.18 hrs, Volume= 0.066 af, Atten= 53%, Lag= 5.5 min  
 Discarded = 0.02 cfs @ 12.18 hrs, Volume= 0.014 af  
 Primary = 0.59 cfs @ 12.18 hrs, Volume= 0.052 af  
 Routed to Pond 11P : CB 2.3

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 626.25' @ 12.18 hrs Surf.Area= 568 sf Storage= 517 cf

Plug-Flow detention time= 9.8 min calculated for 0.065 af (100% of inflow)  
 Center-of-Mass det. time= 8.9 min ( 757.5 - 748.6 )

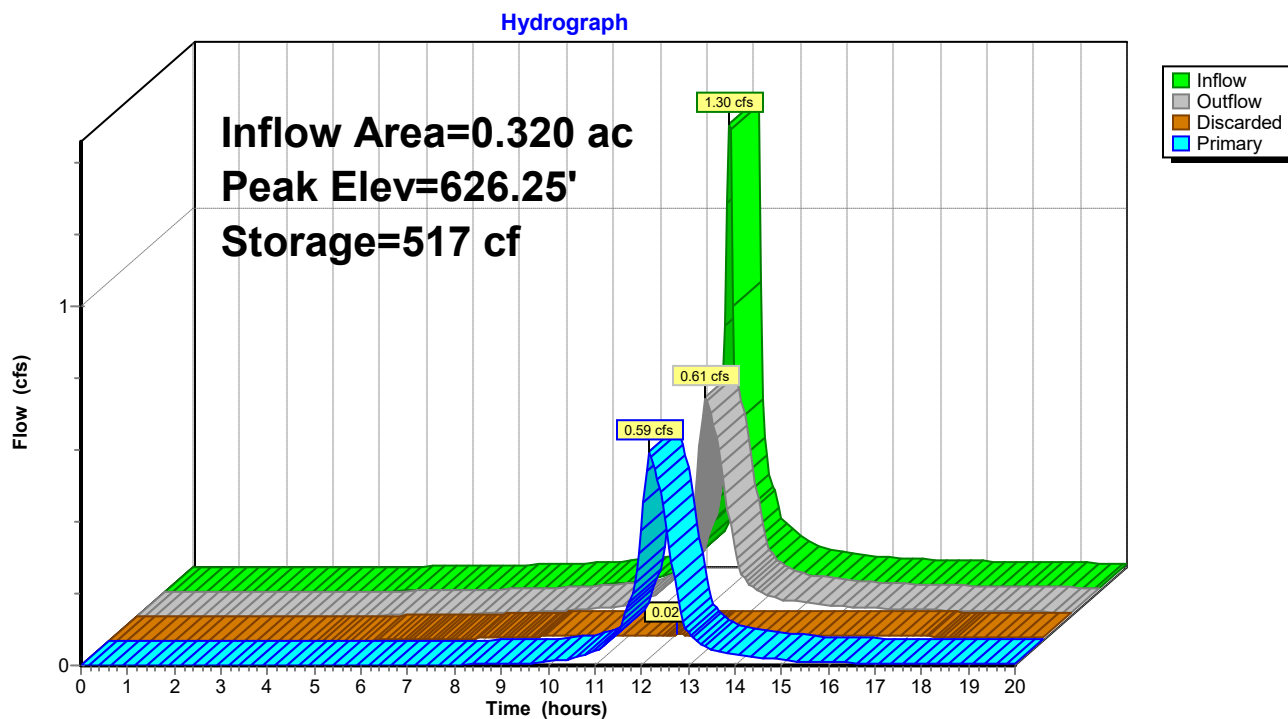
Volume	Invert	Avail.Storage	Storage Description
#1	624.10'	841 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 2,158 cf Overall - 56 cf Embedded = 2,103 cf x 40.0% Voids
#2	625.08'	56 cf	<b>12.0" Round Pipe Storage</b> Inside #1 L= 71.0' S= 0.0100 '/
		897 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
624.10	568	0	0
627.90	568	2,158	2,158

Device	Routing	Invert	Outlet Devices
#1	Primary	624.10'	<b>12.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 624.10' / 623.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	624.10'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Discarded	624.10'	<b>1.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 618.00'

**Discarded OutFlow** Max=0.02 cfs @ 12.18 hrs HW=626.24' (Free Discharge)  
 ↑ **3=Exfiltration** ( Controls 0.02 cfs)

**Primary OutFlow** Max=0.59 cfs @ 12.18 hrs HW=626.24' (Free Discharge)  
 ↑ **1=Culvert** (Passes 0.59 cfs of 3.82 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Orifice Controls 0.59 cfs @ 6.76 fps)

**Pond 19P: PERF. PIPE IN STONE INFILTRATION TRENCH**

**Summary for Pond 21P: mh2.0**

[57] Hint: Peaked at 623.78' (Flood elevation advised)

[79] Warning: Submerged Pond 13P Primary device # 1 INLET by 0.47'

[81] Warning: Exceeded Pond 14P by 0.63' @ 12.10 hrs

Inflow Area = 0.860 ac, 77.91% Impervious, Inflow Depth > 2.21" for 10-Year event  
 Inflow = 2.45 cfs @ 12.10 hrs, Volume= 0.158 af  
 Outflow = 2.45 cfs @ 12.10 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.45 cfs @ 12.10 hrs, Volume= 0.158 af  
 Routed to Link 20L : OVERALL

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 623.78' @ 12.10 hrs

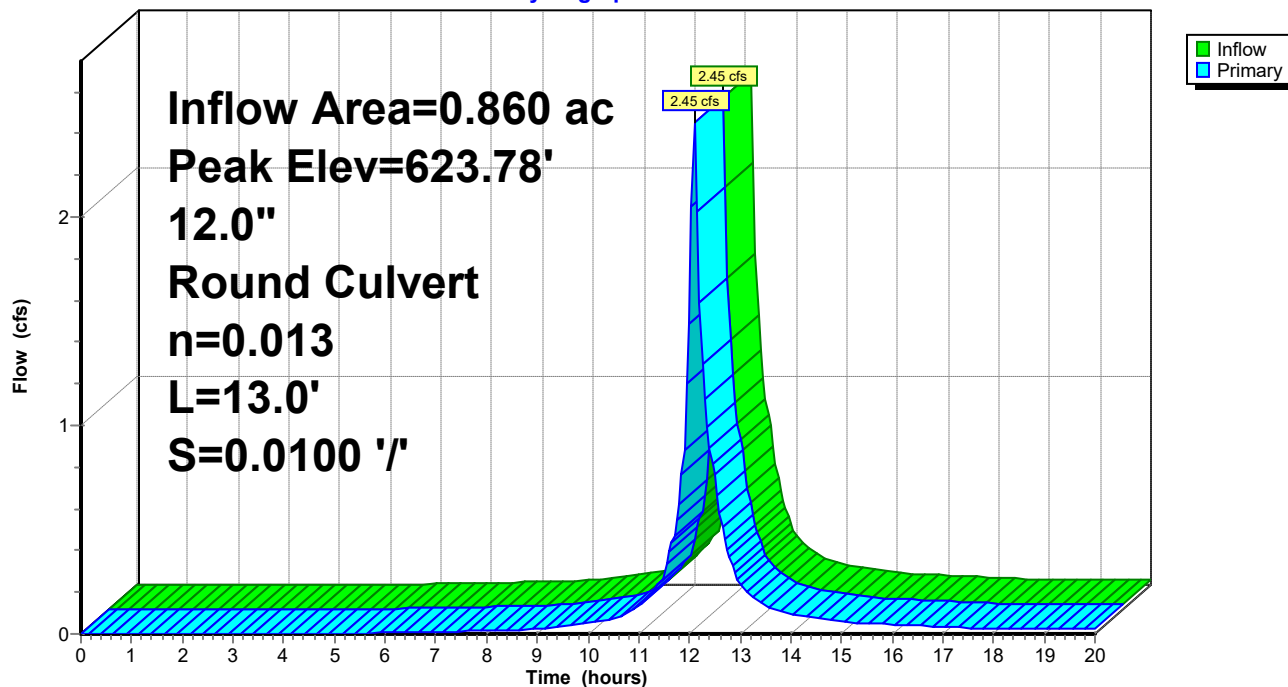
Device	Routing	Invert	Outlet Devices
#1	Primary	622.60'	<b>12.0" Round Culvert</b> L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 622.60' / 622.47' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.45 cfs @ 12.10 hrs HW=623.77' (Free Discharge)

↑1=Culvert (Inlet Controls 2.45 cfs @ 3.12 fps)

**Pond 21P: mh2.0**

Hydrograph



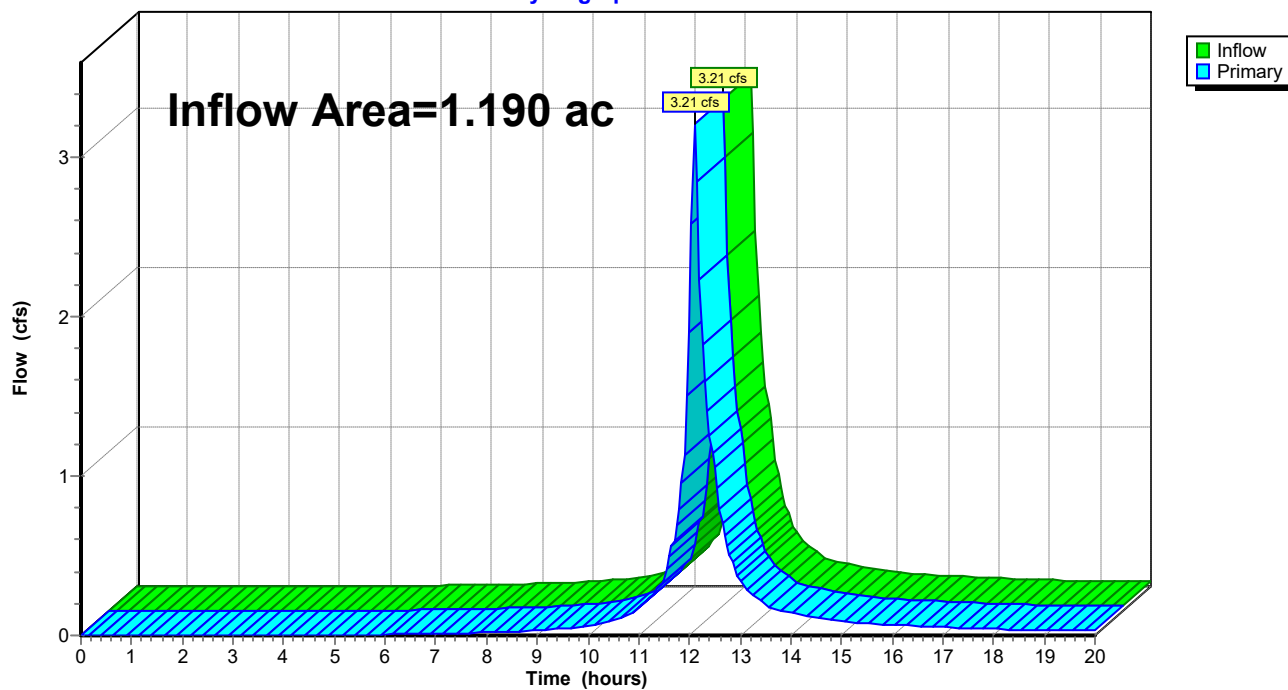
**Summary for Link 20L: OVERALL**

Inflow Area = 1.190 ac, 72.27% Impervious, Inflow Depth > 2.16" for 10-Year event  
Inflow = 3.21 cfs @ 12.11 hrs, Volume= 0.214 af  
Primary = 3.21 cfs @ 12.11 hrs, Volume= 0.214 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

**Link 20L: OVERALL**

Hydrograph



Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment 1S: OVERALL EXISTING</b>	Runoff Area=1.190 ac 87.39% Impervious Runoff Depth>4.56" Tc=0.0 min CN=96 Runoff=8.58 cfs 0.452 af
<b>Subcatchment 2S: OVERALL PROPOSED</b>	Runoff Area=1.190 ac 72.27% Impervious Runoff Depth>4.22" Tc=6.8 min CN=93 Runoff=7.12 cfs 0.418 af
<b>Subcatchment 3S: PROP AREA 1</b>	Runoff Area=0.320 ac 81.25% Impervious Runoff Depth>4.44" Tc=3.0 min CN=95 Runoff=2.25 cfs 0.119 af
<b>Subcatchment 4S: PROP AREA 2</b>	Runoff Area=0.230 ac 69.57% Impervious Runoff Depth>4.22" Flow Length=111' Slope=0.0172 '/' Tc=6.8 min CN=93 Runoff=1.38 cfs 0.081 af
<b>Subcatchment 5S: PROP AREA 3</b>	Runoff Area=0.230 ac 78.26% Impervious Runoff Depth>4.33" Flow Length=136' Slope=0.0060 '/' Tc=2.9 min CN=94 Runoff=1.60 cfs 0.083 af
<b>Subcatchment 6S: PROP AREA 4</b>	Runoff Area=0.080 ac 87.50% Impervious Runoff Depth>4.56" Flow Length=86' Slope=0.0151 '/' Tc=1.6 min CN=96 Runoff=0.57 cfs 0.030 af
<b>Subcatchment 7S: PROP AREA 5</b>	Runoff Area=0.110 ac 63.64% Impervious Runoff Depth>3.99" Flow Length=191' Slope=0.0060 '/' Tc=21.7 min CN=91 Runoff=0.42 cfs 0.037 af
<b>Subcatchment 8S: PROP AREA 6</b>	Runoff Area=0.220 ac 54.55% Impervious Runoff Depth>3.90" Flow Length=119' Slope=0.0189 '/' Tc=6.2 min CN=90 Runoff=1.28 cfs 0.071 af
<b>Pond 9P: CB 2.5</b>	Peak Elev=626.50' Inflow=2.25 cfs 0.119 af 12.0" Round Culvert n=0.013 L=71.0' S=0.0051 '/' Outflow=2.25 cfs 0.119 af
<b>Pond 11P: CB 2.3</b>	Peak Elev=626.76' Inflow=3.75 cfs 0.193 af 12.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=3.75 cfs 0.193 af
<b>Pond 12P: CB 2.2</b>	Peak Elev=626.56' Inflow=3.75 cfs 0.193 af 12.0" Round Culvert n=0.013 L=112.0' S=0.0100 '/' Outflow=3.75 cfs 0.193 af
<b>Pond 13P: CB 2.1</b>	Peak Elev=626.32' Inflow=4.76 cfs 0.276 af 12.0" Round Culvert n=0.013 L=61.0' S=0.0100 '/' Outflow=4.76 cfs 0.276 af
<b>Pond 14P: CB 2.0.1</b>	Peak Elev=623.28' Inflow=0.57 cfs 0.030 af 12.0" Round Culvert n=0.013 L=13.0' S=0.0100 '/' Outflow=0.57 cfs 0.030 af
<b>Pond 16P: CB 1.1</b>	Peak Elev=623.13' Inflow=0.42 cfs 0.037 af 12.0" Round Culvert n=0.013 L=93.0' S=0.0100 '/' Outflow=0.42 cfs 0.037 af
<b>Pond 17P: CB 1.0</b>	Peak Elev=622.53' Inflow=1.53 cfs 0.108 af 12.0" Round Culvert n=0.013 L=16.0' S=0.0100 '/' Outflow=1.53 cfs 0.108 af
<b>Pond 19P: PERF. PIPE IN STONE</b>	Peak Elev=656.58' Storage=897 cf Inflow=2.25 cfs 0.119 af Discarded=0.08 cfs 0.006 af Primary=2.39 cfs 0.112 af Outflow=2.47 cfs 0.118 af



**West Seneca HYDROCAD***NRCC 24-hr A 100-Year Rainfall=5.23"*

Prepared by Fisher Associates

Printed 12/14/2022

HydroCAD® 10.20-2d s/n 04748 © 2021 HydroCAD Software Solutions LLC

Page 51

**Pond 21P: mh2.0**

Peak Elev=625.88' Inflow=5.03 cfs 0.306 af  
12.0" Round Culvert n=0.013 L=13.0' S=0.0100 '/' Outflow=5.03 cfs 0.306 af

**Link 20L: OVERALL**

Inflow=6.56 cfs 0.414 af  
Primary=6.56 cfs 0.414 af

**Total Runoff Area = 3.570 ac   Runoff Volume = 1.291 af   Average Runoff Depth = 4.34"**  
**22.69% Pervious = 0.810 ac   77.31% Impervious = 2.760 ac**

**Summary for Subcatchment 1S: OVERALL EXISTING**

[46] Hint:  $T_c=0$  (Instant runoff peak depends on  $dt$ )

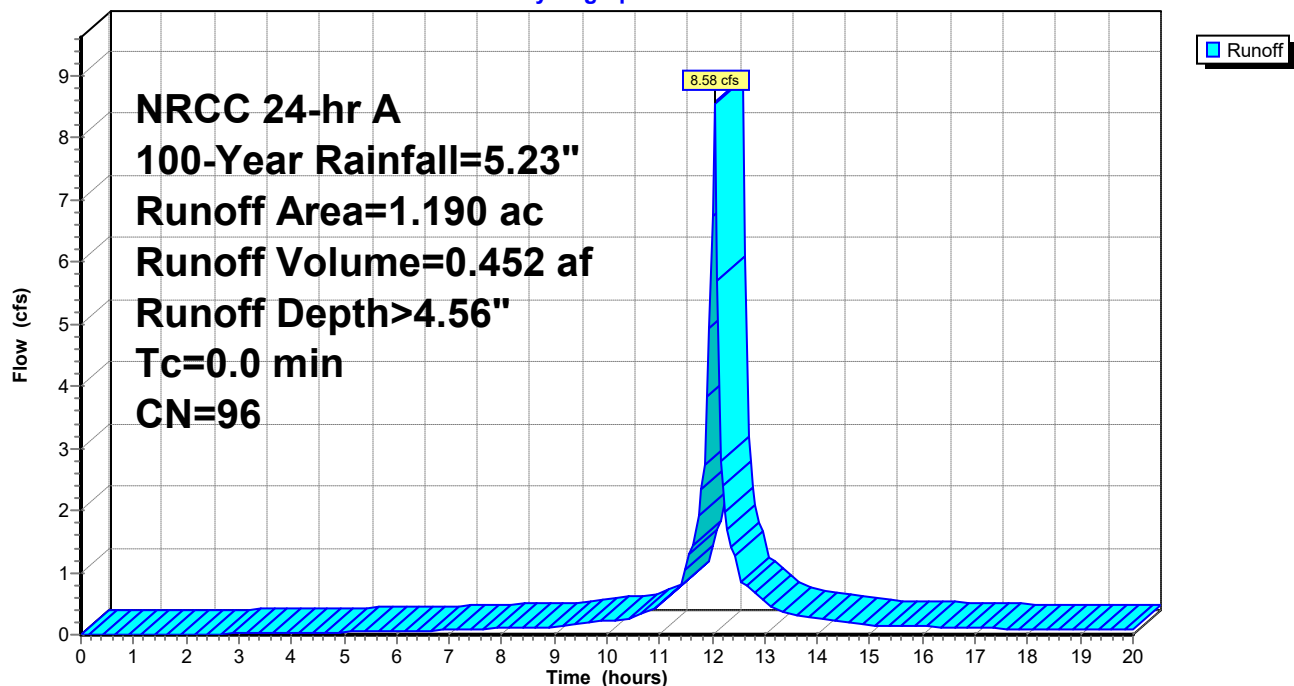
Runoff = 8.58 cfs @ 12.04 hrs, Volume= 0.452 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
NRCC 24-hr A 100-Year Rainfall=5.23"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG A
0.150	80	>75% Grass cover, Good, HSG D
1.190	96	Weighted Average
0.150		12.61% Pervious Area
1.040		87.39% Impervious Area

**Subcatchment 1S: OVERALL EXISTING**

Hydrograph



**Summary for Subcatchment 2S: OVERALL PROPOSED (DNU)**

Runoff = 7.12 cfs @ 12.14 hrs, Volume= 0.418 af, Depth> 4.22"

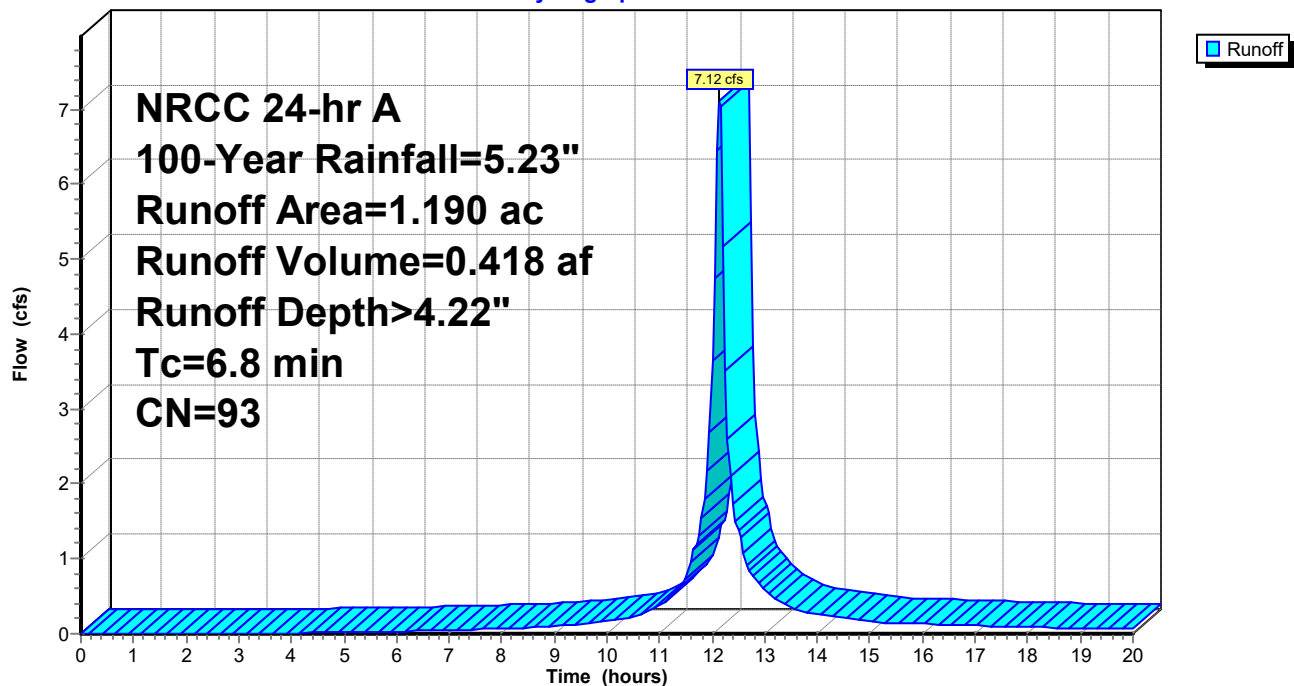
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
NRCC 24-hr A 100-Year Rainfall=5.23"

Area (ac)	CN	Description
0.860	98	Paved parking, HSG A
0.330	80	>75% Grass cover, Good, HSG D
1.190	93	Weighted Average
0.330		27.73% Pervious Area
0.860		72.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8					Direct Entry,

**Subcatchment 2S: OVERALL PROPOSED (DNU)**

Hydrograph



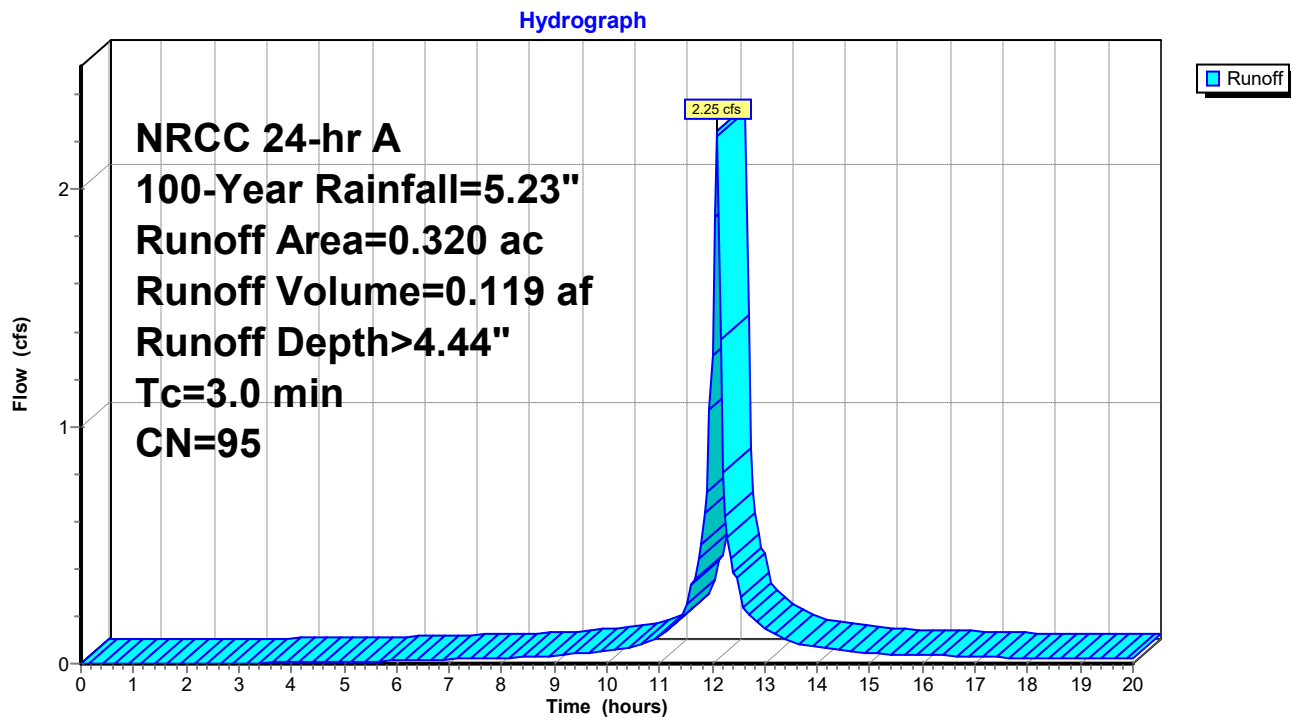
**Summary for Subcatchment 3S: PROP AREA 1**[49] Hint:  $T_c < 2dt$  may require smaller  $dt$ 

Runoff = 2.25 cfs @ 12.09 hrs, Volume= 0.119 af, Depth> 4.44"  
 Routed to Pond 9P : CB 2.5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
 NRCC 24-hr A 100-Year Rainfall=5.23"

Area (ac)	CN	Description
0.260	98	Unconnected roofs, HSG A
0.060	80	>75% Grass cover, Good, HSG D
0.320	95	Weighted Average
0.060		18.75% Pervious Area
0.260		81.25% Impervious Area
0.260		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0					Direct Entry, Roof drainage

**Subcatchment 3S: PROP AREA 1**

**Summary for Subcatchment 4S: PROP AREA 2**

Runoff = 1.38 cfs @ 12.14 hrs, Volume= 0.081 af, Depth> 4.22"  
 Routed to Pond 11P : CB 2.3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 NRCC 24-hr A 100-Year Rainfall=5.23"

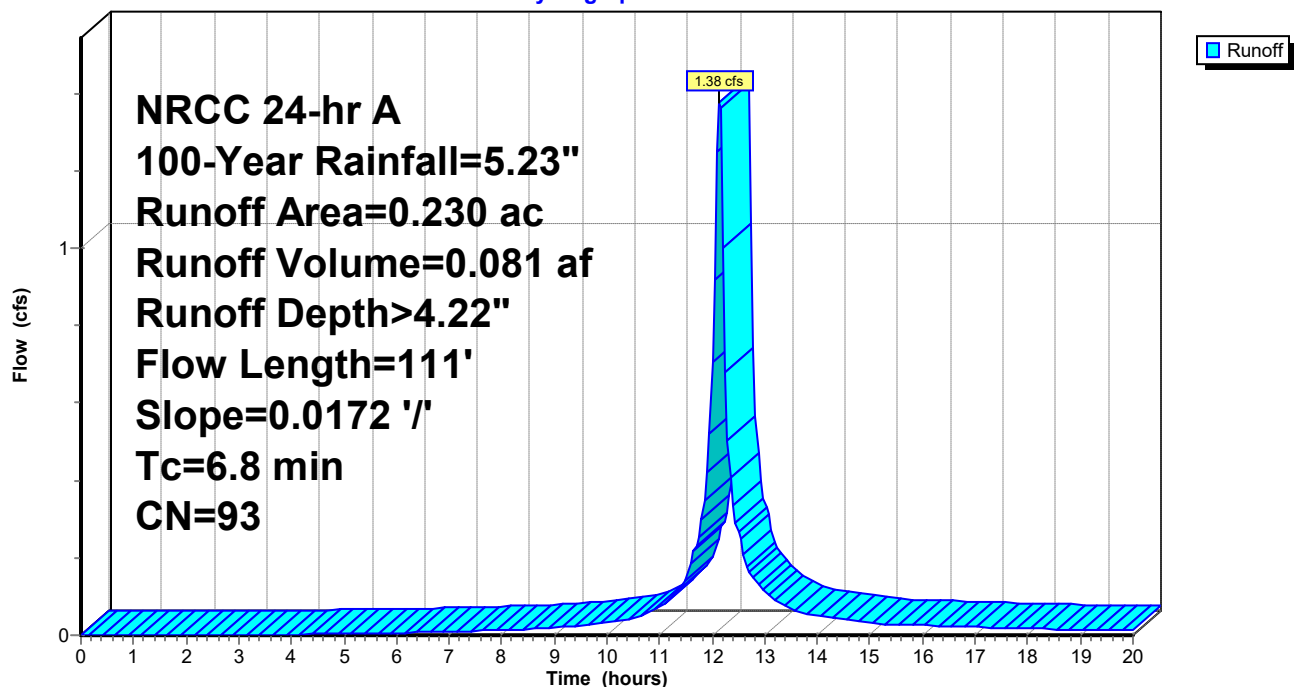
Area (ac)	CN	Description
0.160	98	Paved parking, HSG A
0.070	80	>75% Grass cover, Good, HSG D
0.230	93	Weighted Average
0.070		30.43% Pervious Area
0.160		69.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	36	0.0172	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.17"
1.1	64	0.0172	0.98		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 2.17"
0.1	11	0.0172	2.66		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
6.8	111	Total			

**Subcatchment 4S: PROP AREA 2**

Hydrograph



**Summary for Subcatchment 5S: PROP AREA 3**[49] Hint:  $T_c < 2dt$  may require smaller  $dt$ 

Runoff = 1.60 cfs @ 12.09 hrs, Volume= 0.083 af, Depth> 4.33"  
 Routed to Pond 13P : CB 2.1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
 NRCC 24-hr A 100-Year Rainfall=5.23"

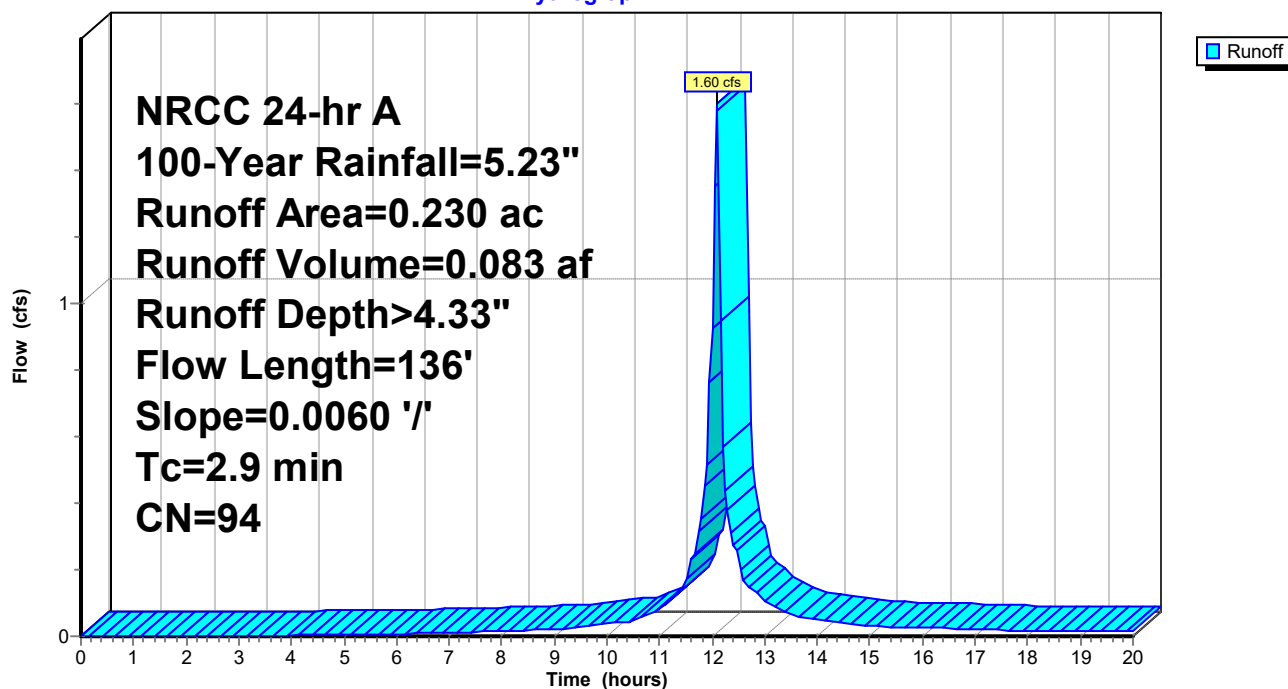
Area (ac)	CN	Description
0.180	98	Paved parking, HSG A
0.050	80	>75% Grass cover, Good, HSG D
0.230	94	Weighted Average
0.050		21.74% Pervious Area
0.180		78.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	9	0.0060	0.43		<b>Sheet Flow,</b> Smooth surfaces $n=0.011$ $P2=2.17"$
2.2	91	0.0060	0.69		<b>Sheet Flow,</b> Smooth surfaces $n=0.011$ $P2=2.17"$
0.4	36	0.0060	1.57		<b>Shallow Concentrated Flow,</b> Paved $K_v=20.3$ fps
2.9	136	Total			

**Subcatchment 5S: PROP AREA 3**

Hydrograph



**Summary for Subcatchment 6S: PROP AREA 4**[49] Hint:  $T_c < 2dt$  may require smaller  $dt$ 

Runoff = 0.57 cfs @ 12.07 hrs, Volume= 0.030 af, Depth> 4.56"  
 Routed to Pond 14P : CB 2.0.1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs,  $dt=0.05$  hrs  
 NRCC 24-hr A 100-Year Rainfall=5.23"

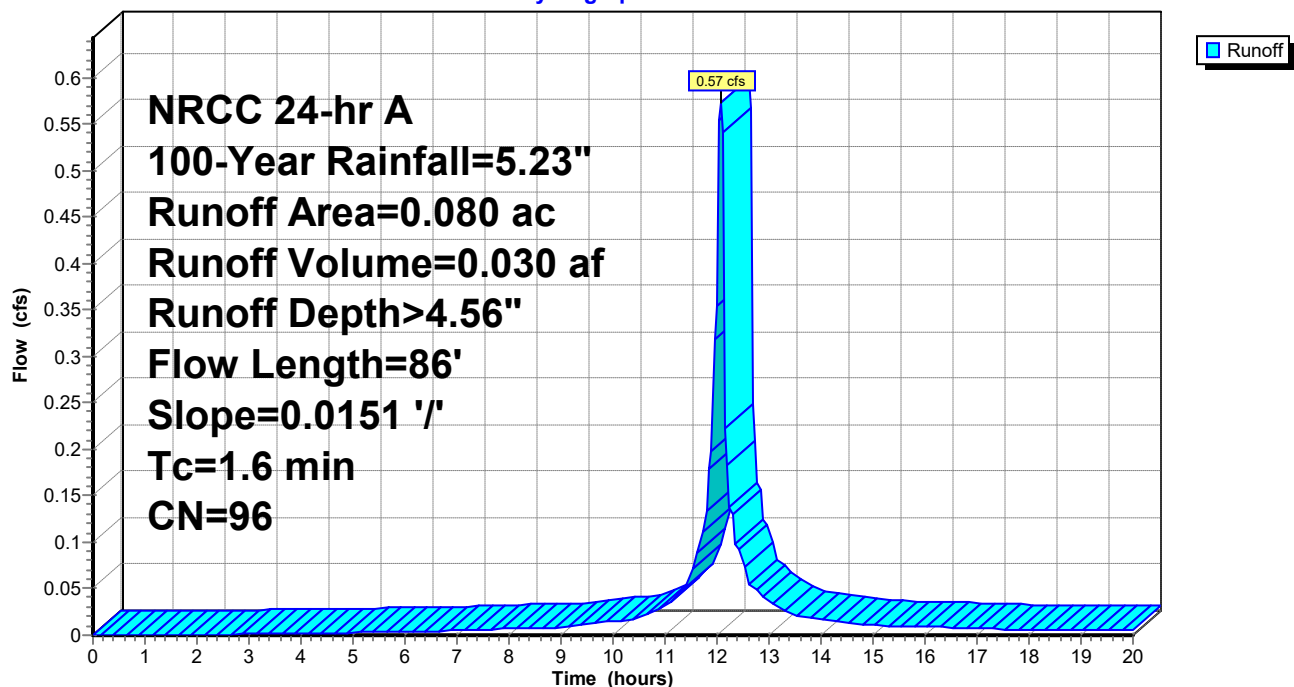
Area (ac)	CN	Description
0.070	98	Paved parking, HSG A
0.010	80	>75% Grass cover, Good, HSG D
0.080	96	Weighted Average
0.010		12.50% Pervious Area
0.070		87.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	24	0.0151	0.76		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.17"
1.1	62	0.0151	0.92		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.17"
1.6	86	Total			

**Subcatchment 6S: PROP AREA 4**

Hydrograph



**Summary for Subcatchment 7S: PROP AREA 5**

Runoff = 0.42 cfs @ 12.31 hrs, Volume= 0.037 af, Depth> 3.99"  
 Routed to Pond 16P : CB 1.1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 NRCC 24-hr A 100-Year Rainfall=5.23"

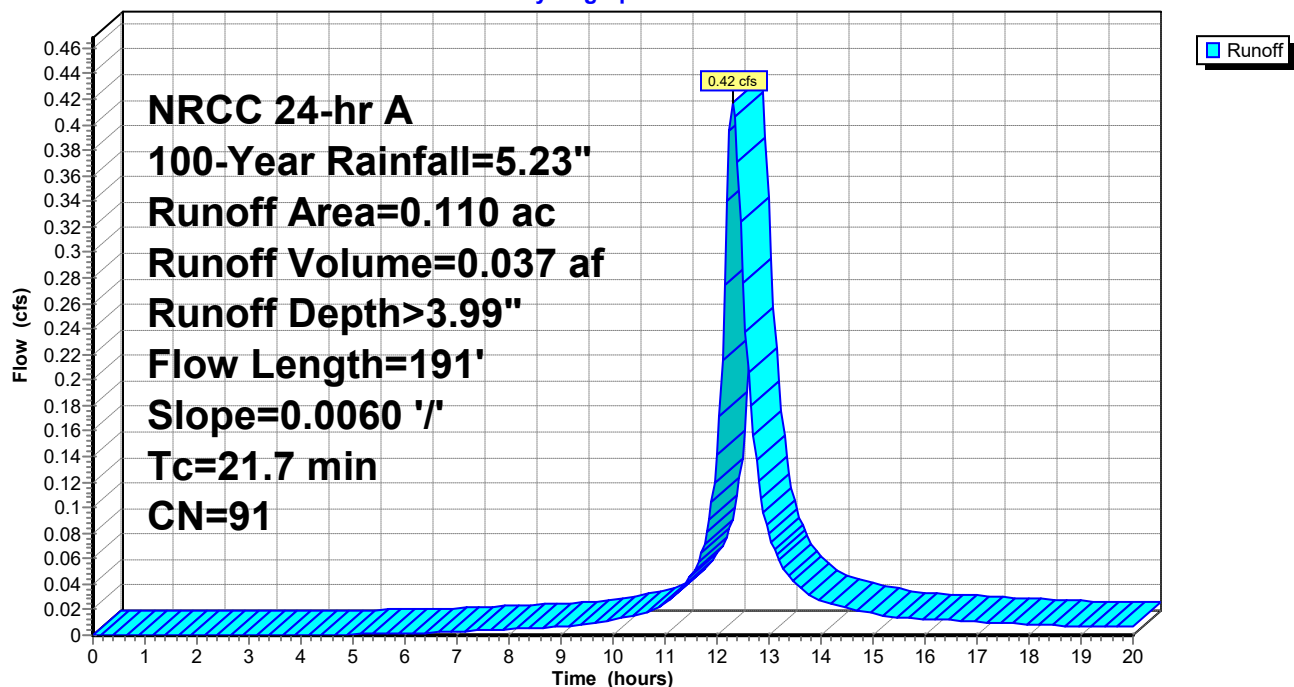
Area (ac)	CN	Description
0.070	98	Paved parking, HSG A
0.040	80	>75% Grass cover, Good, HSG D
0.110	91	Weighted Average
0.040		36.36% Pervious Area
0.070		63.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.3	100	0.0060	0.09		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.17"
2.2	73	0.0060	0.54		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.2	18	0.0060	1.57		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
21.7	191	Total			

**Subcatchment 7S: PROP AREA 5**

Hydrograph





**Summary for Subcatchment 8S: PROP AREA 6**

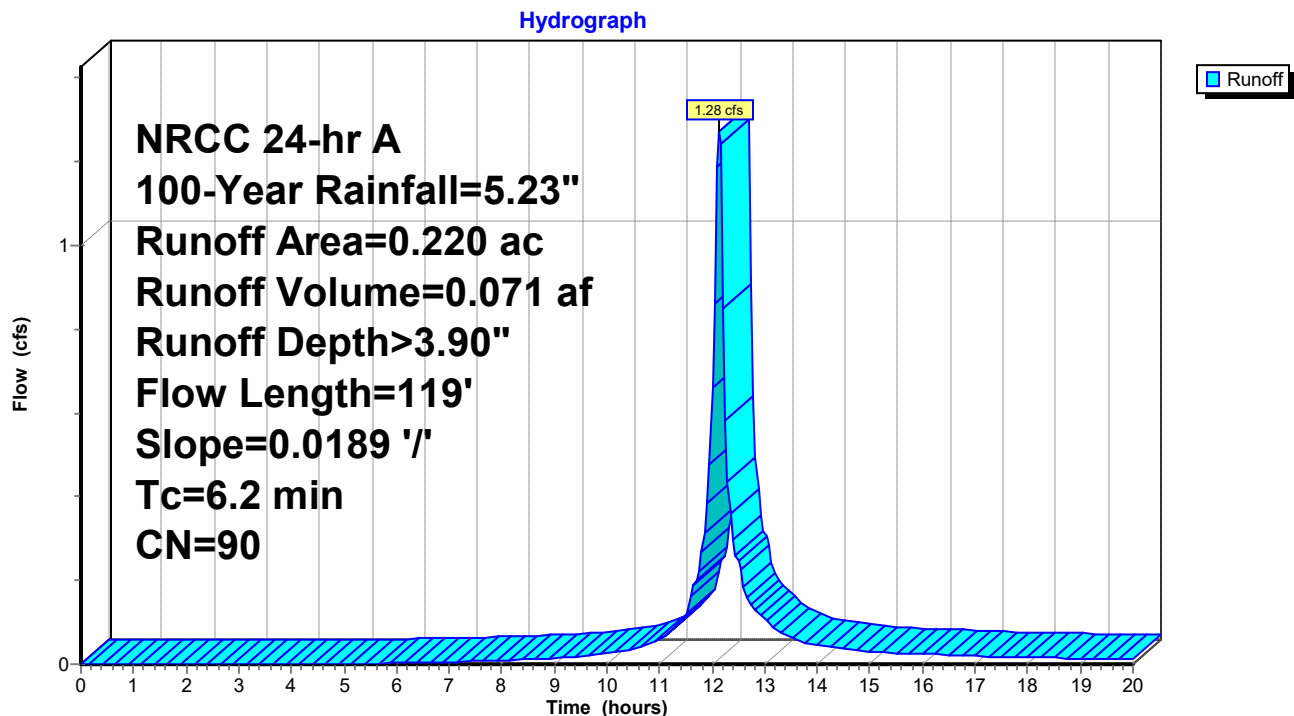
Runoff = 1.28 cfs @ 12.13 hrs, Volume= 0.071 af, Depth> 3.90"  
 Routed to Pond 17P : CB 1.0

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 NRCC 24-hr A 100-Year Rainfall=5.23"

Area (ac)	CN	Description
0.120	98	Paved parking, HSG A
0.100	80	>75% Grass cover, Good, HSG D
0.220	90	Weighted Average
0.100		45.45% Pervious Area
0.120		54.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	33	0.0189	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.17"
1.1	67	0.0189	1.02		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 2.17"
0.1	19	0.0189	2.79		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
6.2	119	Total			

**Subcatchment 8S: PROP AREA 6**

**Summary for Pond 9P: CB 2.5**

[57] Hint: Peaked at 626.50' (Flood elevation advised)

Inflow Area = 0.320 ac, 81.25% Impervious, Inflow Depth > 4.44" for 100-Year event  
 Inflow = 2.25 cfs @ 12.09 hrs, Volume= 0.119 af  
 Outflow = 2.25 cfs @ 12.09 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.25 cfs @ 12.09 hrs, Volume= 0.119 af  
 Routed to Pond 19P : PERF. PIPE IN STONE INFILTRATION TRENCH

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 626.50' @ 12.09 hrs

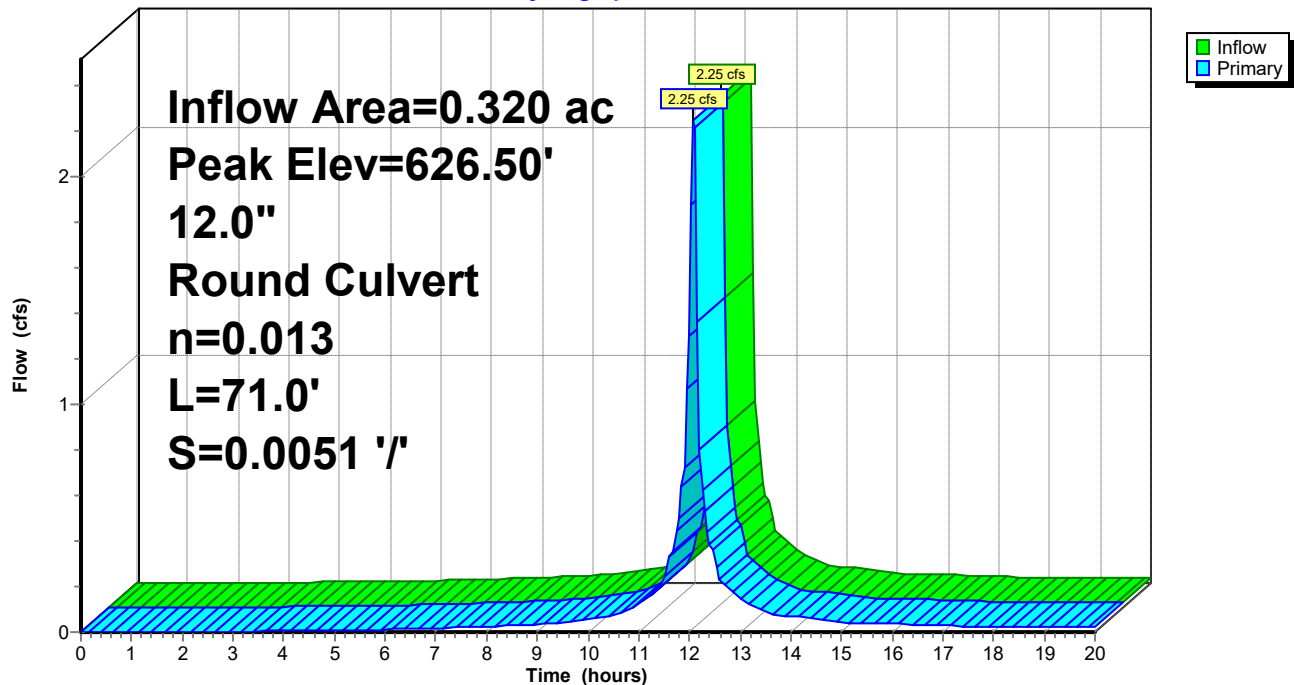
Device	Routing	Invert	Outlet Devices
#1	Primary	625.44'	<b>12.0" Round Culvert</b> L= 71.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 625.44' / 625.08' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.15 cfs @ 12.09 hrs HW=626.47' (Free Discharge)

↑1=Culvert (Barrel Controls 2.15 cfs @ 3.31 fps)

**Pond 9P: CB 2.5**

Hydrograph



**Summary for Pond 11P: CB 2.3**

[57] Hint: Peaked at 626.76' (Flood elevation advised)

[81] Warning: Exceeded Pond 19P by 0.65' @ 15.45 hrs

Inflow Area = 0.550 ac, 76.36% Impervious, Inflow Depth > 4.21" for 100-Year event  
 Inflow = 3.75 cfs @ 12.15 hrs, Volume= 0.193 af  
 Outflow = 3.75 cfs @ 12.15 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.75 cfs @ 12.15 hrs, Volume= 0.193 af  
 Routed to Pond 12P : CB 2.2

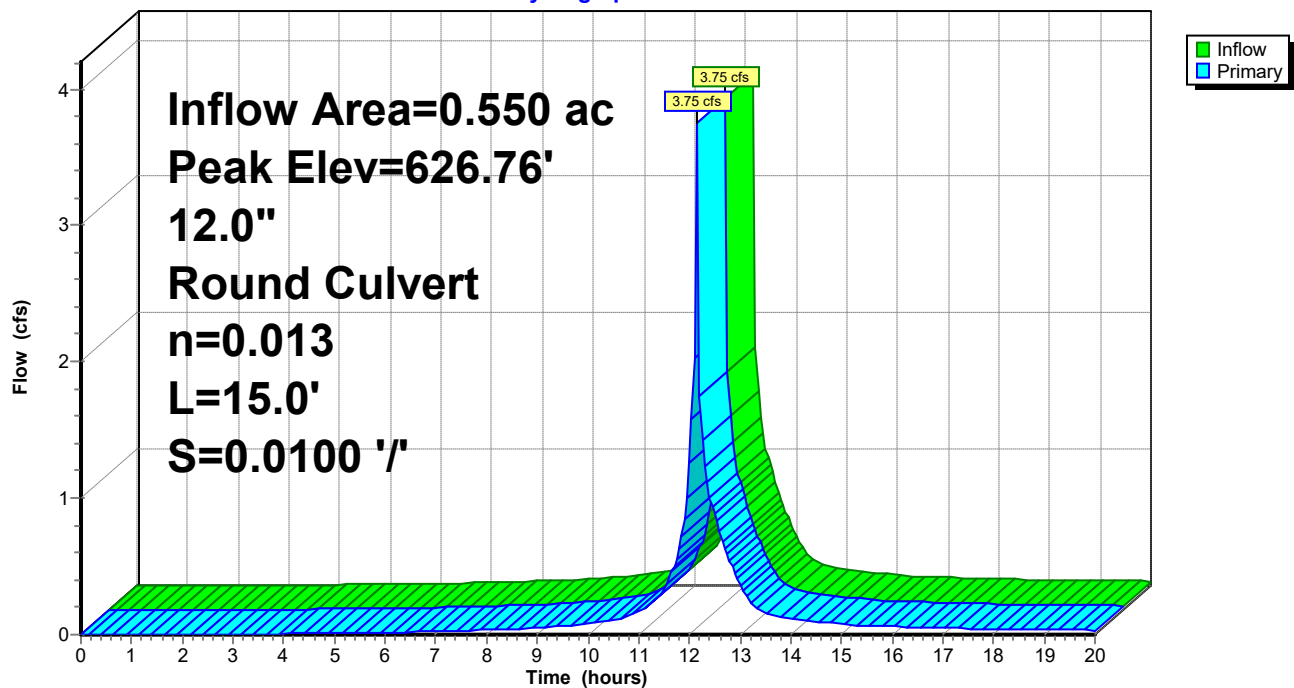
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 626.76' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	624.68'	<b>12.0" Round Culvert</b> L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 624.68' / 624.53' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.70 cfs @ 12.15 hrs HW=626.71' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 3.70 cfs @ 4.71 fps)

**Pond 11P: CB 2.3**

Hydrograph



**Summary for Pond 12P: CB 2.2**

[57] Hint: Peaked at 626.56' (Flood elevation advised)

[79] Warning: Submerged Pond 11P Primary device # 1 INLET by 1.88'

Inflow Area = 0.550 ac, 76.36% Impervious, Inflow Depth > 4.21" for 100-Year event  
 Inflow = 3.75 cfs @ 12.15 hrs, Volume= 0.193 af  
 Outflow = 3.75 cfs @ 12.15 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.75 cfs @ 12.15 hrs, Volume= 0.193 af  
 Routed to Pond 13P : CB 2.1

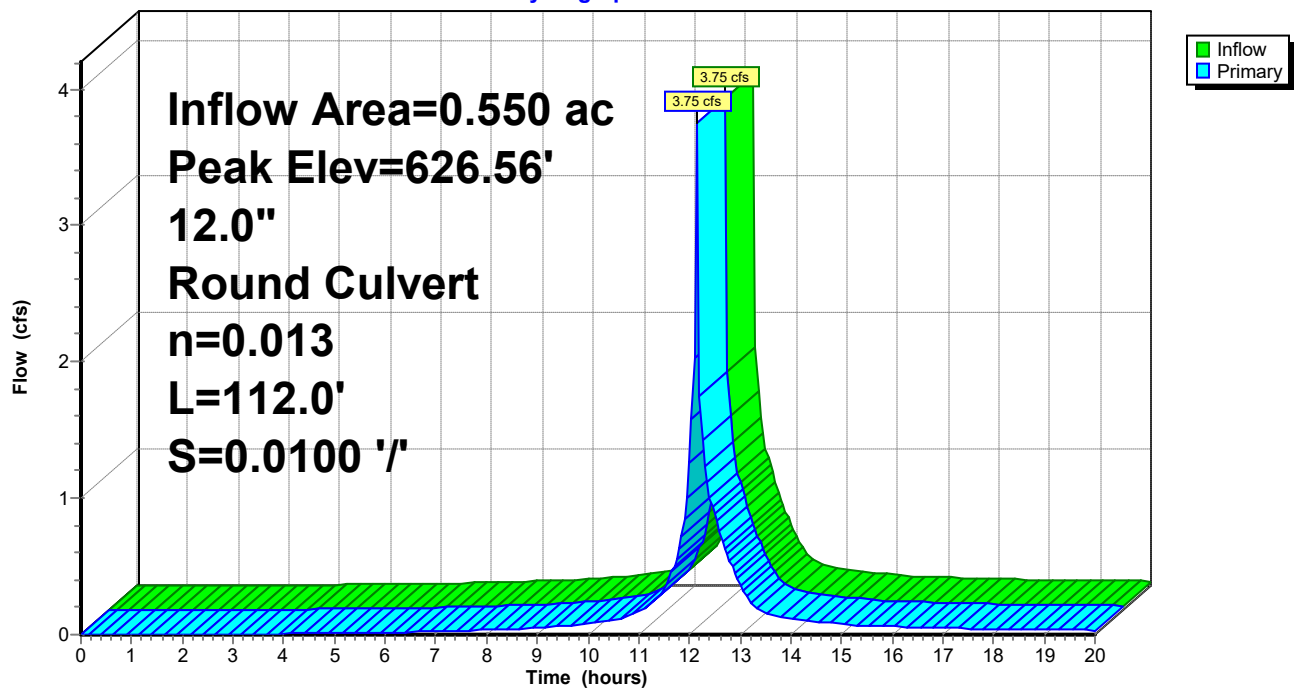
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 626.56' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	624.48'	<b>12.0" Round Culvert</b> L= 112.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 624.48' / 623.36' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.70 cfs @ 12.15 hrs HW=626.51' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 3.70 cfs @ 4.71 fps)

**Pond 12P: CB 2.2**

Hydrograph



**Summary for Pond 13P: CB 2.1**

[57] Hint: Peaked at 626.32' (Flood elevation advised)

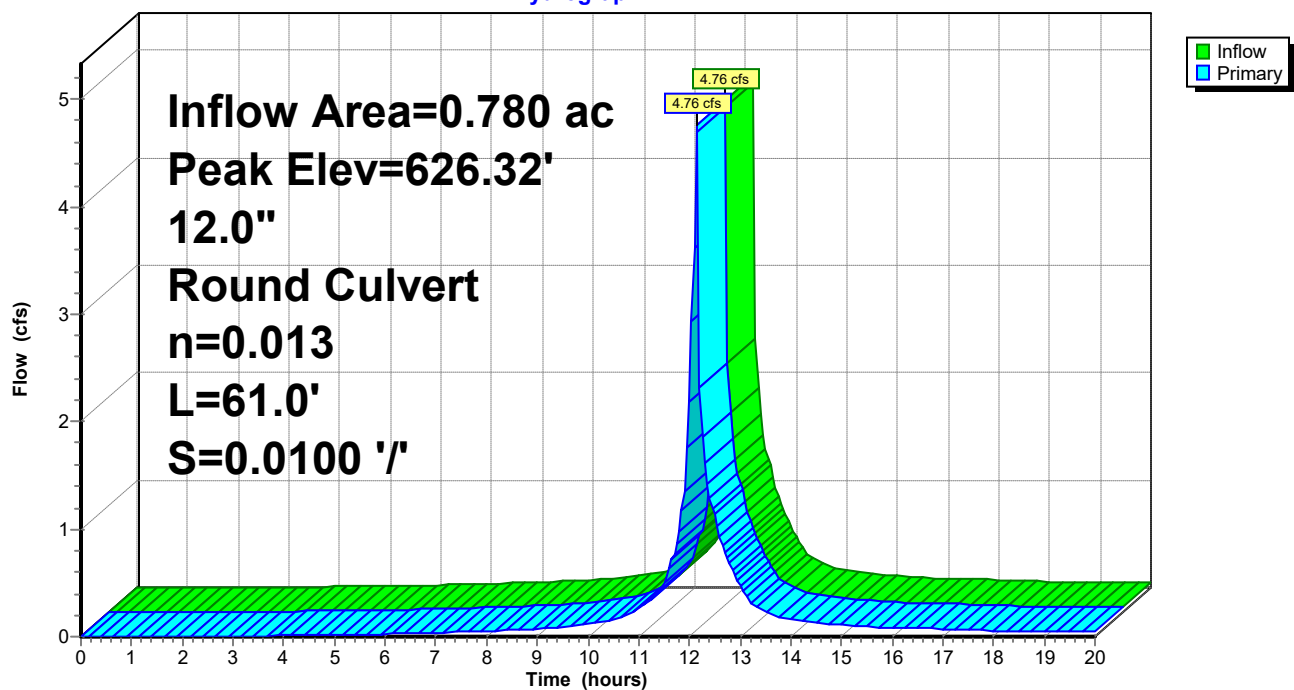
[79] Warning: Submerged Pond 12P Primary device # 1 INLET by 1.81'

Inflow Area = 0.780 ac, 76.92% Impervious, Inflow Depth > 4.25" for 100-Year event  
 Inflow = 4.76 cfs @ 12.14 hrs, Volume= 0.276 af  
 Outflow = 4.76 cfs @ 12.14 hrs, Volume= 0.276 af, Atten= 0%, Lag= 0.0 min  
 Primary = 4.76 cfs @ 12.14 hrs, Volume= 0.276 af  
 Routed to Pond 21P : mh2.0

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 626.32' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	623.31'	<b>12.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 623.31' / 622.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=4.51 cfs @ 12.14 hrs HW=626.10' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 4.51 cfs @ 5.75 fps)

**Pond 13P: CB 2.1****Hydrograph**

**Summary for Pond 14P: CB 2.0.1**

[57] Hint: Peaked at 623.28' (Flood elevation advised)

Inflow Area = 0.080 ac, 87.50% Impervious, Inflow Depth > 4.56" for 100-Year event  
 Inflow = 0.57 cfs @ 12.07 hrs, Volume= 0.030 af  
 Outflow = 0.57 cfs @ 12.07 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.57 cfs @ 12.07 hrs, Volume= 0.030 af  
 Routed to Pond 21P : mh2.0

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 623.28' @ 12.07 hrs

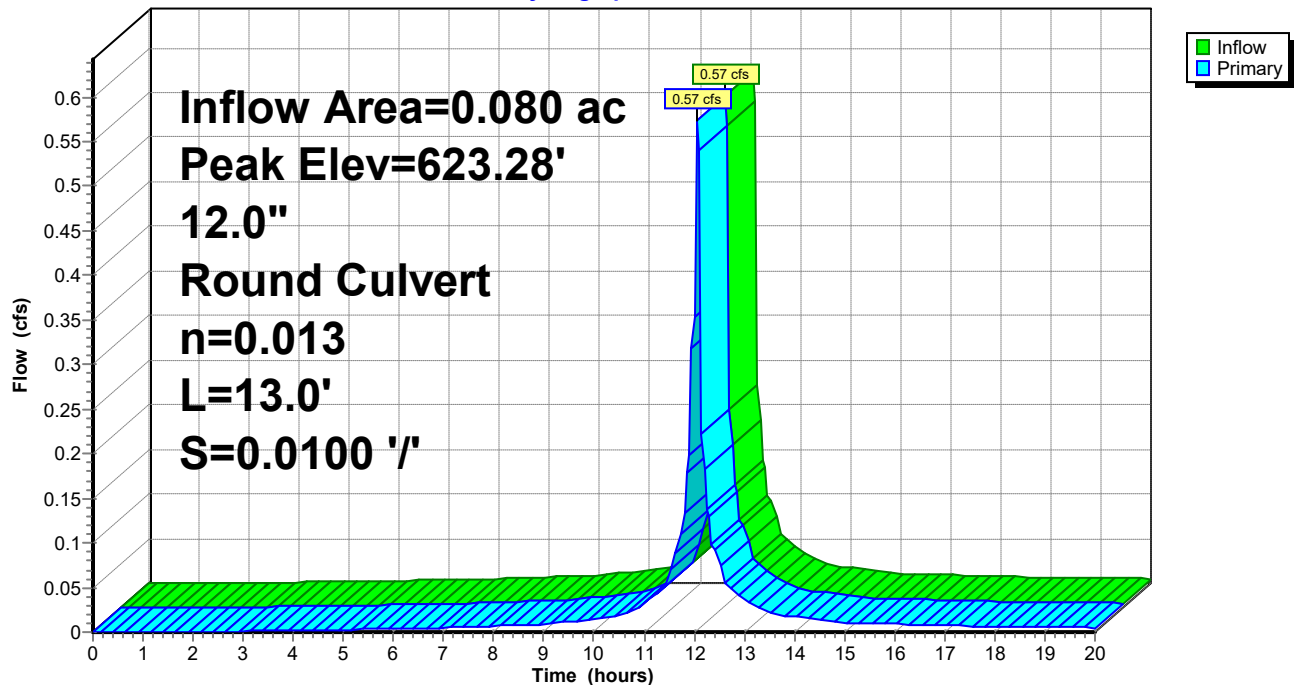
Device	Routing	Invert	Outlet Devices
#1	Primary	622.83'	<b>12.0" Round Culvert</b> L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 622.83' / 622.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.55 cfs @ 12.07 hrs HW=623.26' (Free Discharge)

1=Culvert (Barrel Controls 0.55 cfs @ 2.47 fps)

**Pond 14P: CB 2.0.1**

Hydrograph



**Summary for Pond 16P: CB 1.1**

[57] Hint: Peaked at 623.13' (Flood elevation advised)

Inflow Area = 0.110 ac, 63.64% Impervious, Inflow Depth > 3.99" for 100-Year event  
 Inflow = 0.42 cfs @ 12.31 hrs, Volume= 0.037 af  
 Outflow = 0.42 cfs @ 12.31 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.42 cfs @ 12.31 hrs, Volume= 0.037 af  
 Routed to Pond 17P : CB 1.0

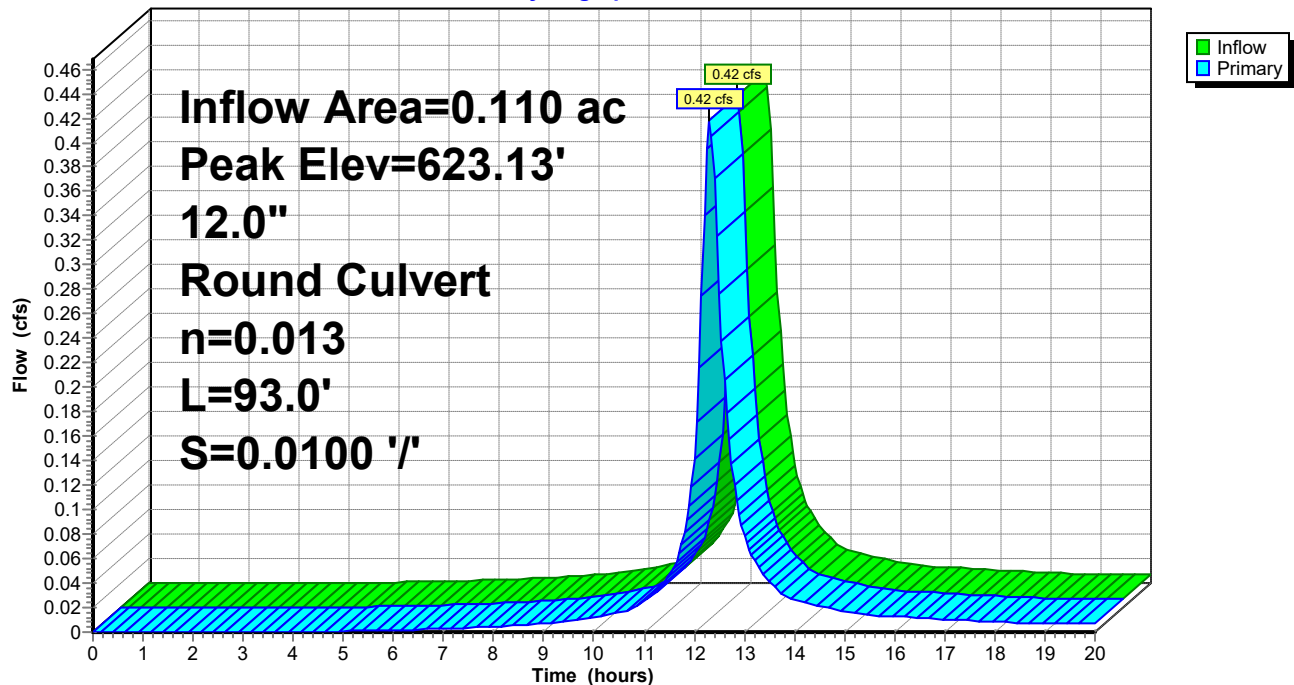
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 623.13' @ 12.31 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	622.77'	<b>12.0" Round Culvert</b> L= 93.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 622.77' / 621.84' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.42 cfs @ 12.31 hrs HW=623.13' (Free Discharge)

↑1=Culvert (Inlet Controls 0.42 cfs @ 1.62 fps)

**Pond 16P: CB 1.1****Hydrograph**

**Summary for Pond 17P: CB 1.0**

[57] Hint: Peaked at 622.53' (Flood elevation advised)

[79] Warning: Submerged Pond 16P Primary device # 1 OUTLET by 0.69'

Inflow Area = 0.330 ac, 57.58% Impervious, Inflow Depth > 3.93" for 100-Year event  
 Inflow = 1.53 cfs @ 12.14 hrs, Volume= 0.108 af  
 Outflow = 1.53 cfs @ 12.14 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.53 cfs @ 12.14 hrs, Volume= 0.108 af  
 Routed to Link 20L : OVERALL

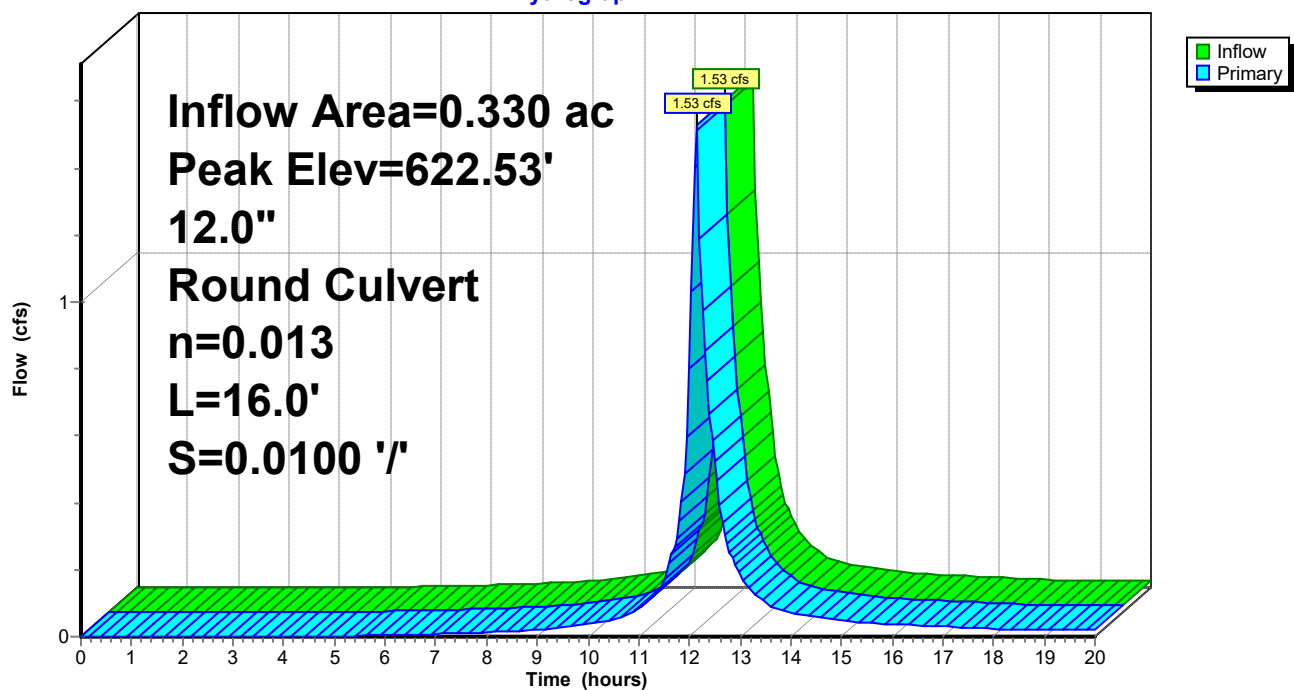
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 622.53' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	621.74'	<b>12.0" Round Culvert</b> L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 621.74' / 621.58' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.49 cfs @ 12.14 hrs HW=622.52' (Free Discharge)

↑1=Culvert (Barrel Controls 1.49 cfs @ 3.12 fps)

**Pond 17P: CB 1.0****Hydrograph**



**Summary for Pond 19P: PERF. PIPE IN STONE INFILTRATION TRENCH**

[93] Warning: Storage range exceeded by 28.68'

[88] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[81] Warning: Exceeded Pond 9P by 30.39' @ 12.15 hrs

Inflow Area = 0.320 ac, 81.25% Impervious, Inflow Depth > 4.44" for 100-Year event  
 Inflow = 2.25 cfs @ 12.09 hrs, Volume= 0.119 af  
 Outflow = 2.47 cfs @ 12.15 hrs, Volume= 0.118 af, Atten= 0%, Lag= 3.6 min  
 Discarded = 0.08 cfs @ 12.15 hrs, Volume= 0.006 af  
 Primary = 2.39 cfs @ 12.15 hrs, Volume= 0.112 af  
 Routed to Pond 11P : CB 2.3

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 656.58' @ 12.15 hrs Surf.Area= 568 sf Storage= 897 cf

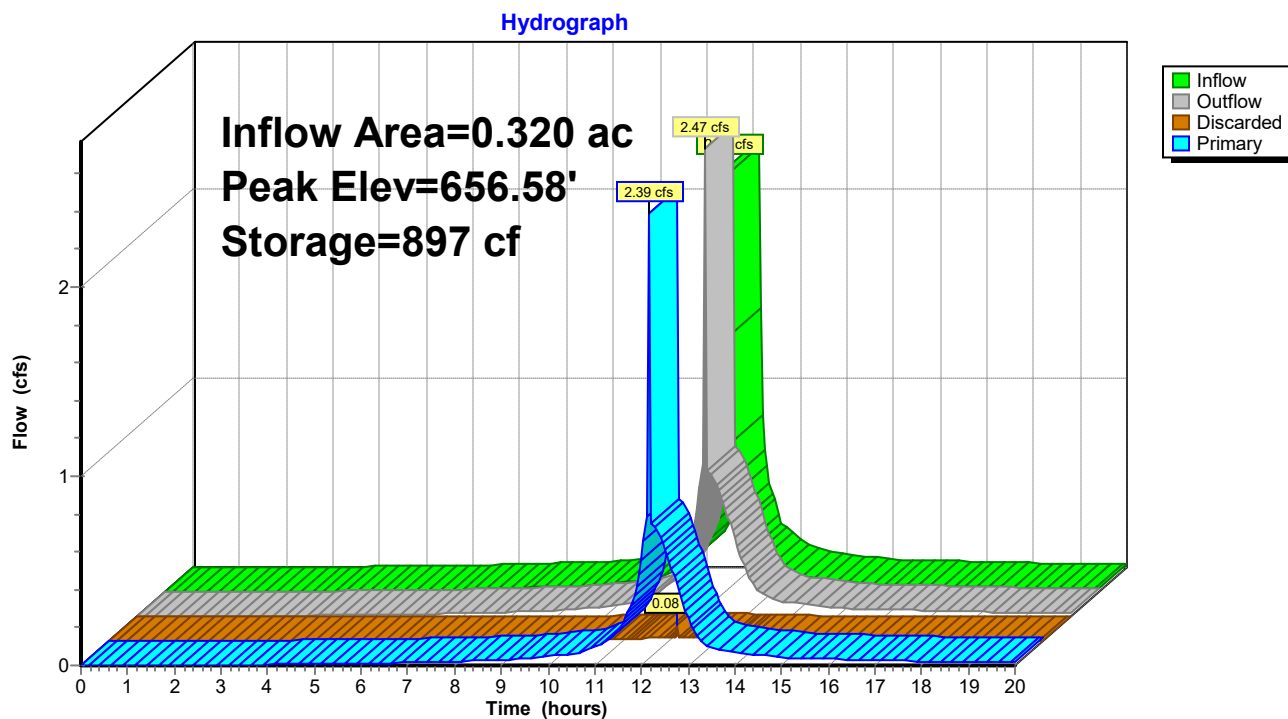
Plug-Flow detention time= 9.9 min calculated for 0.118 af (100% of inflow)  
 Center-of-Mass det. time= 9.2 min ( 746.0 - 736.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	624.10'	841 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 2,158 cf Overall - 56 cf Embedded = 2,103 cf x 40.0% Voids
#2	625.08'	56 cf	<b>12.0" Round Pipe Storage</b> Inside #1 L= 71.0' S= 0.0100 '/
		897 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
624.10	568	0	0
627.90	568	2,158	2,158

Device	Routing	Invert	Outlet Devices
#1	Primary	624.10'	<b>12.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 624.10' / 623.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	624.10'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Discarded	624.10'	<b>1.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 618.00'

**Discarded OutFlow** Max=0.08 cfs @ 12.15 hrs HW=656.50' (Free Discharge)↑ **3=Exfiltration** ( Controls 0.08 cfs)**Primary OutFlow** Max=2.38 cfs @ 12.15 hrs HW=656.42' (Free Discharge)↑ **1=Culvert** (Passes 2.38 cfs of 16.84 cfs potential flow)↑ **2=Orifice/Grate** (Orifice Controls 2.38 cfs @ 27.30 fps)

**Pond 19P: PERF. PIPE IN STONE INFILTRATION TRENCH**

**Summary for Pond 21P: mh2.0**

[57] Hint: Peaked at 625.88' (Flood elevation advised)

[79] Warning: Submerged Pond 13P Primary device # 1 INLET by 2.51'

[81] Warning: Exceeded Pond 14P by 2.72' @ 12.15 hrs

Inflow Area = 0.860 ac, 77.91% Impervious, Inflow Depth > 4.28" for 100-Year event  
 Inflow = 5.03 cfs @ 12.14 hrs, Volume= 0.306 af  
 Outflow = 5.03 cfs @ 12.14 hrs, Volume= 0.306 af, Atten= 0%, Lag= 0.0 min  
 Primary = 5.03 cfs @ 12.14 hrs, Volume= 0.306 af  
 Routed to Link 20L : OVERALL

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 625.88' @ 12.14 hrs

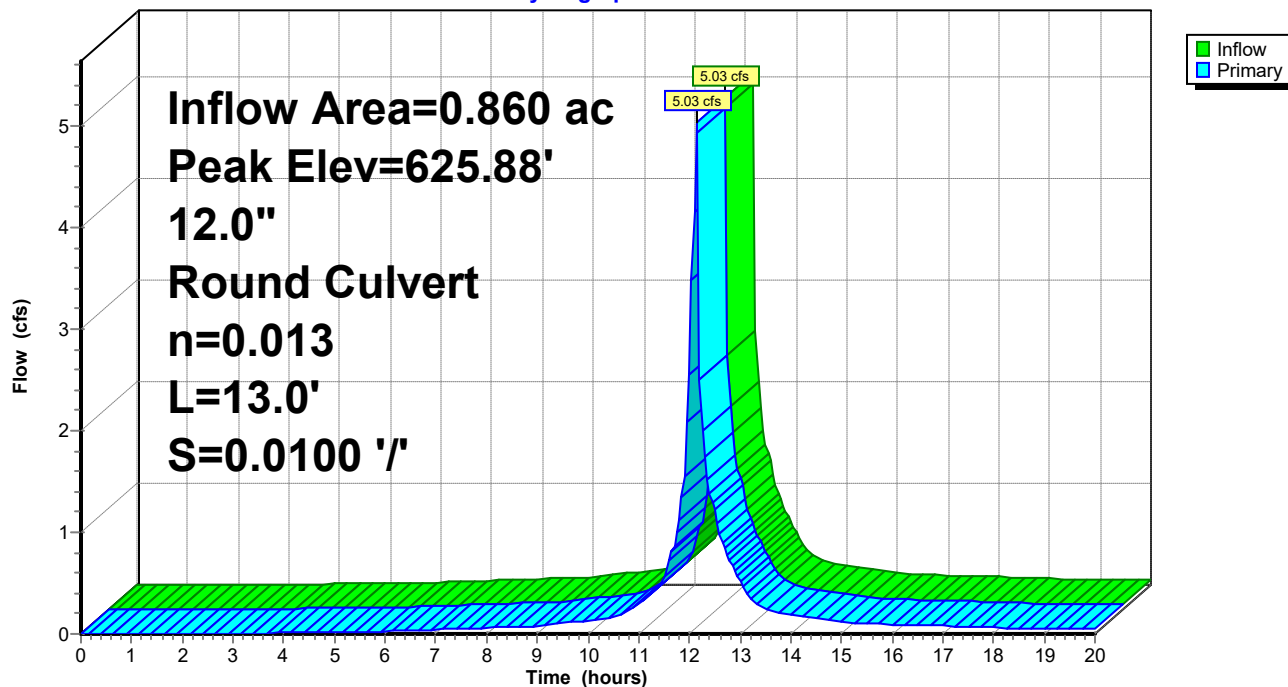
Device	Routing	Invert	Outlet Devices
#1	Primary	622.60'	<b>12.0" Round Culvert</b> L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 622.60' / 622.47' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=4.73 cfs @ 12.14 hrs HW=625.61' (Free Discharge)

↑1=Culvert (Inlet Controls 4.73 cfs @ 6.03 fps)

**Pond 21P: mh2.0**

Hydrograph



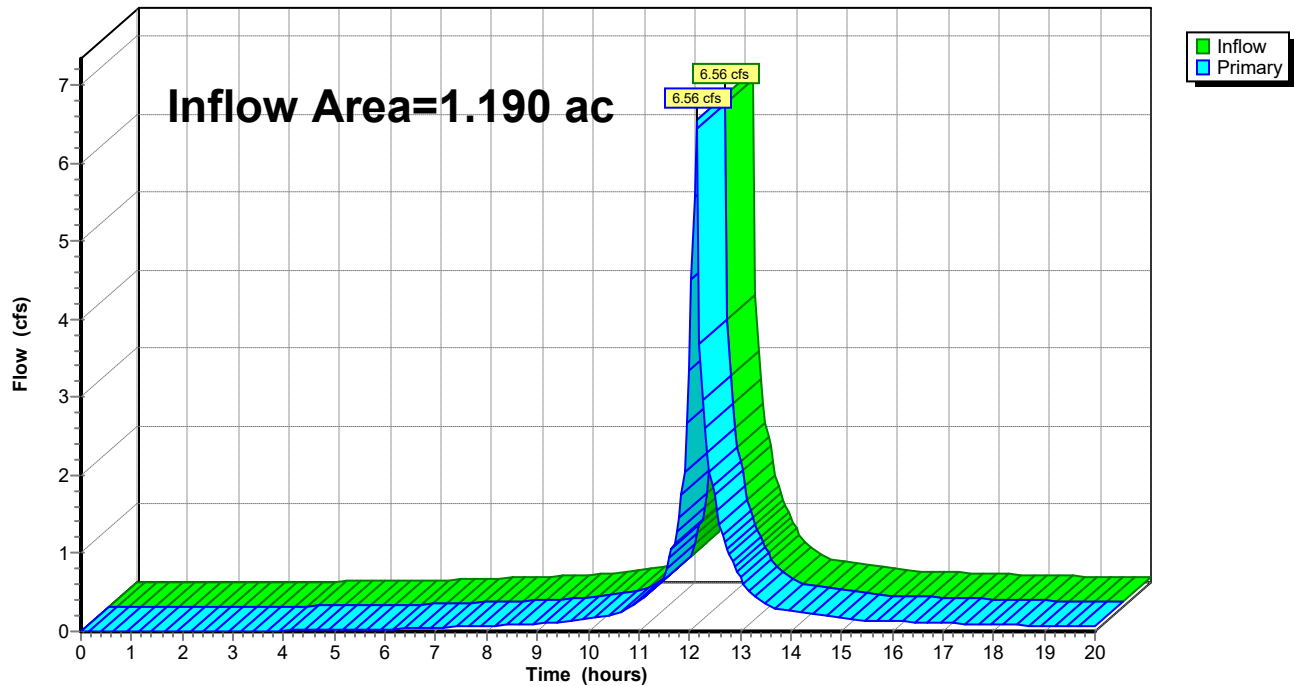
**Summary for Link 20L: OVERALL**

Inflow Area = 1.190 ac, 72.27% Impervious, Inflow Depth > 4.18" for 100-Year event  
Inflow = 6.56 cfs @ 12.14 hrs, Volume= 0.414 af  
Primary = 6.56 cfs @ 12.14 hrs, Volume= 0.414 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

**Link 20L: OVERALL**

Hydrograph



***Exhibit 10: Erosion and Sediment Control Specifications and Details***

# 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



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.

## **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

**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.



# STANDARD AND SPECIFICATIONS FOR PROTECTING VEGETATION DURING CONSTRUCTION



## **Definition & Scope**

The protection of trees, shrubs, ground cover and other vegetation from damage by construction equipment. In order to preserve existing vegetation determined to be important for soil erosion control, water quality protection, shade, screening, buffers, wildlife habitat, wetland protection, and other values.

## **Conditions Where Practices Applies**

On planned construction sites where valued vegetation exists and needs to be preserved.

## **Design Criteria**

### **1. Planning Considerations**

#### **A. Inventory:**

1) Property boundaries, topography, vegetation and soils information should be gathered. Identify potentially high erosion areas, areas with tree windthrow potential, etc. A vegetative cover type map should be made on a copy of a topographic map which shows other natural and manmade features. Vegetation that is desirable to preserve because of its value for screening, shade, critical erosion control, endangered species, aesthetics, etc., should be identified and marked on the map.

2) Based upon this data, general statements should be prepared about the present condition, potential problem areas, and unique features of the property.

#### **B. Planning:**

1) After engineering plans (plot maps) are prepared, another field review should take place and

recommendations made for the vegetation to be saved. Minor adjustments in location of roads, dwellings, and utilities may be needed. Construction on steep slopes, erodible soils, wetlands, and streams should be avoided. Clearing limits should be delineated (See "Determine Limits of Clearing and Grading" on page 2.2).

2) Areas to be seeded and planted should be identified. Remaining vegetation should blend with their surroundings and/or provide special function such as a filter strip, buffer zone, or screen.

3) Trees and shrubs of special seasonal interest, such as flowering dogwood, red maple, striped maple, serviceberry, or shadbush, and valuable potential shade trees should be identified and marked for special protective treatment as appropriate.

4) Trees to be cut should be marked on the plans. If timber can be removed for salable products, a forester should be consulted for marketing advice.

5) Trees that may become a hazard to people, personal property, or utilities should be removed. These include trees that are weak-wooded, disease-prone, subject to windthrow, or those that have severely damaged root systems.

6) The vigor of remaining trees may be improved by a selective thinning. A forester should be consulted for implementing this practice.

### **2. Measures to Protect Vegetation**

A. Limit soil placement over existing tree and shrub roots to a maximum of 3 inches. Soils with loamy texture and good structure should be used.

B. Use retaining walls and terraces to protect roots of trees and shrubs when grades are lowered. Lowered grades should start no closer than the dripline of the tree. For narrow-canopied trees and shrubs, the stem diameter in inches is converted to feet and doubled, such that a 10 inch tree should be protected to 20 feet.

C. Trenching across tree root systems should be the same minimum distance from the trunk, as in "B". Tunnels under root systems for underground utilities should start 18 inches or deeper below the normal ground surface. Tree roots which must be severed should be cut clean. Backfill material that will be in contact with the roots should be topsoil or a prepared planting soil mixture.

D. Construct sturdy fences, or barriers, of wood, steel, or other protective material around valuable



vegetation for protection from construction equipment. Place barriers far enough away from trees, but not less than the specifications in "B", so that tall equipment such as backhoes and dump trucks do not contact tree branches.

E. Construction limits should be identified and clearly marked to exclude equipment.

F. Avoid spills of oil/gas and other contaminants.

G. Obstructive and broken branches should be pruned properly. The branch collar on all branches whether living or dead should not be damaged. The 3 or 4 cut method should be used on all branches larger than two inches at the cut. 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.

H. Penalties for damage to valuable trees, shrubs, and herbaceous plants should be clearly spelled out in the contract.

## **PROTECTING TREES IN HEAVY USE AREAS**

The compaction of soil over the roots of trees and shrubs by the trampling of recreationists, vehicular traffic, etc., reduces oxygen, water, and nutrient uptake by feeder roots. This weakens and may eventually kill the plants. Table 2.6 rates the "Susceptibility of Tree Species to Compaction."

Where heavy compaction is anticipated, apply and maintain a 3 to 4 inch layer of undecayed wood chips or 2 inches of No. 2 washed, crushed gravel. In addition, use of a wooden or plastic mat may be used to lessen compaction, if applicable.

**Table 2.6**  
**Susceptibility of Tree Species to Compaction<sup>1</sup>**

Resistant:

Box elder.....	<i>Acer negundo</i>	Willows.....	<i>Salix spp.</i>
Green ash.....	<i>Fraxinus pennsylvanica</i>	Honey locust.....	<i>Gleditsia triacanthos</i>
Red elm.....	<i>Ulmus rubra</i>	Eastern cottonwood.....	<i>Populus deltoides</i>
Hawthornes.....	<i>Crataegus spp.</i>	Swamp white oak.....	<i>Quercus bicolor</i>
Bur oak.....	<i>Quercus macrocarpa</i>	Hophornbeam.....	<i>Ostrya virginiana</i>
Northern white cedar....	<i>Thuja occidentalis</i>		

Intermediate:

Red maple.....	<i>Acer rubrum</i>	Sweetgum.....	<i>Liquidambar styraciflua</i>
Silver maple.....	<i>Acer saccharinum</i>	Norway maple.....	<i>Acer platanoides</i>
Hackberry.....	<i>Celtis occidentalis</i>	Shagbark hickory.....	<i>Carya ovata</i>
Black gum.....	<i>Nyssa sylvatica</i>	London plane.....	<i>Platanus x hybrida</i>
Red oak.....	<i>Quercus rubra</i>	Pin oak.....	<i>Quercus palustris</i>
Basswood.....	<i>Tilia americana</i>		

Susceptible:

Sugar maple.....	<i>Acer saccharum</i>	Austrian Pine.....	<i>Pinus nigra</i>
White pine.....	<i>Pinus strobus</i>	White ash.....	<i>Fraxinus americana</i>
Blue spruce.....	<i>Picea pungens</i>	Paper birch.....	<i>Betula papyrifera</i>
White oak.....	<i>Quercus alba</i>	Mountain ash.....	<i>Sorbus aucuparia</i>
Red pine.....	<i>Pinus resinosa</i>	Japanese maple.....	<i>Acer palmatum</i>

<sup>1</sup> If a tree species does not appear on the list, insufficient information is available to rate it for this purpose.

# 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.



# 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:

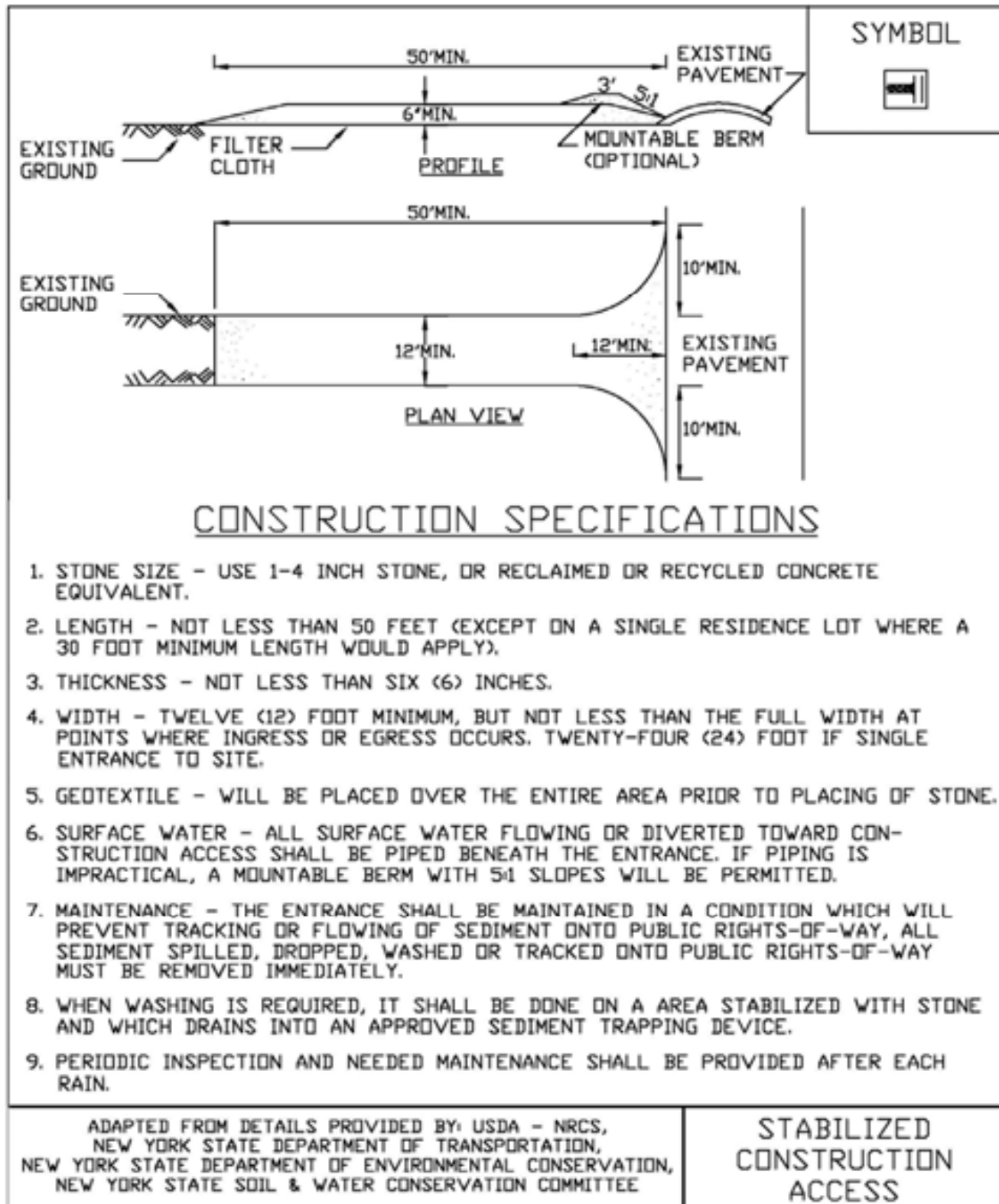
Fabric Properties <sup>3</sup>	Light Duty <sup>1</sup> Roads Grade Sub-grade	Heavy Duty <sup>2</sup> Haul Roads Rough Graded	Test Method
Grab Tensile Strength (lbs)	200	220	ASTM D1682
Elongation at Failure (%)	50	60	ASTM D1682
Mullen Burst Strength (lbs)	190	430	ASTM D3786
Puncture Strength (lbs)	40	125	ASTM D751 Modified
Equivalent	40-80	40-80	US Std Sieve
Opening Size			CW-02215
Aggregate Depth	6	10	-
<sup>1</sup> 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.			
<sup>2</sup> 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.			
<sup>3</sup> 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.

**Figure 2.1**  
**Stabilized Construction Access**



# 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  $\frac{1}{4}$  to  $\frac{1}{2}$  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**

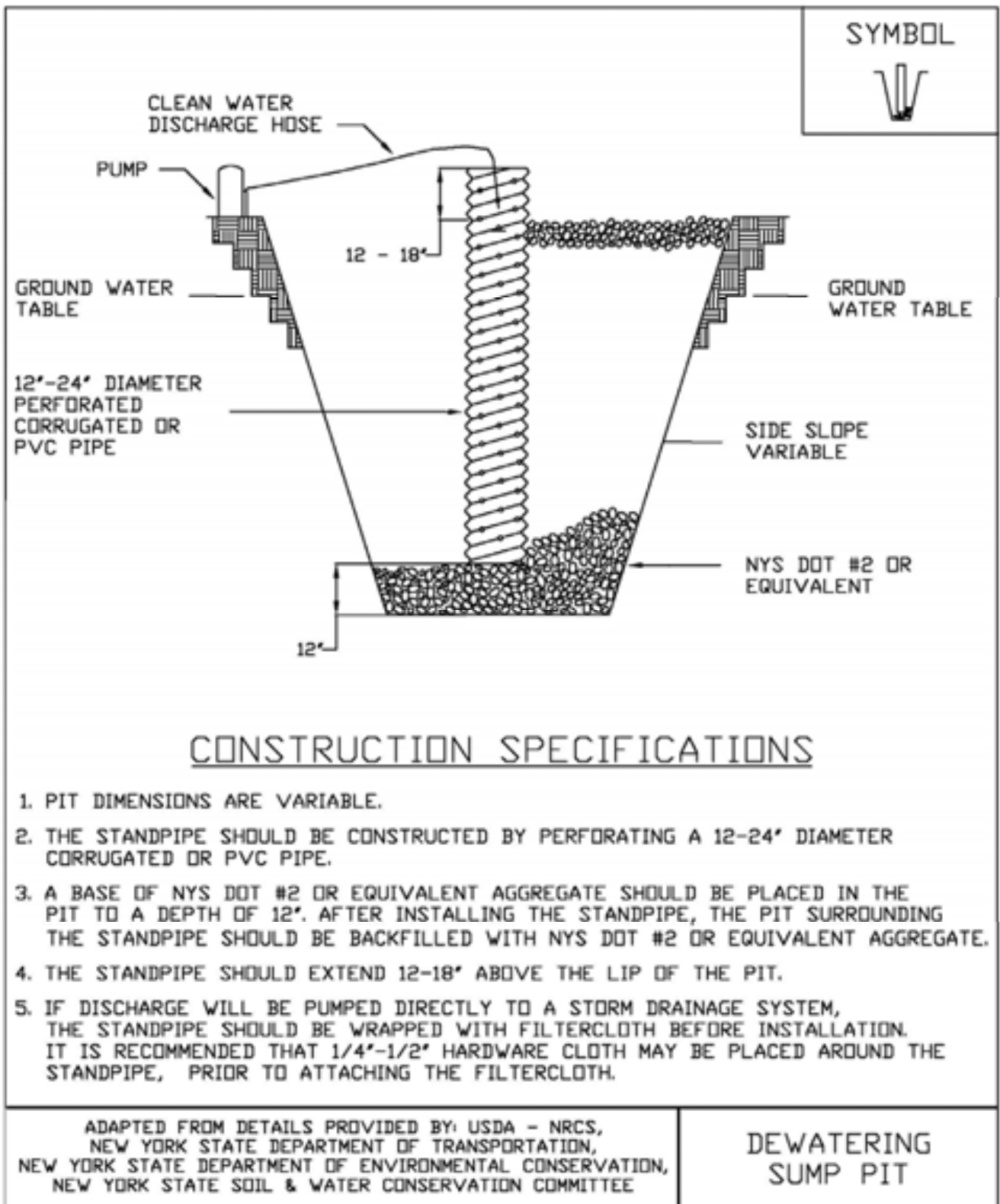
The number of sump pits and their locations shall be determined by the contractor/engineer. A design is not required, but construction should conform to the general criteria outlined on Figure 3.3 on page 3.8.

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.





**Figure 3.3**  
**Dewatering Sump Pit Detail**



# 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



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:

<b>D<sub>50</sub></b> <b>(inches)</b>	<b>d<sub>max</sub></b> <b>(inches)</b>	<b>Minimum</b> <b>Blanket Thick-</b> <b>ness (inches)</b>
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.**

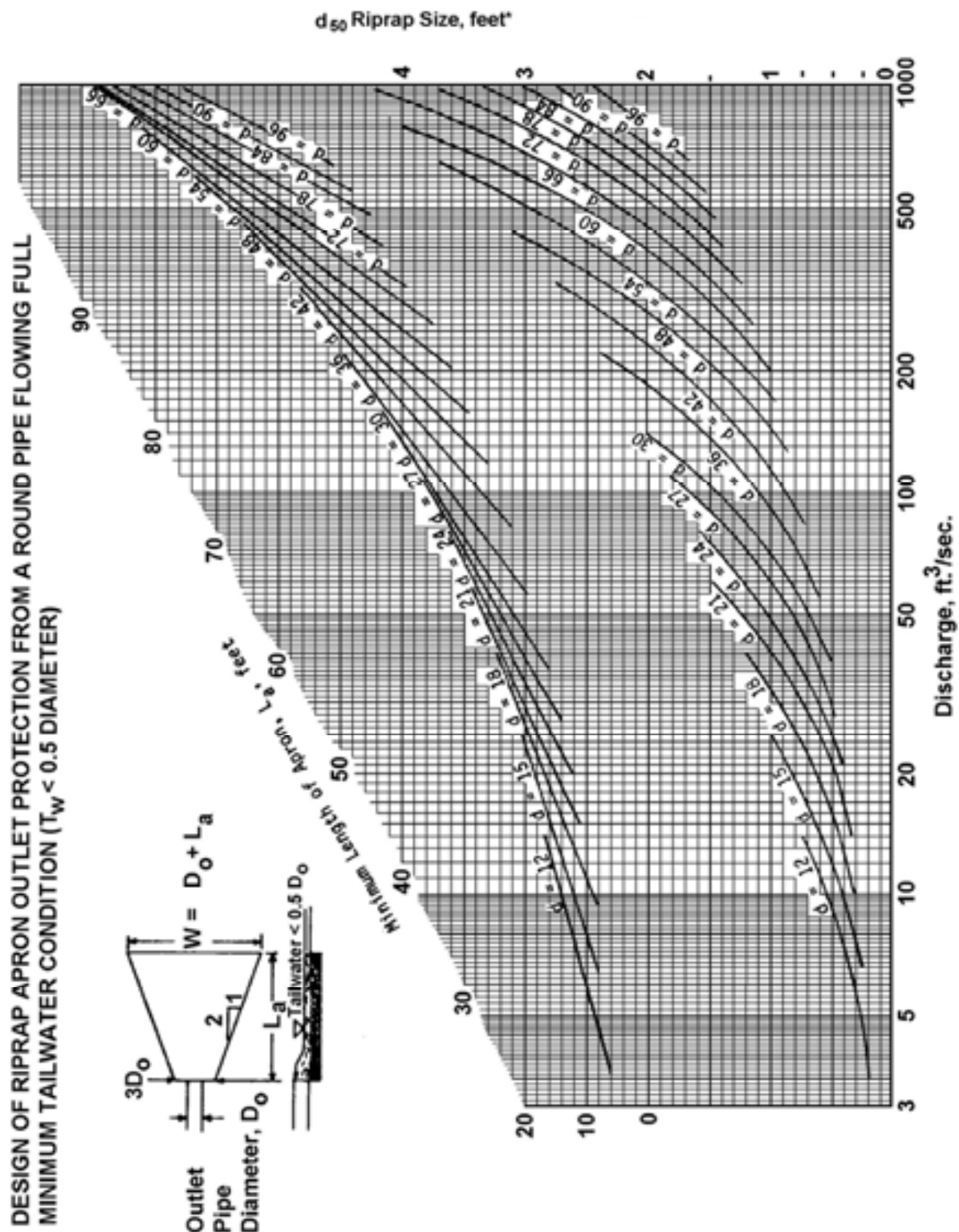
### Construction Specifications

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-

ing limits when installed respectively in the riprap or filter.

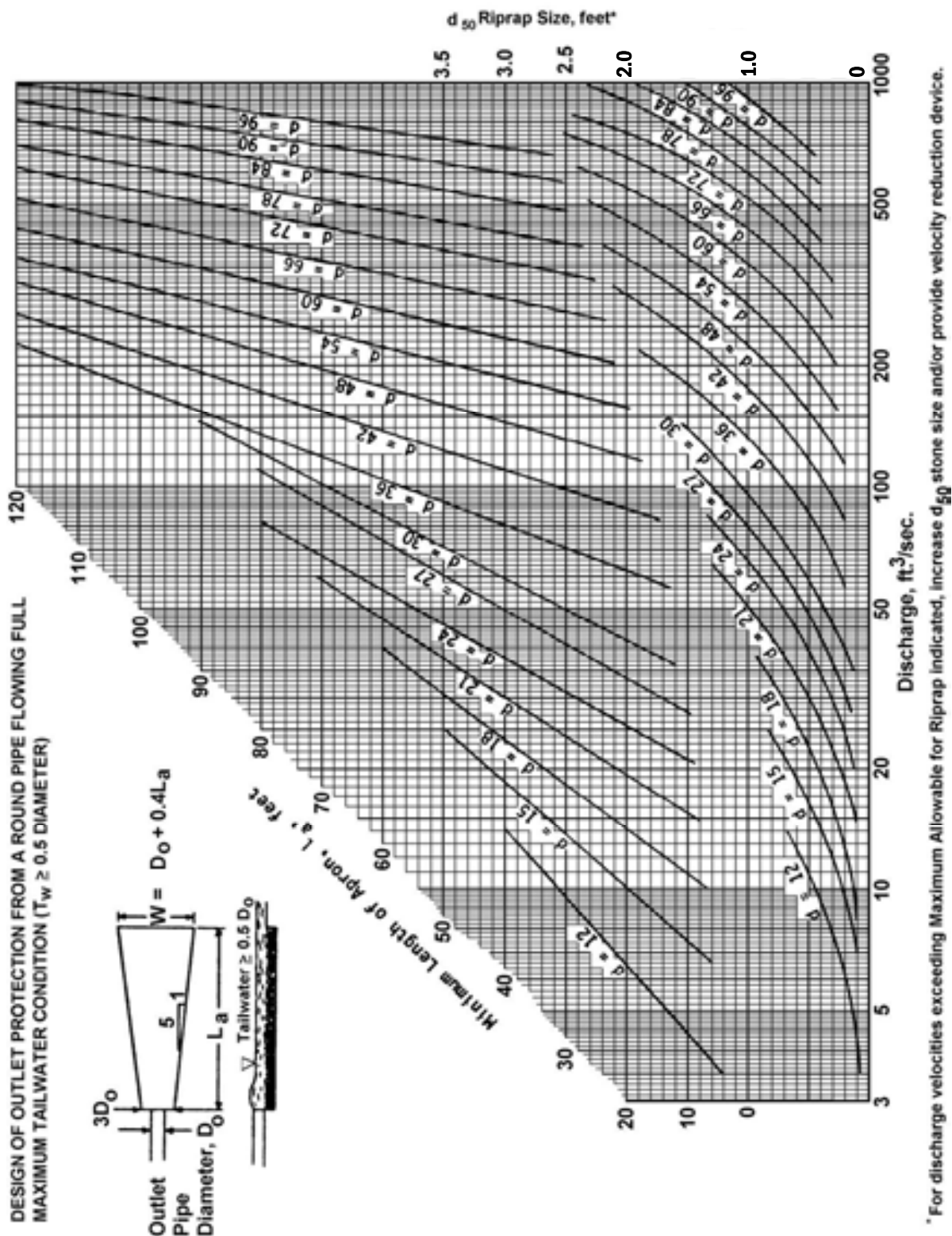
3. Filter cloth shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps, whether for repairs or for joining two pieces of cloth shall 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.

**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)**

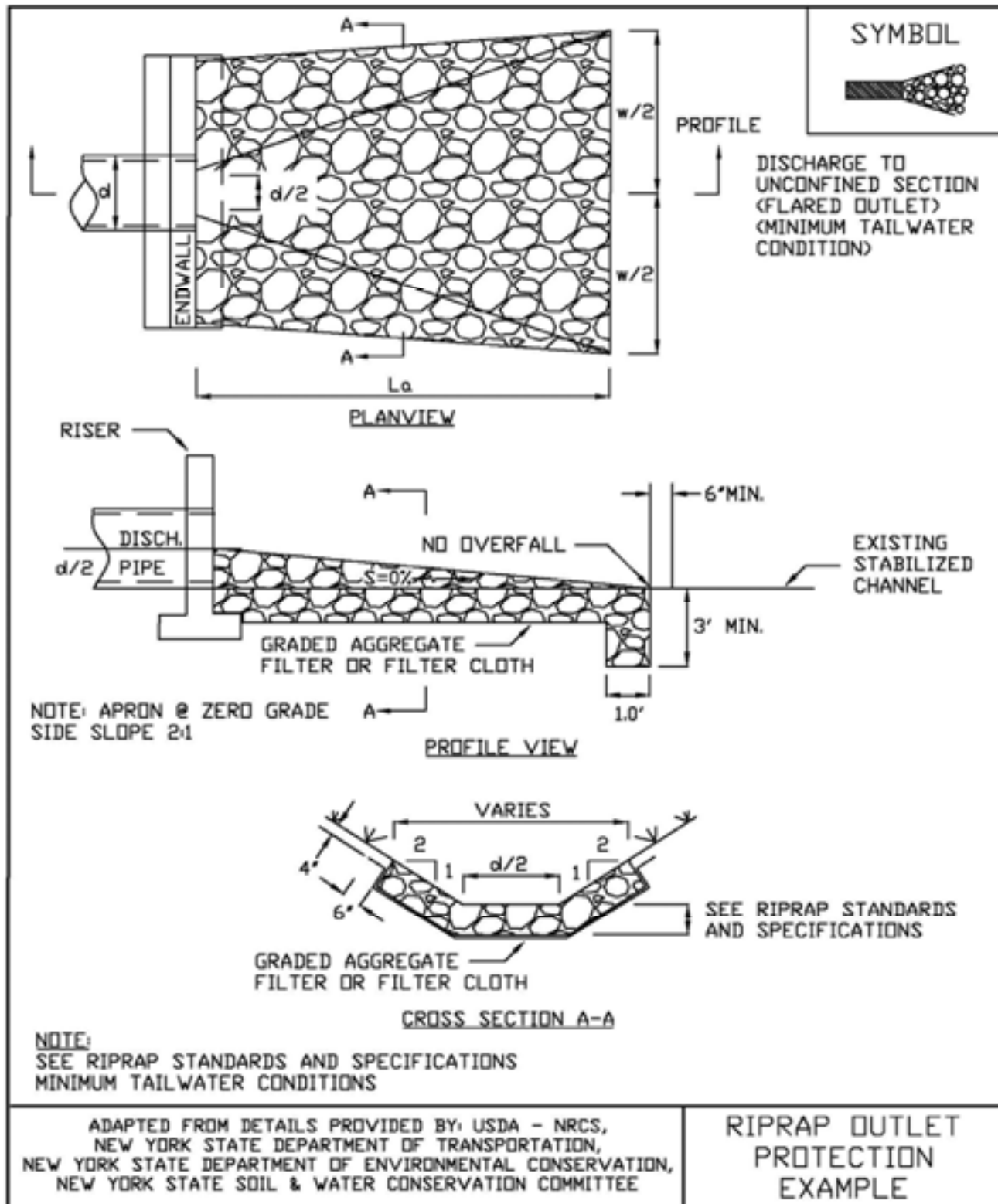


\* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase  $d_{50}$  stone size and/or provide velocity reduction device.

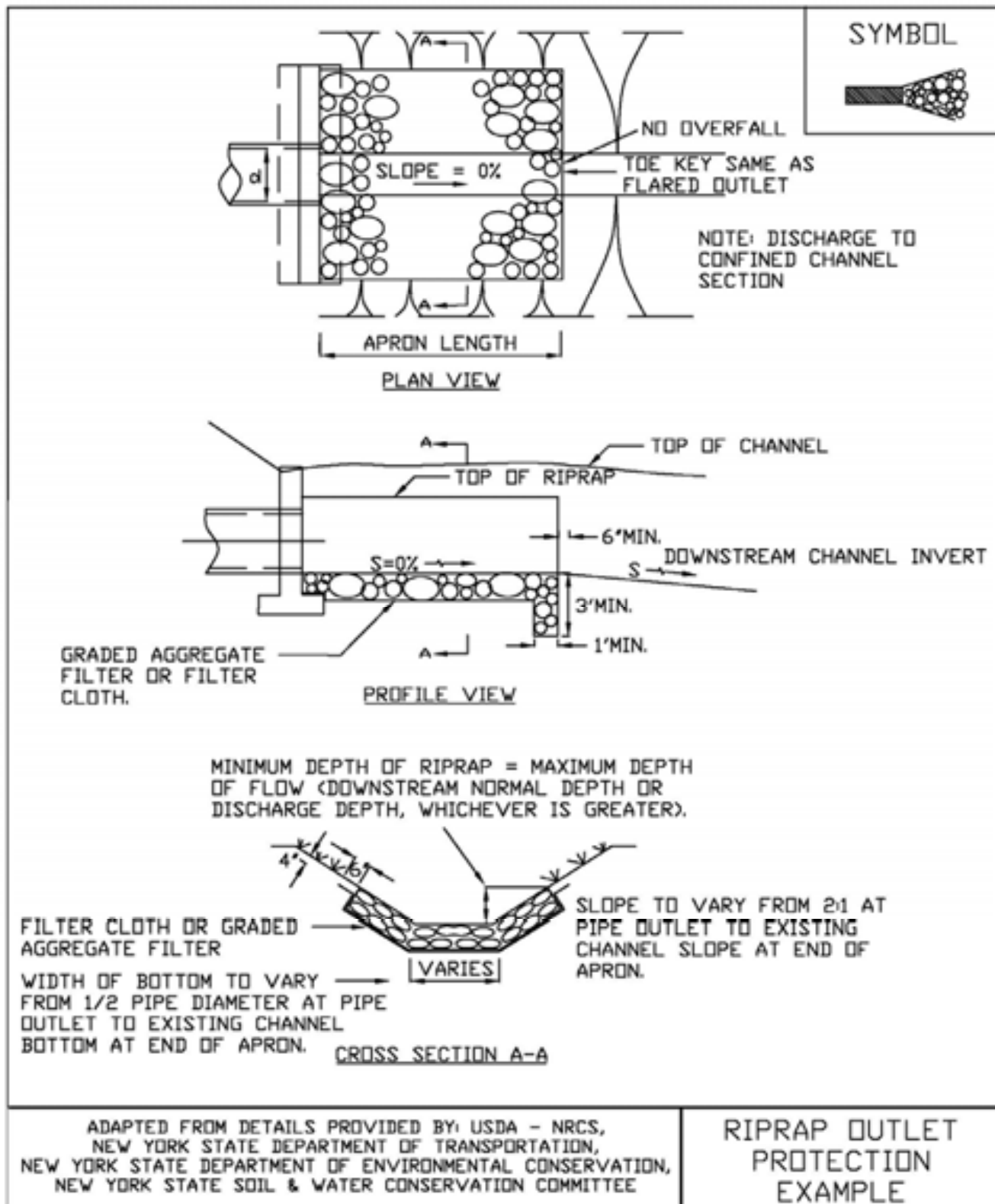
**Figure 3.17**  
**Outlet Protection Design—Maximum Tailwater Condition Chart**  
**(Design of Outlet Protection from a Round Pipe Flowing Full,**  
**Maximum Tailwater Condition:  $T_w \geq 0.5D_o$ ) (USDA - NRCS)**



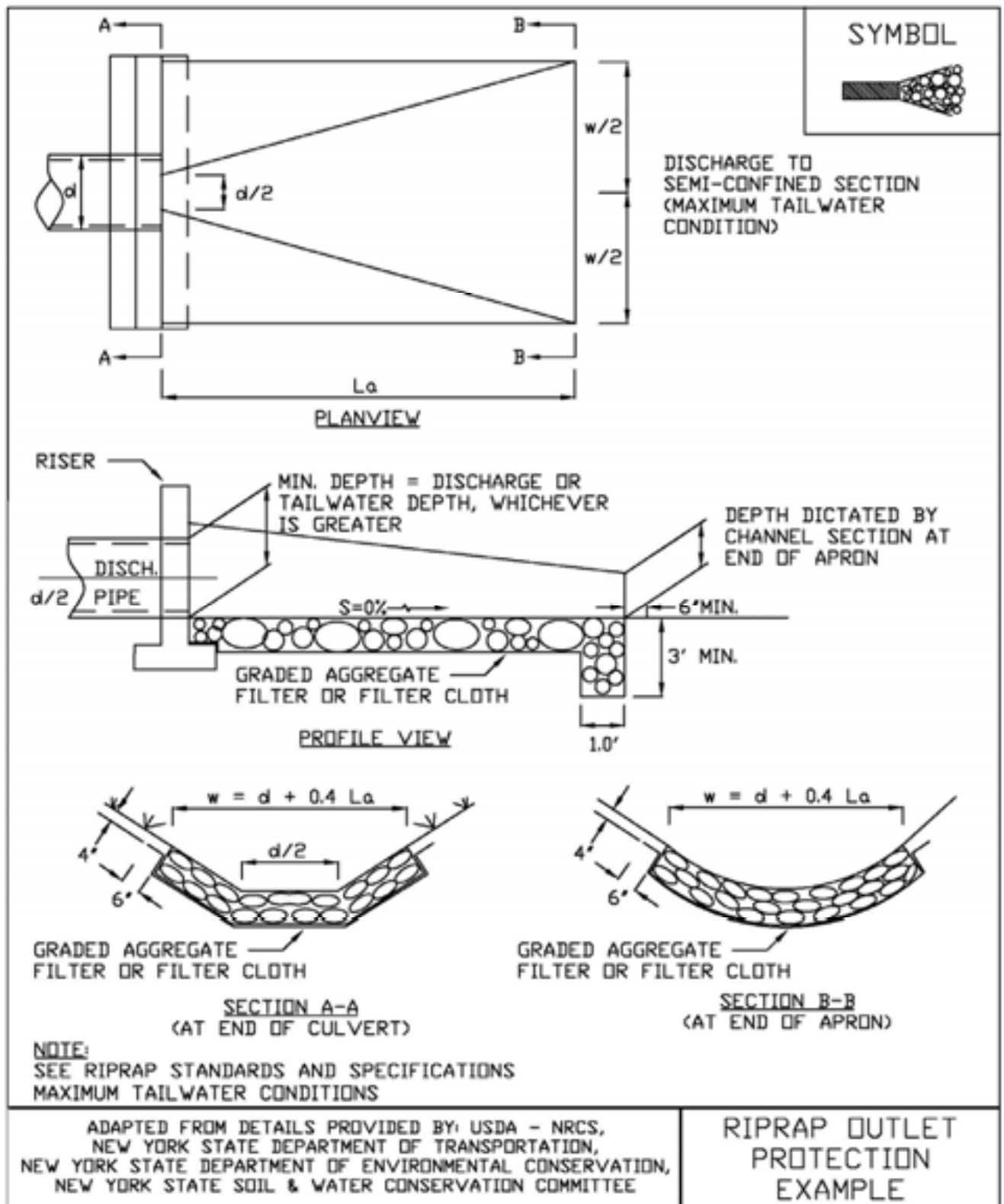
**Figure 3.18**  
**Riprap Outlet Protection Detail (1)**



**Figure 3.19**  
**Riprap Outlet Protection Detail (2)**



**Figure 3.20**  
**Riprap Outlet Protection Detail (3)**



# 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.



# 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 "Joe" 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.

# 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.

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.

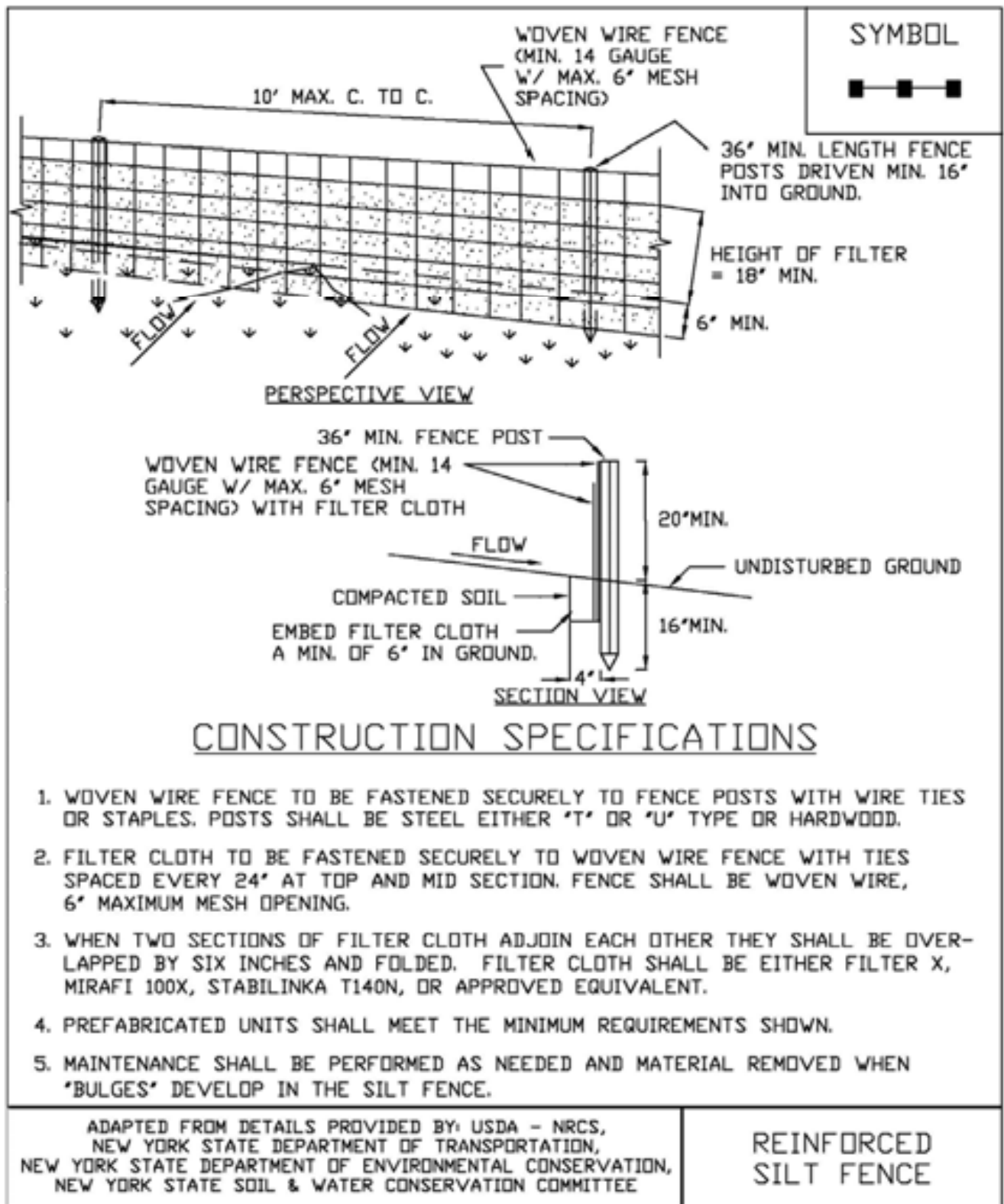
#### Super Silt Fence



#### Reinforced Silt Fence



**Figure 5.30**  
**Reinforced Silt Fence**





# 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

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.



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.

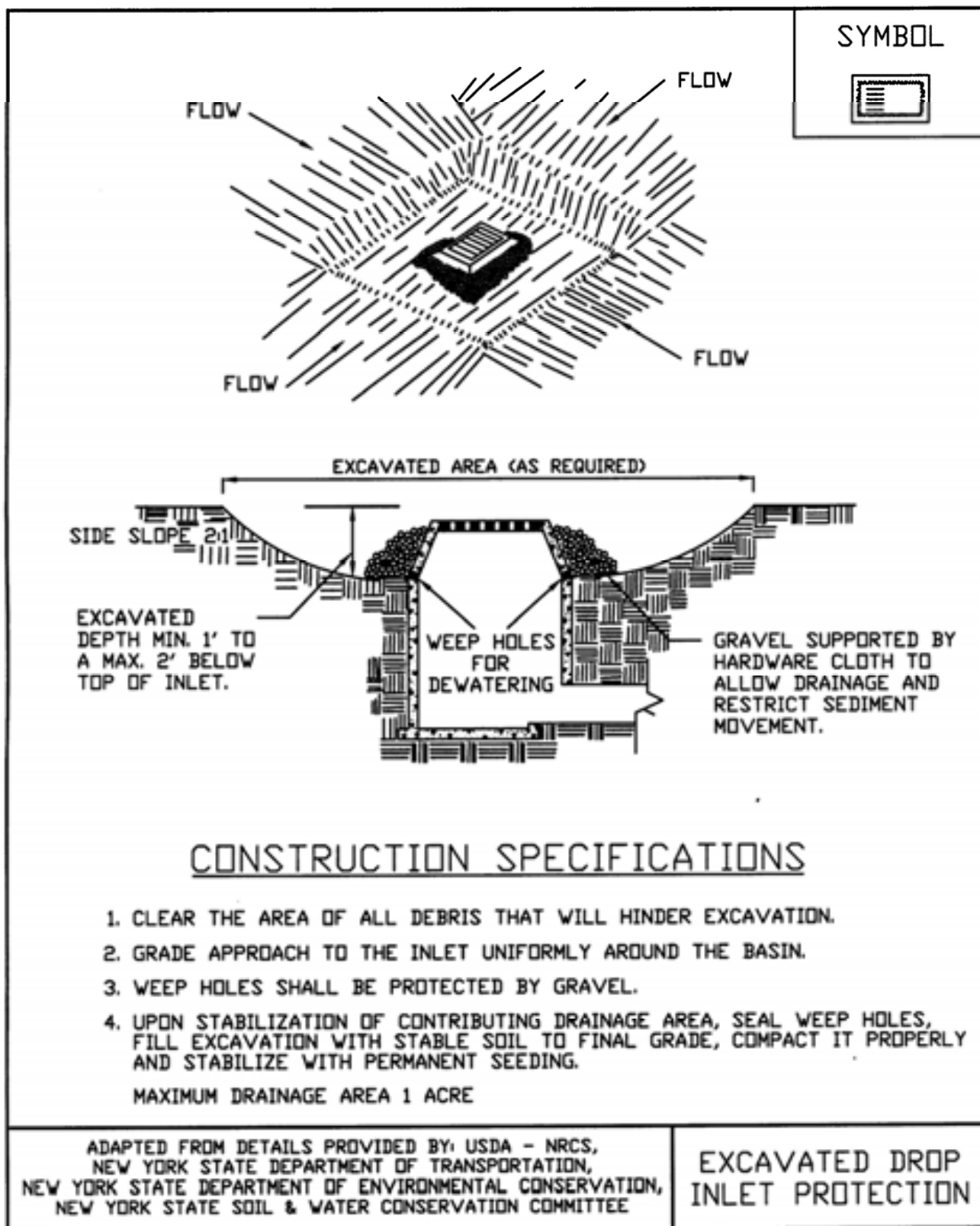
The structure should be inspected after every storm event. Any sediment should be removed and disposed of on the site. Any broken or damaged components should be replaced. Check all materials for proper anchorage and secure as necessary.

### **Type V - Manufactured Insert Inlet Protection**



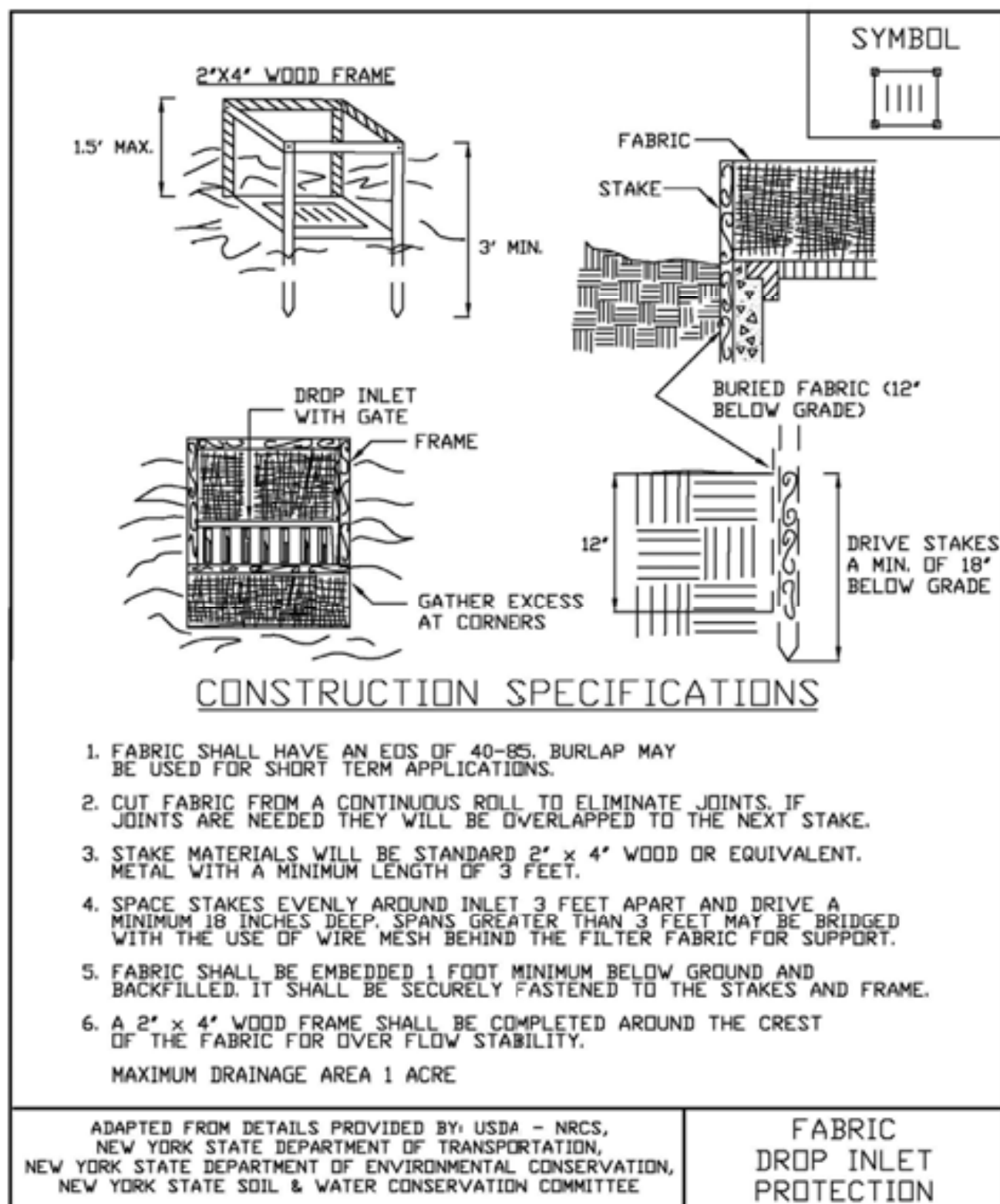
The drainage area shall be limited to 1 acre at the drain inlet. All inserts will be installed and anchored in accordance with the manufacturers recommendations and design details. The fabric portion of the structure will equal or exceed the performance standard for the silt fence fabric. The inserts 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.

**Figure 5.31**  
**Excavated Drop Inlet Protection**

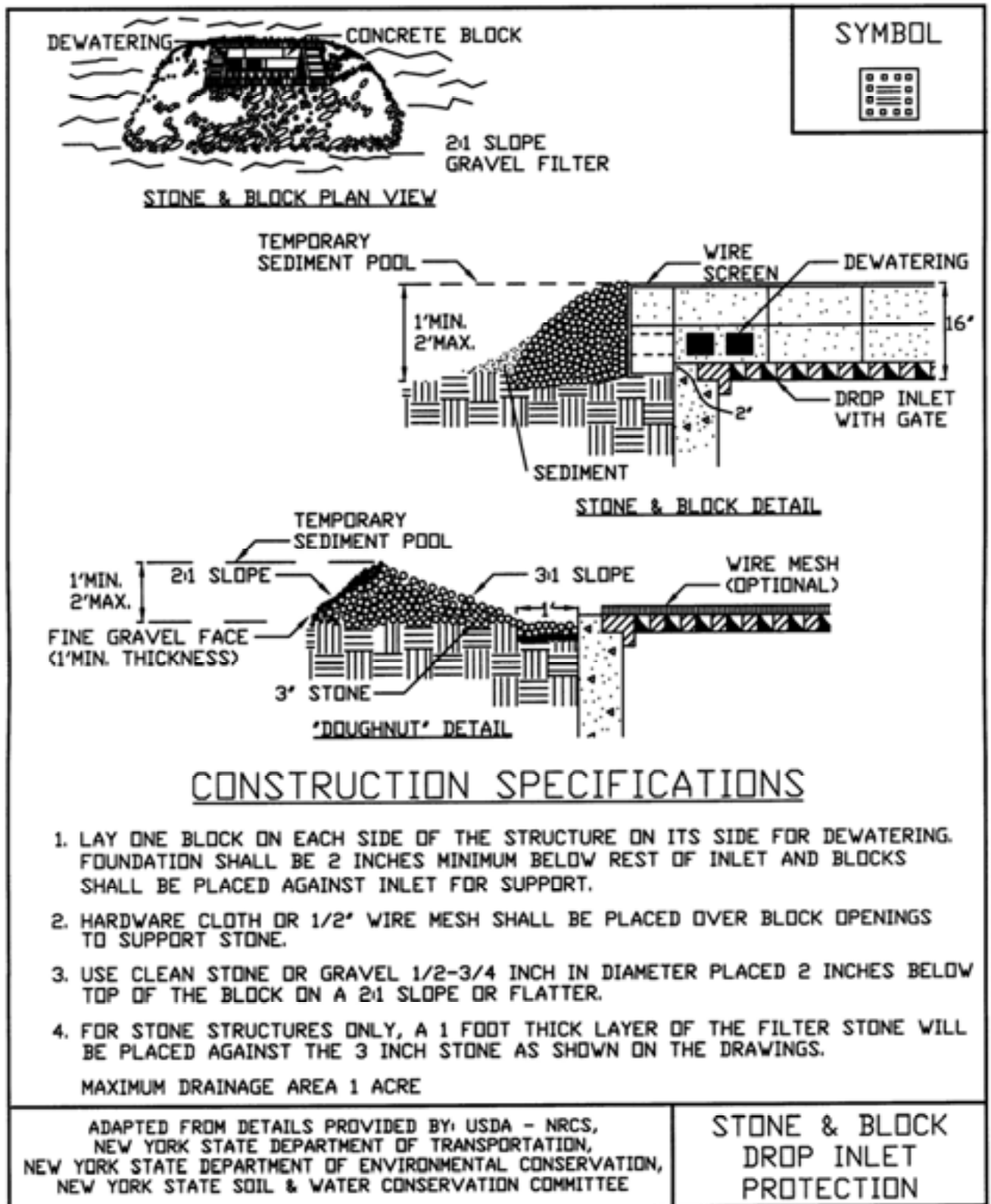




**Figure 5.32**  
**Fabric Drop Inlet Protection**

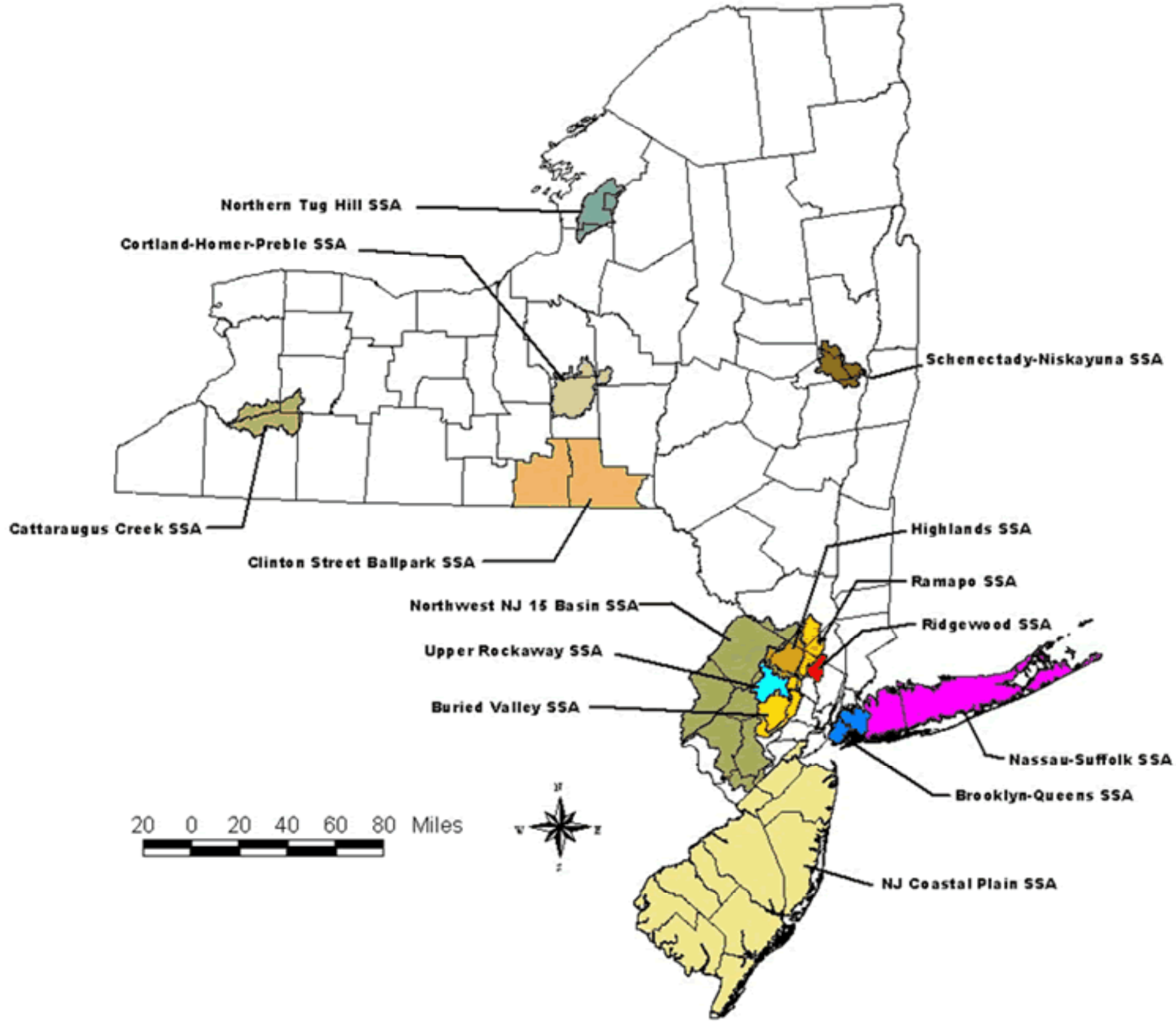


**Figure 5.33**  
**Stone & Block Drop Inlet Protection**

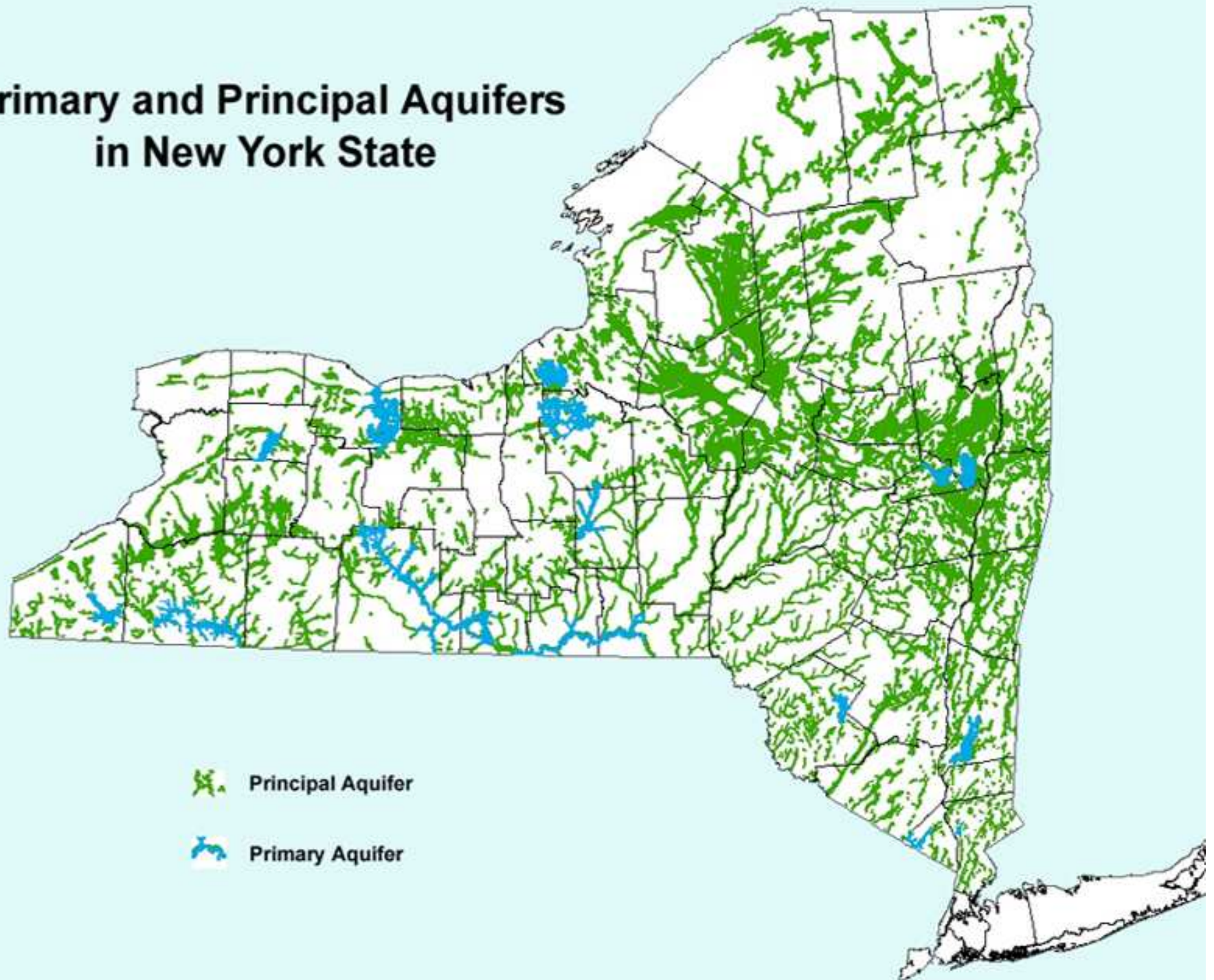


## ***Exhibit 11: Miscellaneous Mapping and Documentation***

- EPA Designated Sole Source Aquifer Map
- NYS Primary and Principal Aquifer Map
- Watershed Information
- National Wetlands Inventory Map
- NYSDEC Environmental Resource Map
- NYSDEC Rare Plants and Animals Map
- NYSDEC Stormwater Interactive Map
- FEMA Flood Insurance Rate Map
- USDA NRCS Web Soil Survey
- Cultural Resource Information System (CRIS) Map



## Primary and Principal Aquifers in New York State







[Services](#) [News](#) [Government](#) [Local](#)

## Department of Environmental Conservation

[Recreation](#) [Nature](#) [Prevent & Control Pollution](#) [Regulatory](#) [News & Learning](#) [Search](#)

### Niagara River/Lake Erie Watershed

Niagara River / Lake Erie Watershed Map

[Home](#) » [Lands and Waters](#) » [Watersheds](#) » Niagara River/Lake Erie Watershed

## Niagara River/Lake Erie Watershed

### Published Water Quality Monitoring and Assessment Reports

Waterbody Inventory/Priority Waterbodies List Report

- [Niagara River/Lake Erie Basin W/PWL Assessment Report](#)

### Biological Assessment Reports

- [Ellicott Creek, 2001](#) (leaves DEC website)

### Other Reports

The Niagara River Upstream/Downstream Program is a component of the Niagara River Toxics Management Plan (NRTMP) that the Four Parties - Environment Canada, the United States Environmental Protection Agency (Region II), the Ontario Ministry of the Environment, and New York State Department of Environmental Conservation, are committed to.

- [The Niagara River Upstream/Downstream Program 1986-2005 Concentrations, Loads, and Trends Report \(PDF\)](#)
- [The Niagara River Trends 1986-2005 French Version \(PDF\)](#)

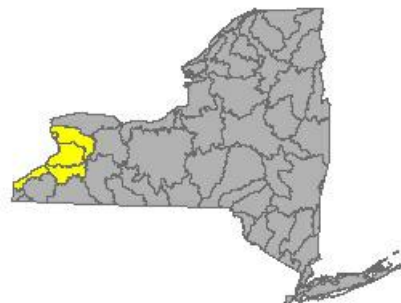
### Watershed Management Plans

Links leave DEC website:

- [Niagara Watershed Plan](#)
- [Scajaquada Creek Watershed Management Plan](#)

### Facts about this Watershed

The Niagara River/Lake Erie Watershed is located in western New York; in fact Lake Erie and its outlet, the Niagara River, represent the western boundary of the state. At its mouth the Niagara River drains an area encompassing more than 265,000 square miles in the north central United States and south central Canada. The drainage area beyond New York includes



### Important Links

[DEC Great Lakes Program](#)

### PDF Help

For help with PDFs on this page, please call 518-402-8179.

### Contact for this Page

NYSDEC  
Division of Water  
625 Broadway  
Albany, NY  
12233-3502  
518-402-8179  
[Send us an email](#)

### This Page Covers



four of the five Great Lakes as well as some of the largest and most urban/industrial cities in North America.

[Click to view a detailed watershed map](#)

**Location:** Western New York State

- All of Erie County,
- Much of Niagara, Genesee and Wyoming Counties, and
- Portions of northern Cattaraugus and Chautauqua Counties.

**Size:** 2,280 square miles of land area within New York State.

**Rivers and Streams:** 4,086 miles of freshwater rivers and streams. Major tributary watersheds to the Niagara River and Lake Erie:

- Tonawanda Creek (1,538 river miles)
- Cattaraugus Creek (1,435 miles)
- Buffalo River (1,006 miles)

**Lakes, Ponds and Reservoirs:** 24 significant freshwater lakes, ponds, and reservoirs (1,098 acres):

- Attica Reservoir (173 acres)
- Lime Lake (160 acres)

**Great Lakes Shoreline:** 92 miles of Great Lakes (Lake Erie) shoreline.

## What You Can Do

Each of us lives in a watershed. On our [Watershed Stewardship](#) page are some tips on actions that you and your friends can take to help your watershed.

## More about Niagara River/Lake Erie Watershed:

[Niagara River / Lake Erie Watershed Map](#) - Detailed map of the Niagara River/Lake Erie Watershed

### Department of Environmental Conservation

#### Programs

Outdoor Activities

Animals, Plants, Aquatic Life

Chemical and Pollution Control

Energy and Climate

Lands and Waters

#### Services

Education

Permit, License, Registration

Public Involvement and News

Regulations and Enforcement

Publications, Forms, Maps

## Agency Information

About DEC

Commissioner

Employment

Freedom of Information Law (FOIL)

Events Calendar

Doing Business with DEC

## Help

A-Z Subject Index

Find a Form

Website Usage and Policies

Contact Us

Apply for a Grant

Accessibility

Report a Problem

Privacy Policy

## Language Assistance

L언어 지원

Языковая поддержка

Èd nan Lang

Asistencia de idioma

ইংরেজি

语言援助

## CONNECT WITH US



FACEBOOK



TWITTER



YOUTUBE



FLICKR



INSTAGRAM



Agencies

Services

App Directory

Counties

Events

Programs



May 10, 2020 | 3:25 pm

## Information on Novel Coronavirus

NY State remains on PAUSE through May 15. All non-essential workers are directed to work from home, and everyone is required to wear a face covering and maintain a 6-foot distance from others in public.

[GET THE FACTS](#) ☐



[Services](#) [News](#) [Government](#) [Local](#)

## Department of Environmental Conservation

[Recreation](#) [Nature](#) [Prevent & Control Pollution](#) [Regulatory](#) [News & Learning](#) [Search](#)

[Home](#) » [Lands and Waters](#) » [Watersheds](#) » [Niagara River/Lake Erie Watershed](#) » [Niagara River / Lake Erie Watershed Map](#)

## Niagara River / Lake Erie Watershed Map



Detailed map of the Niagara River/Lake Erie Watershed

# Department of Environmental Conservation

## Programs

Outdoor Activities

Animals, Plants, Aquatic Life

Chemical and Pollution Control

Energy and Climate

Lands and Waters

## Services

Education

Permit, License, Registration

Public Involvement and News

Regulations and Enforcement

Publications, Forms, Maps

## Agency Information

About DEC

Employment

Events Calendar

Commissioner

Freedom of Information Law (FOIL)

Doing Business with DEC

## Help

A-Z Subject Index

Contact Us

Report a Problem

Find a Form

Apply for a Grant

Privacy Policy

Website Usage and Policies

Accessibility

## Language Assistance

한국어 지원

Èd nan Lang


ইংরেজি


Языковая поддержка


Asistencia de idioma


语言援助

## CONNECT WITH US

 FACEBOOK

 TWITTER

 YOUTUBE

 FLICKR

 INSTAGRAM



Agencies

App Directory

Counties

Events

Programs

Services





U.S. Fish and Wildlife Service

# National Wetlands Inventory

## National Wetland Inventory Map



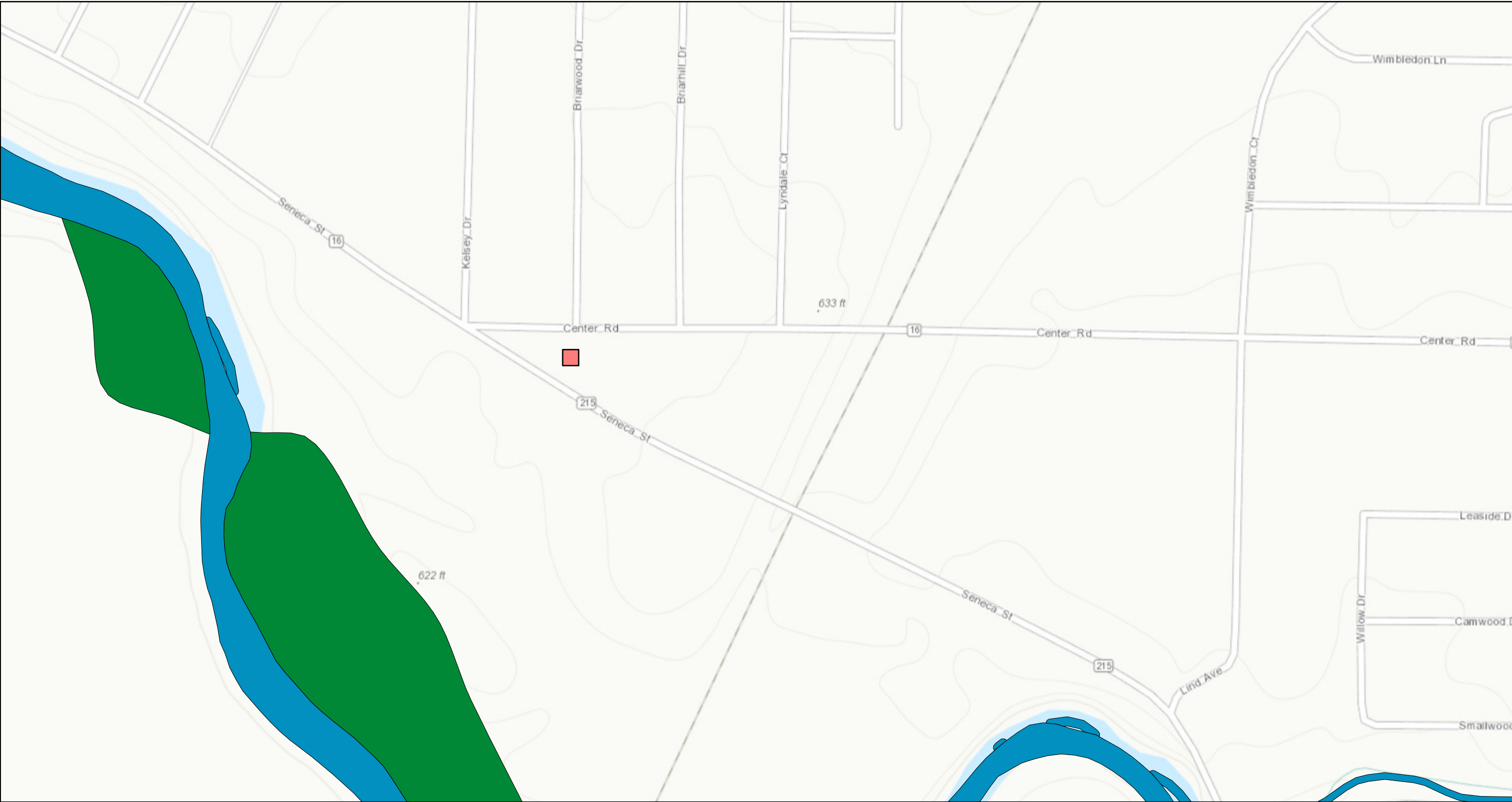
December 9, 2022

### Wetlands

	Estuarine and Marine Deepwater		Freshwater Emergent Wetland		Lake
	Estuarine and Marine Wetland		Freshwater Forested/Shrub Wetland		Other
			Freshwater Pond		Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

# NYSDEC Environmental Resource and Rare Plants/Animals Map

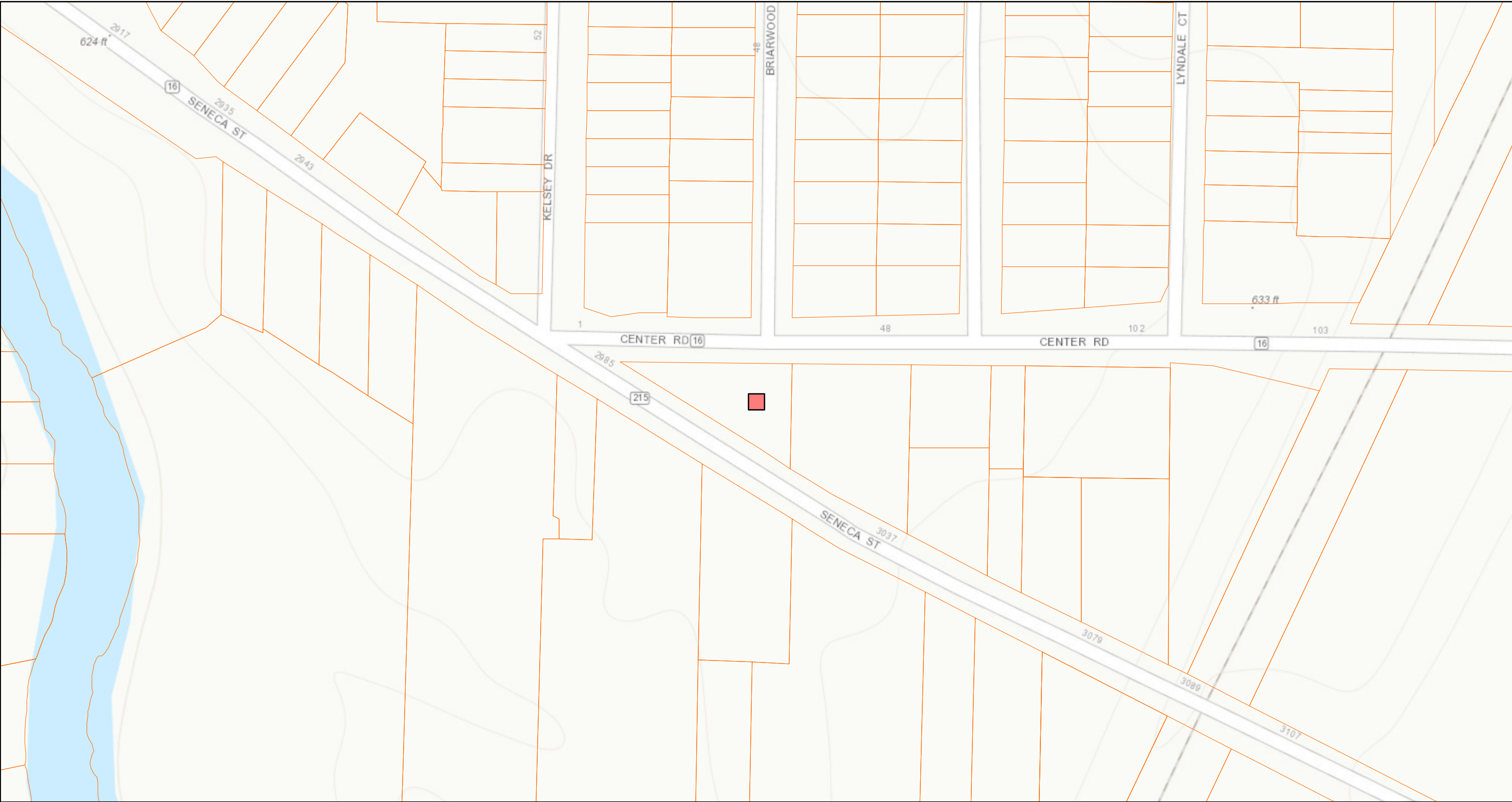


December 9, 2022

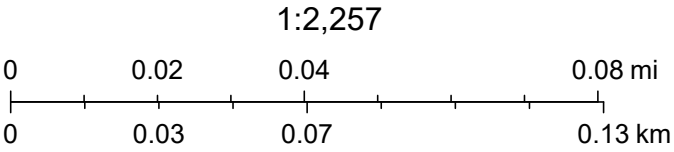
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



# NYSDEC Stormwater Map



December 9, 2022

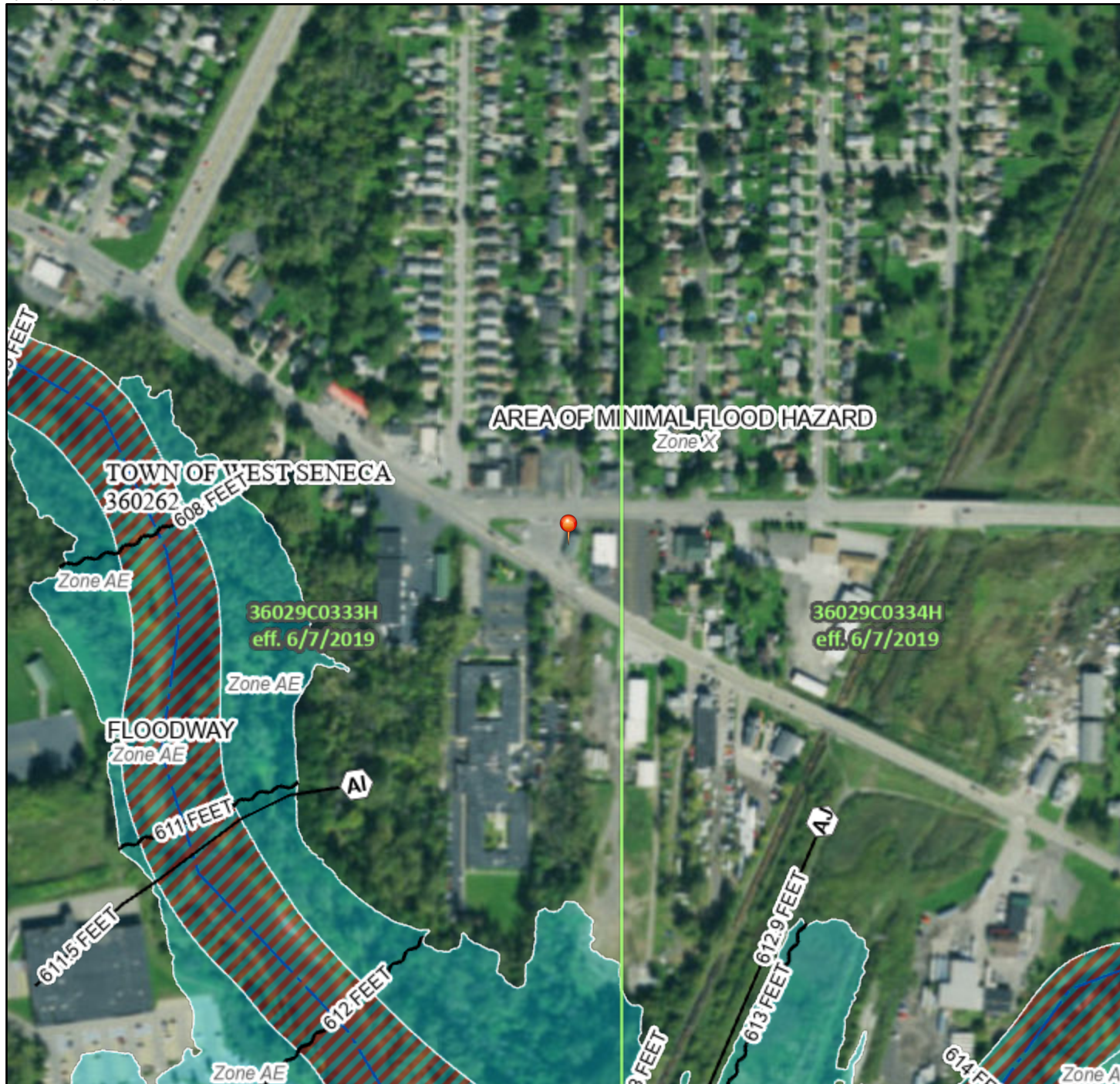


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

# National Flood Hazard Layer FIRMette



78°47'13"W 42°50'36"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 (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent 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 map was exported on **12/9/2022 at 9:53 AM** and does not reflect changes or amendments subsequent to this date and 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 map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Criteria

Spatial

Results

1. Navigate to your area of interest

Option A: Zoom to a County or Municipality

Select County... Select Municipality... Zoom

Option B: Find an Address Location

3030 seneca street west seneca ny Find Address

2. Define or refine the location/area for your search

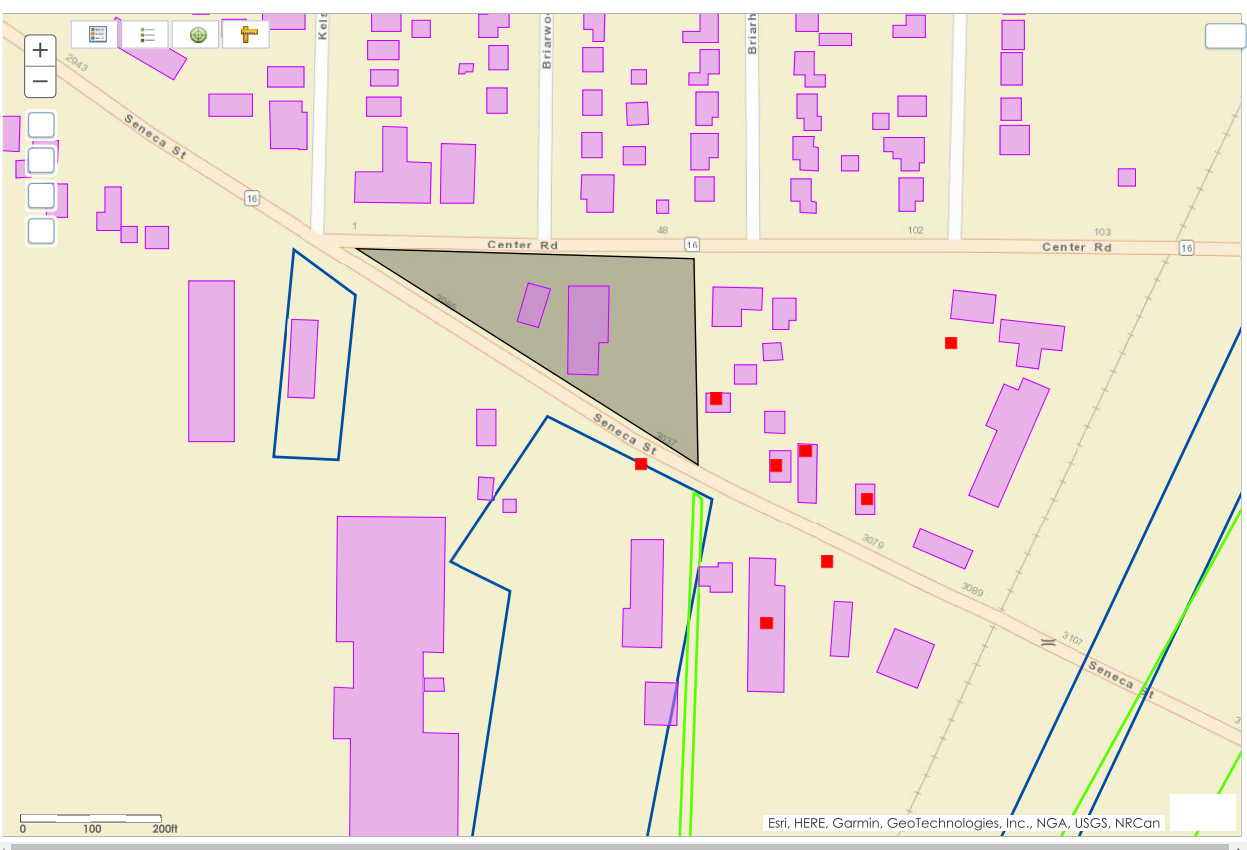
Click a button below to activate the draw tool and draw the shape on the map

Point Line Rectangle Circle Polygon

3. Generate a search radius around your graphic (Optional)

Generate a Foot buffer Generate Buffer

Search Reset

A map showing a street intersection and surrounding area. Seneca St runs diagonally from the top left to the bottom right. Center Rd runs horizontally across the middle. Several purple rectangular shapes represent buildings. A blue polygon outlines a specific area on the map. A scale bar at the bottom left indicates 0, 100, and 200 feet. The map is credited to Esri, HERE, Garmin, GeoTechnologies, Inc., NGA, USGS, NRCan.

© 2022 New York State Office of Parks, Recreation & Historic Preservation. All rights reserved.

Version 1.2.15



United States  
Department of  
Agriculture

NRCS

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Erie County, New York



December 9, 2022



# Preface

---

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

# Contents

---

<b>Preface</b> .....	2
<b>How Soil Surveys Are Made</b> .....	5
<b>Soil Map</b> .....	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Erie County, New York.....	13
Us—Urban land-Niagara complex.....	13
<b>Soil Information for All Uses</b> .....	15
Soil Properties and Qualities.....	15
Soil Qualities and Features.....	15
Depth to Bedrock.....	15
Water Features.....	19
Depth to Water Table.....	19
<b>References</b> .....	24

# How Soil Surveys Are Made

---

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

---

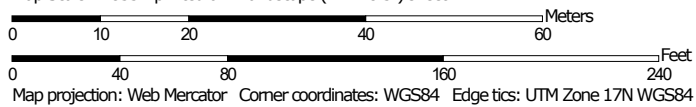
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:855 if printed on A landscape (11" x 8.5") sheet.



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



# Custom Soil Resource Report

## 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 22, Sep 10, 2022

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.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Us	Urban land-Niagara complex	1.6	100.0%
<b>Totals for Area of Interest</b>		<b>1.6</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

## Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Erie County, New York

### Us—Urban land-Niagara complex

#### Map Unit Setting

*National map unit symbol:* 9rqh  
*Elevation:* 560 to 670 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 50 degrees F  
*Frost-free period:* 115 to 195 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Urban land:* 60 percent  
*Niagara and similar soils:* 30 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Urban Land

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8s  
*Hydric soil rating:* Unranked

#### Description of Niagara

##### Setting

*Landform:* Lake plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Silty and clayey glaciolacustrine deposits

##### Typical profile

*H1 - 0 to 11 inches:* silt loam  
*H2 - 11 to 27 inches:* silt loam  
*H3 - 27 to 72 inches:* silt loam

##### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water supply, 0 to 60 inches:* High (about 10.3 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* C/D

## Custom Soil Resource Report

*Ecological site:* F101XY009NY - Moist Lake Plain

*Hydric soil rating:* No

### Minor Components

#### **Raynham**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### **Udorthents**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### **Canandaigua**

*Percent of map unit:* 2 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### **Swormville**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

# **Soil Information for All Uses**

---

## **Soil Properties and Qualities**

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

## **Soil Qualities and Features**

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

## **Depth to Bedrock**

The term bedrock in soil survey refers to a continuous root and water restrictive layer of rock that occurs within the soil profile.

There are many types of restrictions that can occur within the soil profile but this theme only includes the three restrictions that use the term bedrock. These are:

- 1) Lithic Bedrock
- 2) Paralithic Bedrock
- 3) Densic Bedrock

Lithic bedrock and paralithic bedrock are comprised of igneous, metamorphic, and sedimentary rocks, which are coherent and consolidated into rock through pressure, heat, cementation, or fusion. Lithic bedrock represents the hardest type of bedrock, with a hardness of strongly coherent to indurated. Paralithic bedrock has a hardness of extremely weakly coherent to moderately coherent. It can occur as a

## Custom Soil Resource Report

thin layer of weathered bedrock above harder lithic bedrock. Paralithic bedrock can also be much thicker, extending well below the soil profile.

Densic bedrock represents a unique kind of bedrock recognized within the soil survey. It is non-coherent and consolidated, dense root restrictive material, formed by pressure, heat, and dewatering of earth materials or sediments. Densic bedrock differs from densic materials, which formed under the compaction of glaciers, mudflows, and or human-caused compaction.

If more than one type of bedrock is described for an individual soil type, the depth to the shallowest one is given. If no bedrock is described in a map unit, it is represented by the "greater than 200" depth class.

Depth to bedrock is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

# Custom Soil Resource Report Map—Depth to Bedrock





## Custom Soil Resource Report








### MAP LEGEND

#### Area of Interest (AOI)



 Area of Interest (AOI)

#### Soils







##### Soil Rating Polygons


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

##### Soil Rating Lines


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

##### Soil Rating Points






-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200

 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.

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 22, Sep 10, 2022

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.

**Table—Depth to Bedrock**

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
Us	Urban land-Niagara complex	>200	1.6	100.0%
<b>Totals for Area of Interest</b>			<b>1.6</b>	<b>100.0%</b>

**Rating Options—Depth to Bedrock**

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Lower

*Interpret Nulls as Zero:* No

**Water Features**

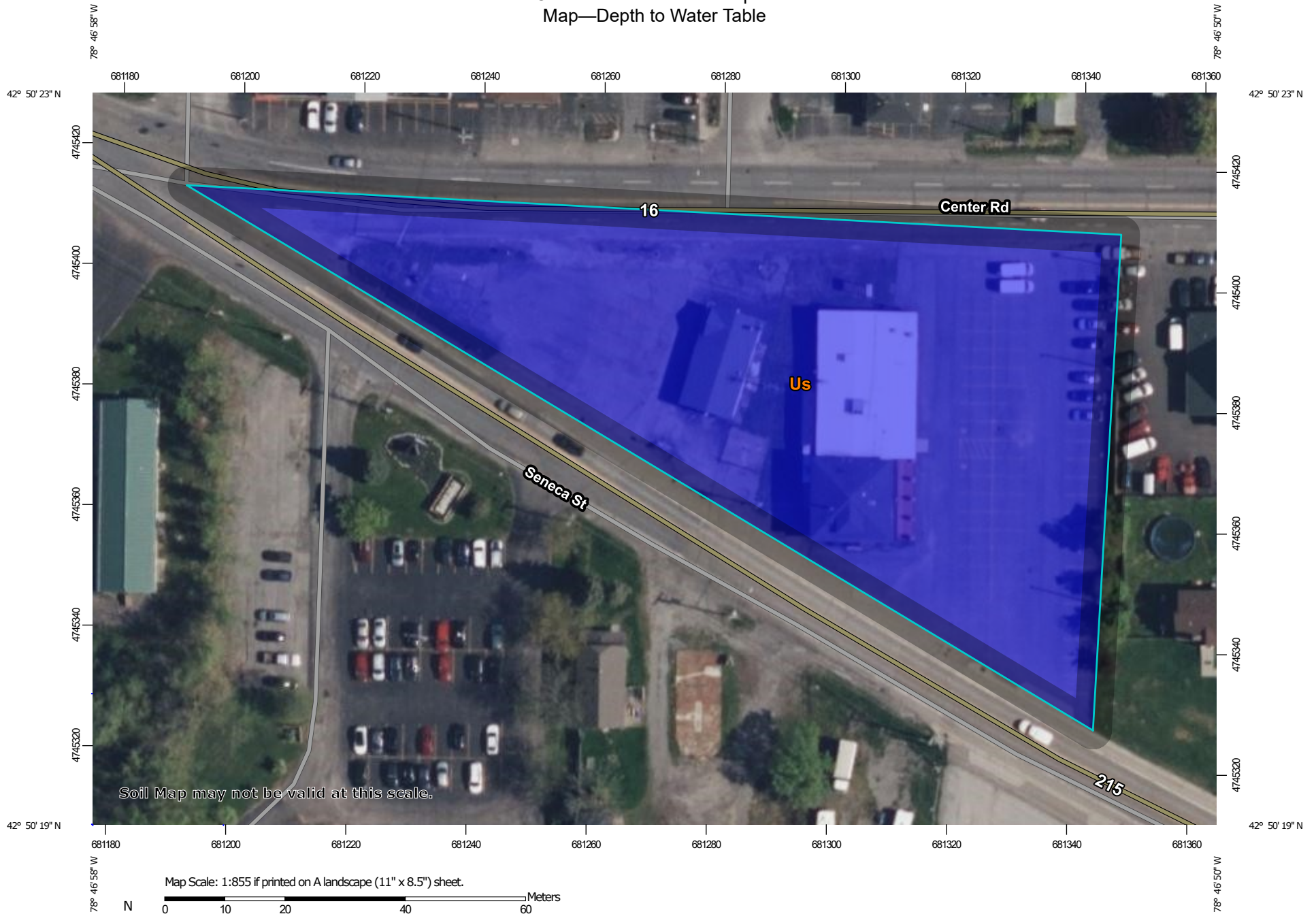
Water Features include ponding frequency, flooding frequency, and depth to water table.

**Depth to Water Table**

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

# Custom Soil Resource Report Map—Depth to Water Table



## Custom Soil Resource Report








### MAP LEGEND

#### Area of Interest (AOI)




 Area of Interest (AOI)

#### Soils







##### Soil Rating Polygons


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

##### Soil Rating Lines


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

##### Soil Rating Points






-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200

 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.

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 22, Sep 10, 2022

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.

**Table—Depth to Water Table**

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
Us	Urban land-Niagara complex	>200	1.6	100.0%
<b>Totals for Area of Interest</b>			<b>1.6</b>	<b>100.0%</b>

## **Rating Options—Depth to Water Table**

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Lower

*Interpret Nulls as Zero:* No

*Beginning Month:* January

*Ending Month:* December

# References

---

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_054262](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262)
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053577](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577)
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053580](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580)
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053374](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374)
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelpdb1043084>

## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)



***Exhibit 12: SWPPP Amendments***