

# Baltimore Ridge Subdivision

## *Stormwater Pollution Prevention Plan*

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*Village of Marcellus, New York*

*Prepared for:*

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*Prepared by:*



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*CHA Project Number: 067298*

*May 2021*

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## Project Information:

### Project Name and Location

Baltimore Ridge Subdivision  
 Baker Road & Dunlap Avenue  
 Village of Marcellus  
 Onondaga County, New York 13108

### Owner Name and Address

Camex Realty, LLC  
 605 West Genesee Street  
 Syracuse, New York 13204

## Project Description:

### Purpose and Extent of Proposed Development

The proposed 23 lot residential subdivision is located in the Village of Marcellus, Onondaga County, New York just south of Dunlap Avenue and Baker Road (see Figure 1 – Location Plan). The project site encompasses approximately 19.98 acres and is generally bounded by residential lands to the north and east, and vacant/wooded area to the south and west.

This SWPPP covers all site development scheduled to be completed by 2025. More specifically, site development includes the construction of 23 residential lots which requires the extension of Dunlap Avenue and Baker Road as well as a new road/cul de sac off South Street Road. All associated utilities (gas, electric, telephone/cable, water and sanitary sewer) will be installed as well as stormwater treatment/management facilities. The project disturbs more than 1 acre of land, therefore, NYSDEC SPDES permit coverage is necessary.

### Project Disturbance Area

Total Disturbed Area:	±12.3 acres (Initial road construction – 4.9 acres)
Proposed Total Impervious Area:	±4.14 acres (Estimated based on TR-55 lot size averages)

### Description and Limitations of On-Site Soils

The soil disturbance for the proposed work is limited to 12.3± acres within the property boundary. According to the USDA Soil Survey of Onondaga County, New York, the area of disturbance consists of Cazenovia silt loam (CfC), Cazenovia soils (CgD), Howard gravelly fine sandy loam (HwB, HwC), Palmyra and Howard soils (PHD) and Schoharie silt loam (ScB) (see Figure 2 – Existing Conditions).

Detailed information for these soil types is located in Appendix A. A summary of the soil composition is shown in Table 1.

The Natural Resource Conservation Service (NRCS, formerly known as the SCS), as part of their soil classification system, assigns each soil series to a Hydrologic Soil Group (HSG). The HSG is a four-letter index intended to indicate the minimum rate of infiltration obtained after prolonged wetting, and to indicate the relative potential for a soil type to generate runoff. The infiltration rate is the rate at which water enters the soil at the soil surface. The HSG also indicates the transmission rate – the rate at which water moves within the soil. Soil scientists define the four groups as follows:

- HSG ‘A’ (sand, loamy sand, or sandy loam): Soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission (> than 0.30 inches/hour).
- HSG ‘B’ (silt loam or loam): Soils have moderate infiltration rates when thoroughly wetted, and consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to fine texture. These soils have a moderate rate of water transmission (0.15 to 0.30 inches/hour).
- HSG ‘C’ (sandy clay loam): Soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water, and soils with moderately fine to fine texture. These soils have a low rate of water transmission (0.05 to 0.15 inches/hour).
- HSG ‘D’ (clay loam, silty clay loam, sandy clay, silty clay, or clay): Soils have high runoff potential. They have very low infiltration rates when thoroughly wetted, and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission (< 0.05 inches/hour).
- If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in Group D are assigned to dual classes.

**Table 1**  
**Soil Analysis Summary**

Soil Name	Hydrologic Soil Group
CfC – Cazenovia, 8 to 15% slopes	C
CgD – Cazenovia, 15 to 25% slopes	C
HwB – Howard, 3 to 8% slopes	A
HwC – Howard, rolling	A
PHD – Palmyra and Howard, hilly	A
ScB – Schoharie, 2 to 6% slopes	D

### Historic Places

The proposed project will have no impacts, whether stormwater discharge or construction activities, on a property that is listed or eligible for listing on the State or National Register of Historic Places in Onondaga County, New York. This determination was confirmed based on correspondence dated March 2, 2021 from the NYS Office of Parks, Recreation and Historic Preservation (see Appendix B).

## Sequence of Major Activities:

This SWPPP presents erosion and sediment controls, both temporary and permanent, to assist the operator in compliance with the project's SPDES General Permit for construction activity. To the degree practicable, all temporary erosion and sediment control mitigation measures shall be installed immediately before associated project areas are disturbed in anticipation of all soil disturbing activities to follow. Based upon NYS DEC regulations, 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 landuse control MS4, the MS4 (provided the 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:

1. The owner or operator shall have a qualified inspector conduct at least two (2) site inspections in accordance with Part IV.C. every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. When performing just two (2) inspections every seven (7) calendar days, the inspections shall be separated by a minimum of two (2) full calendar days.
2. In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York Standards and Specifications for Erosion and Sediment Control.
3. The owner or operator shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
4. The owner or operator shall install any additional site-specific practices needed to protect water quality.
5. The owner or operator shall include the requirements above in their SWPPP.

It is the responsibility of the Contractor to ensure that all soils removed from the project site are spoiled in a manner consistent with all local, state, and federal regulations. Appropriate erosion and sediment controls shall be installed at all spoil sites. Additionally, the Contractor is responsible for coordinating the application for a GP-0-20-001 permit (and development of an associated SWPPP) if disturbance associated with any soil spoils area is greater than 0.4 hectares (1 acre). GP-0-20-001 applications must be signed by the owner of the lands on which soils are spoiled. Disturbances associated with offsite spoil areas do not contribute to the total disturbances associated with onsite activities.

It is not anticipated that 5 acres will be disturbed at one time for this project. See attached erosion and sediment control plans for specific construction sequencing information.

### Name of Receiving Waters

Stormwater runoff from the property drains to Ninemile Creek (Class C, Standards C) and eventually to Onondaga Lake. Therefore, the property is located within the Onondaga Lake TMDL watershed.

## Controls:

### Timing of Controls/Measures

The erosion and sediment control measures shall be constructed prior to clearing or grading of any portion of the project. Where land disturbance is necessary, temporary seeding or mulching must be used on areas which will be exposed for more than 7 days. Permanent stabilization should be performed as soon as possible after completion of grading. After the entire project area is stabilized, the accumulated sediment shall be removed from the project area. Erosion control devices shall remain in place until disturbed areas are permanently stabilized. For projects where soil disturbance is greater than five (5) acres, and construction activity has temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York Standards and Specifications for Erosion and Sediment Control.

### Erosion and Sediment Controls / Stabilization Practice

#### *Temporary Stabilization*

Topsoil stockpiles, staging areas and disturbed pervious portions of the project area where construction activity temporarily ceases for at least 7 days shall be stabilized with temporary seed and mulch no later than 7 days from the last construction activity in that area.

Temporary seed shall be ryegrass applied at the rates specified below:

- If seeding in spring, summer or early fall then seed with annual or perennial rye at a rate of 30 lbs per acre. If area is to remain stabilized over the winter into the following spring use perennial rye only.
- If seeding in late fall or early winter, use certified Aroostook winter rye (cereal rye) at a rate of 90 lbs per acre.

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. Area must be free of large rocks and debris and seeded within 24 hours of disturbance or scarification of the soil surface will be necessary prior to seeding. Fertilizer or lime is not typically used for temporary plantings.

Mulch shall be applied in conjunction with seeding and applied at the rate of 90 lbs per 1000 square feet. Mulch shall be reapplied as necessary. Areas of the project area, which are to be paved, shall be temporarily stabilized by applying temporary gravel subbase until pavement can be applied.

Proposed grades which will have slopes steeper than 3:1 shall be stabilized with erosion control fabric.

Temporary diversion swales shall be installed on site as necessary to provide positive drainage. The diversion swales are designed to divert runoff around active construction areas to a point of discharge.

Temporary sediment traps/basins shall be constructed per Blue Book guidelines as necessary.

Sediment control fencing shall be installed around the site where depicted on the attached plan. Additional silt fence may need to be installed to protect adjacent undisturbed areas from sediment transport.

Prior to commencing any earthwork, a stabilized construction entrance shall be installed as indicated on the attached plan. This entrance shall be utilized as the exclusive construction entrance and exit to the construction areas. Construction traffic shall be limited to the construction entrance.

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### ***Permanent Stabilization***

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Disturbed portions of the project area where construction activities permanently cease shall be stabilized with permanent seed no later than 7 days after the last construction activity. The permanent seed mix shall be in accordance with the project specifications and plans. Construction and maintenance of erosion and siltation control measures are in accordance with the New York Standards and Specifications for Erosion and Sediment Control.

Where construction activity is complete over areas to be permanently vegetated, stabilize with permanent seeding. Verify seeding dates with engineer. If engineer determines that seed cannot be applied due to climate, topsoil shall not be spread and mulching shall be applied to the exposed surface to stabilize soils until the next recommended seeding period. Other project areas shall be permanently stabilized with pavement, concrete, gravel or building structures.

### ***Soil Restoration***

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According to the New York State Stormwater Management Design Manual (NYSSMDM), Soil Restoration is a required practice applied across areas of a development site where soils have been disturbed and will be vegetated in order to recover the original properties and porosity of the soil. A deep, well-drained soil, rich in organic matter, absorbs rainwater, helps prevent flooding and soil erosion, filters out water pollutants, and promotes vigorous plant growth that requires less irrigation, pesticides and fertilizer.

Due to the soil types onsite, Full Soil Restoration is required in any area where existing impervious surface will be converted to pervious area. As outlined in the NYSSMDM, during periods of relatively low to moderate subsoil moisture, the disturbed subsoils are returned to rough grade and the following Soil Restoration steps are applied:

1. Apply 3 inches of compost over subsoil
2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor-mounted disc, or tiller, mixing, and circulating air and compost into subsoils
3. Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site
4. Apply topsoil to a depth of 6 inches
5. Vegetate as required by approved plan

See Chapter 5 Section 5.1.6 of the NYSSMDM for additional requirements.

### **Winter Operations**

If construction activities proceed through the winter season, access points should be enlarged and stabilized to provide for snow stockpiling. Drainage structures should be kept open and free of potential snow and ice dams. Inspection and maintenance are necessary to ensure the function of these practices during runoff events. For sites where construction activities temporarily cease, temporary and/or permanent soil stabilization measures shall be installed within seven (7) days from the date the soil disturbing activity ceased. Disturbed areas should be stabilized with seed and mulch, or other approved methods, even if the ground is covered by significant amounts of snow.

### ***Winter Shutdown***

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Site inspections (by the qualified inspector) may be decreased to a minimum of one (1) time every thirty (30) days for sites where soil disturbing activities have ceased and at least 80% of the site has been stabilized with an approved method. Inlet protection should be installed and/or repaired before shutdown of the site. The owner or operator shall provide written notification to the respective DEC regional office prior to reducing the frequency of any site inspections.

## Other Controls

### *Waste Disposal*

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**Waste materials** – Foreign waste materials shall be collected and stored in a secured area until removal and disposal by a licensed solid waste management company. All trash and construction debris from the project area shall be disposed of in a portable container unit. No foreign waste materials shall be buried within the project area. All personnel shall be instructed regarding the correct procedure for waste disposal. Notices stating these practices shall be posted in the project trailer and the individual who manages day-to-day project operations will be responsible for seeing that these procedures are followed.

**Petroleum Impacted Waste** – During the excavation activities, there is the potential that petroleum impacted soils may be encountered. In the event that field evidence of contamination is identified during the project, potentially contaminated soils will be segregated and stockpiled on polyethylene sheeting and covered in a predetermined staging area. The potentially impacted, stockpiled soils will then be sampled to determine if the soils are suitable for use as clean backfill. In the event that the soils are not suitable for re-use, the contaminated soil will be properly characterized and disposed of at an off-site NYSDEC permitted facility. The excavation will then be backfilled with clean, imported fill.

**Hazardous Waste** - All hazardous waste materials shall be disposed of in a manner specified by local or state regulations or by the manufacturer. Project personnel shall be instructed in these practices and the individual who manages day-to-day project operations shall be responsible for seeing that these practices are followed.

**Sanitary Waste** - Any sanitary waste from portable units shall be collected from the portable units by a licensed sanitary waste management contractor, as required by NYS DEC regulations.

### *Sediment Tracking by Vehicles*

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A stabilized construction entrance shall be installed (where depicted on attached plan) and maintained as necessary to help reduce vehicular tracking of sediment. The entrance shall be cleaned of sediment and redressed when voids in the crushed stone become filled and vehicular tracking of sediment is occurring. Dump trucks hauling materials to and from the construction project area shall be covered with a tarpaulin to reduce dust. Any sediment and debris tracked from work area along project adjacent roadways shall be immediately removed with a street sweeper or equivalent sweeping method. Further, sweeping of streets adjacent to disturbed areas shall be performed prior to the end of each work day (at a minimum) when tracking of sediment is occurring.

### *Non-Stormwater Discharges*

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Non-stormwater discharges are not expected to exit the project area during construction.

## Certification of Compliance with Federal, State, and Local Regulations

The stormwater pollution prevention plan reflects the New York State requirements for stormwater management and erosion and sediment control. To ensure compliance, this plan was prepared in accordance with New York State Standards. There are no other applicable State or Federal requirements for sediment and erosion plans (or permits), or stormwater management plans (or permits).

## Post-Construction Stormwater Management

### Design Criteria

The proposed project has been designed in accordance with the New York State Stormwater Management Design Manual (January 2015) and the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (GP-0-20-001). CHA proposes to utilize the unified approach for sizing stormwater management practices to reduce channel erosion, prevent overbank flooding, and help control extreme floods.

In order to evaluate the potential impacts associated with the development of the site, existing and proposed condition hydrographs were generated using a Type II rainfall distribution. Rainfall amounts were referenced from the Northeast Regional Climate Center. The 24-hour rainfall amounts for the 1, 10, and 100-year design storms for the project site are 1.99, 3.31, and 5.53 inches respectively.

Runoff curve numbers and times of concentration were computed using standard NRCS TR-55 methodology. Additionally, peak stormwater flows and hydrographs for the existing and proposed conditions were computed using the Hydraflow Hydrographs Extension for AutoCAD Civil 3D 2019 hydrology program by Autodesk, Inc.

### Existing Conditions

The site was broken into three subareas for existing conditions (EXDA-1, EXDA-2 and EXDA-3) as shown in Figure 2 – Existing Conditions. EXDA-1 consists of wooded area and is approximately 13.64 acres in size. Runoff from this area drains toward the south easterly corner of the site and discharges to the roadside ditch. The ditch drains to the south approximately 330' before discharging to an unnamed tributary of Ninemile Creek.

EXDA-2 is approximately 4.17 acres and is comprised mainly of wooded area as well as one residential property. Runoff generally drains east and to the north east corner of the site eventually draining to a closed storm sewer system on South Street Road. This system ultimately discharges to Ninemile Creek.

EXDA-3 is comprised of wooded area and is approximately 6.34 acres in size. Runoff from this area drains south to an unnamed tributary to Ninemile Creek as in EXDA-1.

For detailed hydrologic analyses output for the existing conditions see Appendix C. For a summary of the existing conditions hydrologic analysis see Table 2 below.

**Table 2 - Existing Conditions Analysis Summary**

Drainage Area	Area (ac)	T <sub>c</sub> (min)	Curve Number	Peak Flow Rate (cfs)		
				1-yr	10-yr	100-yr
EXDA-1	13.64	22.4	48	0.00	0.20	7.33
EXDA-2	4.17	16.6	64	0.12	1.98	7.83
EXDA-3	6.34	18.1	31	0.00	0.00	0.04
Total	22.08	--	--	0.12	2.01	14.86

## Proposed Conditions

The proposed project site was also broken into five subareas (PRPDA-1A, PRPDA-1B, PRPDA-1C, PRPDA-2 and PRPDA-3) as shown in Figure 3 – Proposed Conditions. PRPDA-1A is approximately 14.68 acres in size and contains the majority of the proposed subdivision, a portion of an existing residential property, and wooded area to the south. Runoff from this area will be captured via open channels and closed storm sewer which will be directed to an infiltration basin located in the southeasterly corner of the property. The basin will discharge to the roadside ditch as in existing conditions.

PRPDA-1B is approximately 1.07 acres in size and consists of a small portion of the proposed roadway and the majority of the infiltration basin. Runoff from this area drains directly to the basin.

PRPDA-1C is approximately 1.20 acres in size and consists of undisturbed wooded area and a small portion of the proposed roadway. Due to topography, this area is undetained and drains directly to the roadside ditch.

PRPDA-2 is approximately 0.36 acre in size, is undisturbed and consists of a portion of an existing residential property. Runoff will discharge offsite to the northeast as in existing conditions.

PRPDA-3 is approximately 6.33 acres in size and mainly consists of the undeveloped portion of Lot 22 as well as a small portion of Lot 21. The majority of this area remains wooded for calculation purposes. Runoff will continue to drain south to the unnamed tributary to Ninemile Creek as in existing conditions.

For detailed hydrologic analyses output for the proposed conditions see Appendix C. For a summary of the proposed conditions hydrologic analysis see Table 3 below.

**Table 3 - Proposed Conditions Analysis Summary**

Drainage Area	Area (ac)	T <sub>c</sub> (min)	Curve Number	Peak Flow Rate (cfs)		
				1-yr	10-yr	100-yr
PRPDA-1A	14.68	13.1	69	2.18	13.88	42.99
PRPDA-1B	1.07	8.8	45	0.00	0.01	0.48
PRPDA-1C	1.20	14.9	42	0.00	0.00	0.29
PRPDA-2	0.36	10.0	46	0.00	0.00	0.19
PRPDA-3	6.33	18.1	31	0.00	0.00	0.04
Total	21.78	--	--	2.18	13.88	43.75

As can be seen in the above table, peak flows increase after development. According to NYSDEC regulations, peak flows must be mitigated to existing conditions rates. Therefore, an infiltration basin is proposed to mitigate this increase as discussed further in the “Peak Flow Attenuation” section below.

## Water Quality

Water quality treatment will be designed to capture and treat the estimated runoff volume resulting from the 1-year, 24-hour design storm over the post development watershed as required in Chapter 10 of the New York State Stormwater Management Design Manual due to the site’s location within the Onondaga Lake Watershed.

Treatment practices need to be capable of 80% Total Suspended Solids (TSS) removal and 40% Total Phosphorous (TP) removal, have an accepted longevity in the field and have a pretreatment mechanism.

As shown in Appendix C, the runoff volume generated for the 1-year storm event amounts to 0.244 acft. The proposed forebay is sized to handle 100% of the required water quality volume based on infiltration rate requirements. In addition, the infiltration basin infiltrates the entire 1-year storm event, therefore, water quality volume requirements are met. PRPDA-1B is not tributary to the proposed forebay, therefore, a hydrodynamic separator will provide the required pretreatment for this area.

### **Runoff Reduction**

The goal of runoff reduction is to provide infiltration, groundwater recharge, reuse, recycle evaporation/evapotranspiration of 100 percent of the post-development water quality volumes to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow by using runoff control techniques to provide treatment in a distributed manner before runoff reaches the collection system. This requirement can be accomplished by application of on-site green infrastructure techniques, standard stormwater management practices with runoff reduction capacity, and good operation and maintenance. Runoff reduction can be achieved by three methods: reduction of contributing drainage area, reduction of runoff volume through practice storage, and using standard stormwater practices with runoff reduction capacity.

As shown in Appendix C, the 1-year storm event is completely infiltrated for PRPDA-1A and PRPDA-1B. No runoff is produced for all other drainage areas, therefore, runoff reduction requirements are met.

### **Peak Flow Attenuation**

Hydrographs were developed for the post-mitigated conditions which include routing runoff through the proposed infiltration basin. Runoff discharging from the proposed basin will be controlled with an outlet structure to limit peak flow rates prior to discharging to the roadside ditch. The basin is located within HSG A soils, therefore, an infiltration rate of 5.0 inches per hour was assumed for calculation purposes. The pretreatment forebay is sized to accommodate 100% of the water quality volume based on this assumed infiltration rate. Testing per Appendix D of the NYSSMDM will be performed prior to construction to verify rates.

A comparison of the results of the existing condition and mitigated proposed condition hydrologic analysis is shown in the following table and detailed computations are included in Appendix C.

**Table 4 – Existing Condition and Mitigated Post-Development Peak Flow Comparison**

Drainage Area	Peak Flow Rate (cfs)								
	1-Year Storm			10-Year Storm			100-Year Storm		
	Existing	Proposed	Δ	Existing	Proposed	Δ	Existing	Proposed	Δ
DA-1	0.00	0.00	--	0.20	0.01	-0.19	7.33	4.32	-3.01
DA-2	0.12	0.00	-0.12	1.98	0.00	-1.98	7.83	0.19	-7.64
DA-3	0.00	0.00	--	0.00	0.00	--	0.04	0.04	--
Total	0.12	0.00	-0.12	2.01	0.01	-2.00	14.86	4.38	-10.48

As can be seen in the above table, proposed condition mitigated peak flow rates are below existing peak flow rates as required.

### ***Floodplains***

The project site is not located within a floodplain, therefore, floodplain impacts are not applicable.

## **Maintenance/Inspection Procedures:**

### **Erosion and Sediment Control Inspection and Maintenance Practices**

These are the minimum required inspection and maintenance practices that shall be used to maintain erosion and sediment controls:

#### ***Owner/Operator Inspection Requirements***

- Prior to construction activity the owner/operator shall have contractors and sub-contractors identify a trained individual responsible for the implementation of the SWPPP. The trained individual must be on-site on a daily basis when soil disturbing activities are occurring.
- The owner/operator shall inspect the erosion and sediment control measures as identified in the SWPPP to ensure that they are being maintained in effective operating conditions at all times. Where soil disturbing activities temporarily cease (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the owner/operator can stop conducting inspections. The owner/operator shall resume inspections when soil disturbing activities begin again.
- Where soil disturbing activities have ceased with partial project completion, the owner/operator can stop conducting inspections when disturbed areas have reached final stabilization. All post construction stormwater management practices required for the completed areas shall have been constructed in conformance with the SWPPP and be fully operational. 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.
- The owner/operator shall notify the DEC Regional Office's stormwater contact person prior to any reduction in the frequency of site inspections.
- The owner/operator shall retain copies of the NOI, NOI acknowledgment letter, SWPPP, MS4 SWPPP acceptance forms and any inspection reports submitted in conjunction with this permit and records or all data used to complete the NOI to be covered by this permit for a period of at least five (5) years from the date that the site is finally stabilized.

#### ***Qualified Inspector Inspection Requirements***

- The qualified inspector is defined as 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), licensed Landscape Architect, or other Department endorsed individual(s). It may also mean someone working under the direct supervision of the licensed Professional Engineer or licensed 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 the person has received four (4) hours of training endorsed by the Department and shall receive four (4) hours of training every three (3) years after the initial training.
- A site inspection shall be conducted at least twice every seven (7) days by the qualified inspector when soil disturbing activities are occurring due to the site's location within the Onondaga Lake TMDL Watershed. A copy of the "Construction Duration Inspection Form" is included in the "inspection forms" section of this plan.

- All measures shall be maintained in good working order; if any repairs or corrective actions are necessary, it is the responsibility of the qualified inspector to notify the owner/operator and appropriate contractor within one business day. The contractor shall begin implementing the corrective action within one business day of being notified.
- During construction activities where soil disturbances exceed the five (5) acre maximum, and the owner/operator has received prior authorization, the qualified inspector shall conduct at least two (2) site inspections every seven (7) calendar days. Inspections shall be separated by a minimum of two (2) full calendar days.
- All inspection forms must be signed by a qualified inspector.
- For construction sites where soil disturbing activities are temporarily suspended, temporary stabilization measures shall be applied and the qualified inspector shall conduct a site inspection at least once every thirty (30) calendar days.
- Where soil disturbing activities have ceased with partial project completion the qualified inspector can stop conducting inspections when disturbed areas have reached final stabilization and all post construction stormwater management practices required for the completed areas have been constructed in conformance with the SWPPP and are fully operational.
- Where soil disturbing activities are not resumed within two (2) years, from the date of shut down of partial project completion, the qualified inspector shall perform a final inspection and certify that all disturbed areas have achieved final stabilization, all temporary and permanent erosion control measures have been removed, and post-construction stormwater management practices have been constructed in conformance with the SWPPP. Qualified inspector shall sign the “Final Stabilization” and “Post-Construction Stormwater Management Practice” certification statements on the Notice of Termination (NOT).

### ***General Requirements***

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- A copy of the SPDES General Permit (GP-0-20-001), the signed Notice of Intent (NOI), NOI acknowledgement letter, SWPPP, MS4 SWPPP Acceptance Forms, and inspection reports shall be maintained onsite until the site has achieved final stabilization.
- Built up sediment shall be removed from any silt fence when it has reached one-third the height of the fence / dike.
- Sediment fencing and wetland protection barrier shall be inspected for depth of sediment, and tears, to see if fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- The construction entrances shall be cleaned of sediment and redressed when voids in the crushed stone become filled and vehicular tracking of sediment is occurring.
- Dust shall be controlled on access points and other disturbed areas subject to surface dust movement and blowing.
- Stabilization fabric and check dams shall be inspected to ensure that slopes and swales are not being eroded. Fabric shall be replaced / reinstalled and check dams added as necessary to prevent any such erosion.
- Inspection of diversion swales shall be conducted to check condition of swale.
- Temporary sediment basins shall be inspected to check condition of basin. They shall be cleaned immediately once accumulated sediment reaches a depth of 1/3 the depth of the basin.
- Inspection must verify that all practices are adequately operational, maintained properly and that sediment is removed from all control structures.
- Inspection must look for evidence of soil erosion on the site, potential of pollutants entering drainage systems, problems at the discharge points, and signs of soil and mud transport from the site to the public road.

### **Post-Construction Stormwater Inspection and Maintenance Practices**

An easement will be granted to the Village of Marcellus for maintenance of the proposed stormwater treatment/management facilities. Long-term inspection forms (included in Appendix F of this plan) are referenced from Appendix G of the New York State Stormwater Management Design Manual.

## Inventory for Pollution Prevention Plan:

The materials or substances listed below are expected to be within the project area during construction:

- Portland cement concrete.
- Fertilizers / seeding materials.
- Stone.
- Bituminous asphalt.
- Petroleum based products.
- Silt fence fabric.
- Lumber.
- Pavement marking paint.
- HDPE pipe, PVC pipe, and CMP.
- Bonded fiber matrix material.
- HDPE Geomembrane material.

## Spill Prevention:

The following are the material management practices that shall be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

### Good Housekeeping

The following good housekeeping practices shall be followed within project areas during construction:

- An effort shall be made to store only enough products required to do the job.
- All materials stored within project areas shall be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products shall be kept in their original containers with the original manufacturer's label.
- Substances shall not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product shall be used up before disposing of the container.
- Manufacturers' recommendations for proper use and disposal shall be followed.
- The project superintendent shall inspect daily to ensure proper use and disposal of materials.

### Hazardous Products

These practices are used to reduce the risks associated with hazardous materials:

- Products shall be kept in original containers unless they are not resealable.
- Original labels and material safety data shall be retained.
- If surplus product must be disposed of, manufacturers' or local and state recommended methods of proper disposal shall be followed.
- Material Safety Data Sheets for all hazardous products shall be within the project area for the duration of construction.

## **Product Specific Practices**

The following product-specific practices shall be followed within the project areas:

### ***Petroleum Products***

All project related vehicles shall be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used during construction shall be applied according to the manufacturer's recommendations.

### ***Fertilizers***

Fertilizers used shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to stormwater. Fertilizers shall be stored in a covered or other contained area.

### ***Paints***

All containers shall be tightly sealed and stored when not required for use. Excess paint shall not be discharged to the storm sewer system but shall be properly disposed of according to manufacturer's instructions or State regulations.

### ***Concrete Trucks***

Concrete trucks shall be allowed to wash out within project areas provided that the contractor provides an area which collects and contains any concrete / slurry material washed from trucks (concrete washout) for recovery and disposal at a later time. No concrete / slurry shall be discharged from the property at any time of construction. If such washing is anticipated, the contractor shall submit a plan detailing the control of concrete / slurry to the engineer for approval.

### ***Watercourse Protection***

Construction operations shall be conducted in such a manner as to prevent damage to watercourses from pollution of debris, sediment, or other foreign material, or from manipulation, from equipment and/or materials in or near the watercourse. The contractor shall not return directly to the watercourse any water used for wash purposes or other similar operations which may cause the water to become polluted with sand, silt, cement, oil or other impurities. If the contractor uses water from the water course, the contractor shall construct an intake or temporary dam to protect and maintain watercourse water quality.

## **Spill Control Practices**

The contractor will be responsible for preparing a project area specific spill control plan in accordance with local and NYS DEC regulations. At a minimum this plan should:

- Reduce stormwater contact if there is a spill.
- Contain the spill.
- Stop the source of the spill.
- Dispose of contaminated material in accordance with manufactures procedures, and NYS DEC regulations.
- Identify responsible and trained personnel.
- Ensure spill area is well ventilated.

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## Updating the SWPPP:

The SWPPP shall be updated/revised as conditions merit or as directed by the regulating authority. The attached inspection forms included with this document allows for the certification of any updates/revisions.

## SWPPP Certification:

### Contracting Firm Information:

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*Contracting Firm*

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*Address*

---

*City/Town*

*State*

*Zip*

### Site Location:

Dunlap Avenue and Baker Road  
Village of Marcellus  
Onondaga County, New York

***Contractor's Certification***

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.

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*Signature (Contractor/Subcontractor)*

---

*Date*

---

*For*

---

*Responsible For*

---

*Signature (Trained Contractor)*

---

*Date*

---

*For*

---

*Responsible For*

---

*Signature (Contractor/Subcontractor)*

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*Date*

---

*For*

---

*Responsible For*

---

*Signature (Trained Contractor)*

---

*Date*

---

*For*

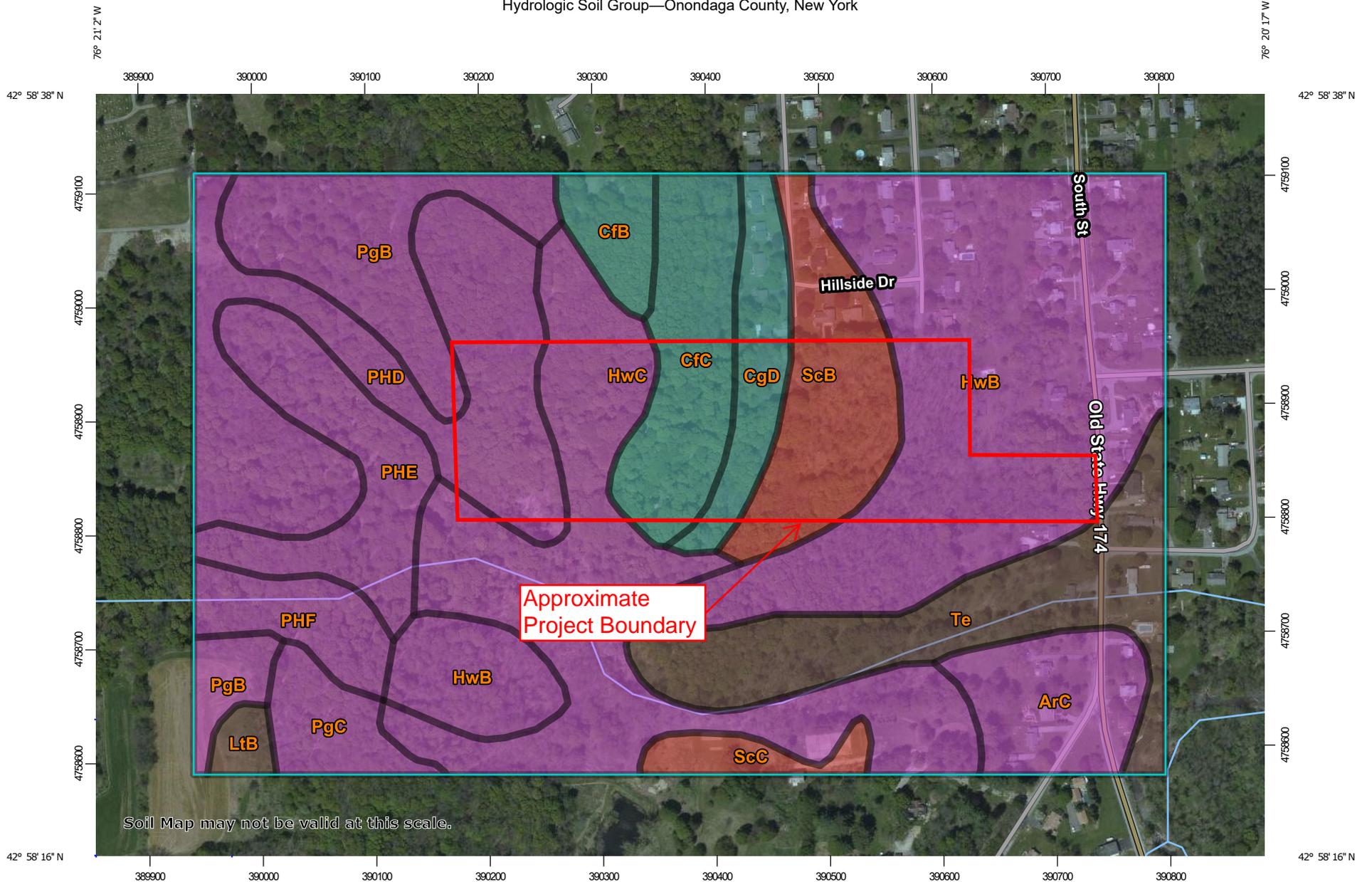
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*Responsible For*

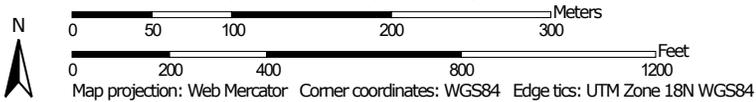
# ***APPENDIX A***

## ***Soils Information***

Hydrologic Soil Group—Onondaga County, New York



Map Scale: 1:4,710 if printed on A landscape (11" x 8.5") sheet.



## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons

 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Lines

 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Points

 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available

### Water Features

 Streams and Canals

### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Onondaga County, New York  
 Survey Area Data: Version 15, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 21, 2020—Jun 17, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
ArC	Arkport very fine sandy loam, rolling	A	4.6	4.1%
CfB	Cazenovia silt loam, 2 to 8 percent slopes	C	2.0	1.8%
CfC	Cazenovia silt loam, 8 to 15 percent slopes	C	6.1	5.5%
CgD	Cazenovia soils, 15 to 25 percent slopes	C	3.4	3.1%
HwB	Howard gravelly fine sandy loam, 3 to 8 percent slopes	A	27.1	24.1%
HwC	Howard gravelly fine sandy loam, rolling	A	17.4	15.5%
LtB	Lima silt loam, 3 to 8 percent slopes	B/D	0.8	0.7%
PgB	Palmyra gravelly loam, 3 to 8 percent slopes	A	8.0	7.2%
PgC	Palmyra gravelly loam, rolling	A	2.5	2.2%
PHD	Palmyra and Howard soils, hilly	A	13.4	11.9%
PHE	Palmyra and Howard soils, steep	A	6.3	5.6%
PHF	Palmyra and Howard soils, very steep	A	2.9	2.6%
ScB	Schoharie silt loam, 2 to 6 percent slopes	D	6.6	5.8%
ScC	Schoharie silt loam, 8 to 15 percent slopes	D	1.5	1.3%
Te	Teel silt loam	B/D	9.8	8.7%
<b>Totals for Area of Interest</b>			<b>112.2</b>	<b>100.0%</b>

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

## Onondaga County, New York

### CfC—Cazenovia silt loam, 8 to 15 percent slopes

#### Map Unit Setting

*National map unit symbol:* 9vg6

*Elevation:* 380 to 1,480 feet

*Mean annual precipitation:* 38 to 42 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 110 to 190 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Cazenovia and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Cazenovia

##### Setting

*Landform:* Reworked lake plains, till plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Concave

*Across-slope shape:* Convex

*Parent material:* Loamy till that contains limestone with an admixture of reddish lake-laid clays or reddish clay shale

##### Typical profile

*H1 - 0 to 12 inches:* silt loam

*H2 - 12 to 36 inches:* silty clay loam

*H3 - 36 to 60 inches:* gravelly silty clay loam

##### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 24 to 48 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water capacity:* Moderate (about 8.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Ecological site:* F101XY013NY - Moist Till

*Hydric soil rating:* No

### **Minor Components**

#### **Schoharie**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Unnamed soils**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Ovid**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Onondaga County, New York

Survey Area Data: Version 15, Jun 11, 2020

## Onondaga County, New York

### CgD—Cazenovia soils, 15 to 25 percent slopes

#### Map Unit Setting

*National map unit symbol:* 9vg8

*Elevation:* 390 to 1,670 feet

*Mean annual precipitation:* 38 to 42 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 110 to 190 days

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Cazenovia and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Cazenovia

##### Setting

*Landform:* Reworked lake plains, till plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Concave

*Across-slope shape:* Convex

*Parent material:* Loamy till that contains limestone with an admixture of reddish lake-laid clays or reddish clay shale

##### Typical profile

*H1 - 0 to 12 inches:* silt loam

*H2 - 12 to 36 inches:* silty clay loam

*H3 - 36 to 60 inches:* gravelly silty clay loam

##### Properties and qualities

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 24 to 48 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water capacity:* Moderate (about 8.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* C

*Ecological site:* F101XY013NY - Moist Till

*Hydric soil rating:* No

### **Minor Components**

#### **Ovid**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Ontario**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Honeoye**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Schoharie**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

## **Data Source Information**

Soil Survey Area: Onondaga County, New York

Survey Area Data: Version 15, Jun 11, 2020

## Onondaga County, New York

### HwB—Howard gravelly fine sandy loam, 3 to 8 percent slopes

#### Map Unit Setting

*National map unit symbol:* 9vh9

*Elevation:* 380 to 1,340 feet

*Mean annual precipitation:* 38 to 42 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 110 to 190 days

*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Howard and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Howard

##### Setting

*Landform:* Valley trains, terraces

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, containing significant amounts of limestone

##### Typical profile

*H1 - 0 to 13 inches:* gravelly fine sandy loam

*H2 - 13 to 16 inches:* gravelly fine sandy loam

*H3 - 16 to 36 inches:* very gravelly sandy loam

*C - 36 to 180 inches:* stratified very gravelly sand to fine sand

##### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.57 to 5.95 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Available water capacity:* Low (about 4.3 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2s

*Hydrologic Soil Group: A*  
*Hydric soil rating: No*

**Minor Components**

**Palmyra**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Arkport**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Unnamed soils**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Phelps**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Data Source Information**

Soil Survey Area: Onondaga County, New York  
Survey Area Data: Version 15, Jun 11, 2020

## Onondaga County, New York

### HwC—Howard gravelly fine sandy loam, rolling

#### Map Unit Setting

*National map unit symbol:* 9vhb

*Elevation:* 390 to 1,260 feet

*Mean annual precipitation:* 38 to 42 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 110 to 190 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Howard, rolling, and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Howard, Rolling

##### Setting

*Landform:* Valley trains, terraces

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, containing significant amounts of limestone

##### Typical profile

*H1 - 0 to 13 inches:* gravelly fine sandy loam

*H2 - 13 to 16 inches:* gravelly fine sandy loam

*H3 - 16 to 36 inches:* very gravelly sandy loam

*C - 36 to 180 inches:* stratified very gravelly sand to fine sand

##### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.57 to 5.95 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Available water capacity:* Low (about 4.3 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* A

*Hydric soil rating:* No

**Minor Components**

**Unnamed soils**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Arkport**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Palmyra**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Phelps**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Data Source Information**

Soil Survey Area: Onondaga County, New York

Survey Area Data: Version 15, Jun 11, 2020

## Onondaga County, New York

### PHD—Palmyra and Howard soils, hilly

#### Map Unit Setting

*National map unit symbol:* 9vk8  
*Elevation:* 380 to 1,460 feet  
*Mean annual precipitation:* 38 to 42 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 110 to 190 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Palmyra, hilly, and similar soils:* 40 percent  
*Howard and similar soils:* 35 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Palmyra, Hilly

##### Setting

*Landform:* Deltas, outwash plains, terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Riser  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy over sandy and gravelly glaciofluvial deposits, derived mainly from limestone and other sedimentary rocks

##### Typical profile

*H1 - 0 to 14 inches:* gravelly loam  
*H2 - 14 to 31 inches:* gravelly loam  
*H3 - 31 to 60 inches:* stratified very gravelly sand

##### Properties and qualities

*Slope:* 15 to 25 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 5.95 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Low (about 4.8 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* A

*Hydric soil rating:* No

## **Description of Howard**

### **Setting**

*Landform:* Terraces, valley trains

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Riser

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, containing significant amounts of limestone

### **Typical profile**

*H1 - 0 to 13 inches:* gravelly fine sandy loam

*H2 - 13 to 16 inches:* gravelly fine sandy loam

*H3 - 16 to 36 inches:* very gravelly sandy loam

*C - 36 to 180 inches:* stratified very gravelly sand to fine sand

### **Properties and qualities**

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.57 to 5.95 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Available water capacity:* Low (about 4.3 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* A

*Hydric soil rating:* No

## **Minor Components**

### **Arkport**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

### **Phelps**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

### **Otisville**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

### **Dunkirk**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Schoharie**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Data Source Information**

Soil Survey Area: Onondaga County, New York

Survey Area Data: Version 15, Jun 11, 2020

## Onondaga County, New York

### ScB—Schoharie silt loam, 2 to 6 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2xgh4

*Elevation:* 260 to 1,280 feet

*Mean annual precipitation:* 31 to 57 inches

*Mean annual air temperature:* 41 to 50 degrees F

*Frost-free period:* 100 to 190 days

*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Schoharie and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Schoharie

##### Setting

*Landform:* Lake terraces

*Landform position (two-dimensional):* Summit, shoulder

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Red clayey glaciolacustrine deposits derived from calcareous shale

##### Typical profile

*Ap - 0 to 8 inches:* silt loam

*E - 8 to 11 inches:* silt loam

*Bt/E - 11 to 18 inches:* silty clay

*Bt - 18 to 33 inches:* clay

*C1 - 33 to 52 inches:* silty clay

*C2 - 52 to 79 inches:* silty clay

##### Properties and qualities

*Slope:* 2 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.14 in/hr)

*Depth to water table:* About 18 to 36 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 25 percent

*Available water capacity:* High (about 9.3 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated): 2e*  
*Hydrologic Soil Group: D*  
*Hydric soil rating: No*

### **Minor Components**

#### **Cazenovia**

*Percent of map unit: 5 percent*  
*Landform: Till plains, reworked lake plains*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Crest*  
*Down-slope shape: Concave*  
*Across-slope shape: Convex*  
*Hydric soil rating: No*

#### **Odessa**

*Percent of map unit: 5 percent*  
*Landform: Lake terraces*  
*Landform position (two-dimensional): Footslope*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Concave*  
*Across-slope shape: Linear*  
*Hydric soil rating: No*

#### **Cayuga**

*Percent of map unit: 3 percent*  
*Landform: Lake plains, till plains*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Crest, tread*  
*Down-slope shape: Concave*  
*Across-slope shape: Convex*  
*Hydric soil rating: No*

#### **Collamer**

*Percent of map unit: 2 percent*  
*Landform: Lake plains*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Concave*  
*Across-slope shape: Convex*  
*Hydric soil rating: No*

## **Data Source Information**

Soil Survey Area: Onondaga County, New York

Survey Area Data: Version 15, Jun 11, 2020

## ***APPENDIX B***

### *Historic Preservation Information*



**Parks, Recreation,  
and Historic Preservation**

**ANDREW M. CUOMO**  
Governor

**ERIK KULLESEID**  
Commissioner

March 2, 2021

Ronald May  
Assistant Engineer I  
CHA Consulting, Inc.  
300 S State St #600  
Syracuse, NY 13202

Re: DEC  
Baltimore Ridge Subdivision  
South Street, Marcellus, Onondaga County  
21PR00750

Dear Ronald May:

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

We note that the proposed project is adjacent to the Dan Bradley House, which is listed in the State and National Registers of Historic Places. We have reviewed the submission received on February 8, 2021, including the site plan dated January 27, 2021. Based on that review, it is the OPRHP's opinion that the project, as described, will have No Adverse Impact on historic resources.

If you have any questions, I can be reached at (518) 268-2170.

Sincerely,

Robyn Sedgwick  
Historic Site Restoration Coordinator  
e-mail: [robyn.sedgwick@parks.ny.gov](mailto:robyn.sedgwick@parks.ny.gov)

via e-mail only

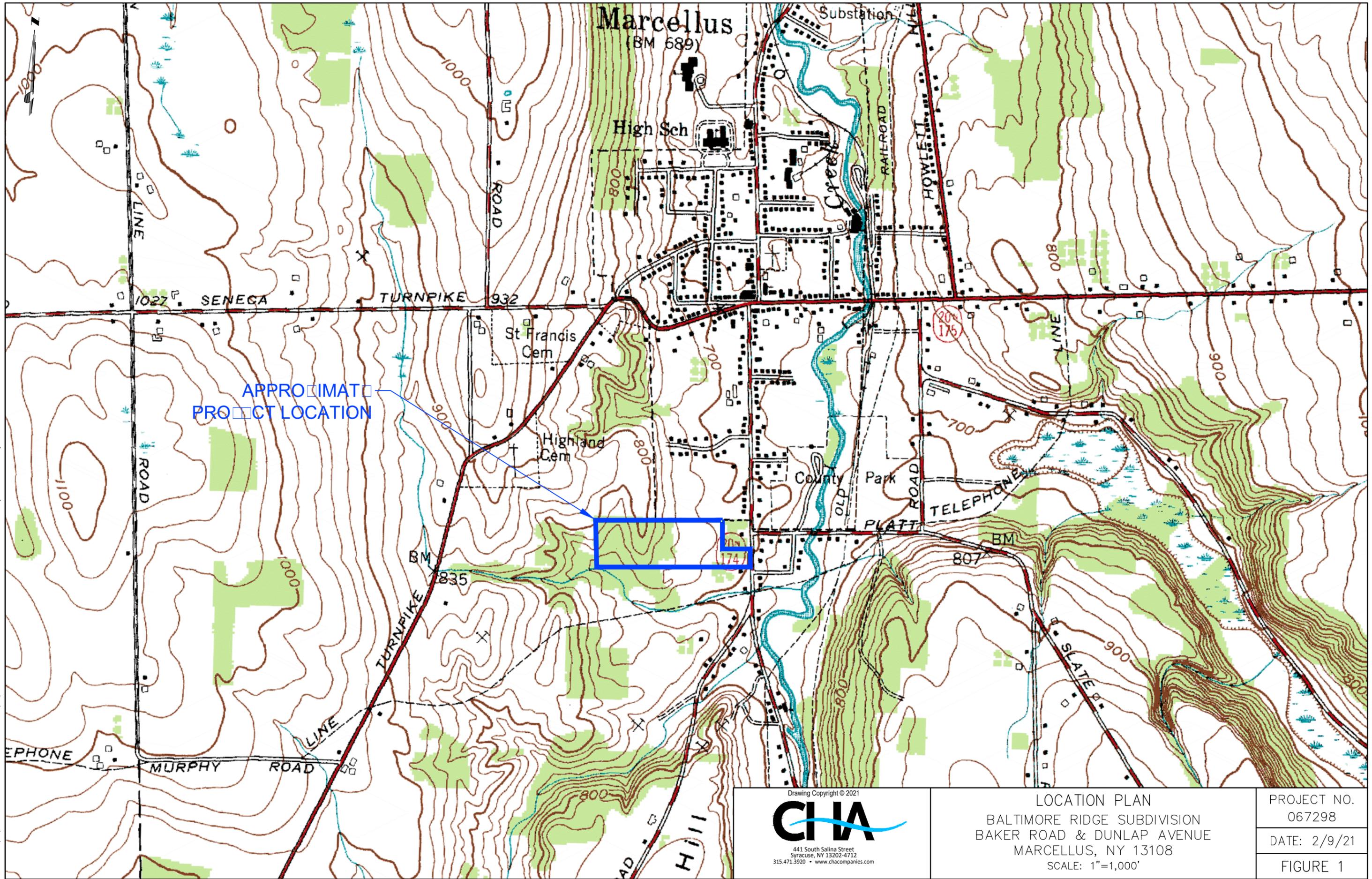
cc: C. Vandrei – DEC

## ***APPENDIX C***

### *Hydrologic Analyses*

## ***FIGURES***

File: V:\PROJECTS\NY\K5\067298\000\09\_DESIGN\EXHIBITS\STORMWATER\FIGURE 1 - LOCATION PLAN.DWG  
Saved: 2/8/2021 11:52:24 PM Plotted: 2/8/2021 11:53:27 PM Current User: Harris, Kristy LastSavedBy: 2691



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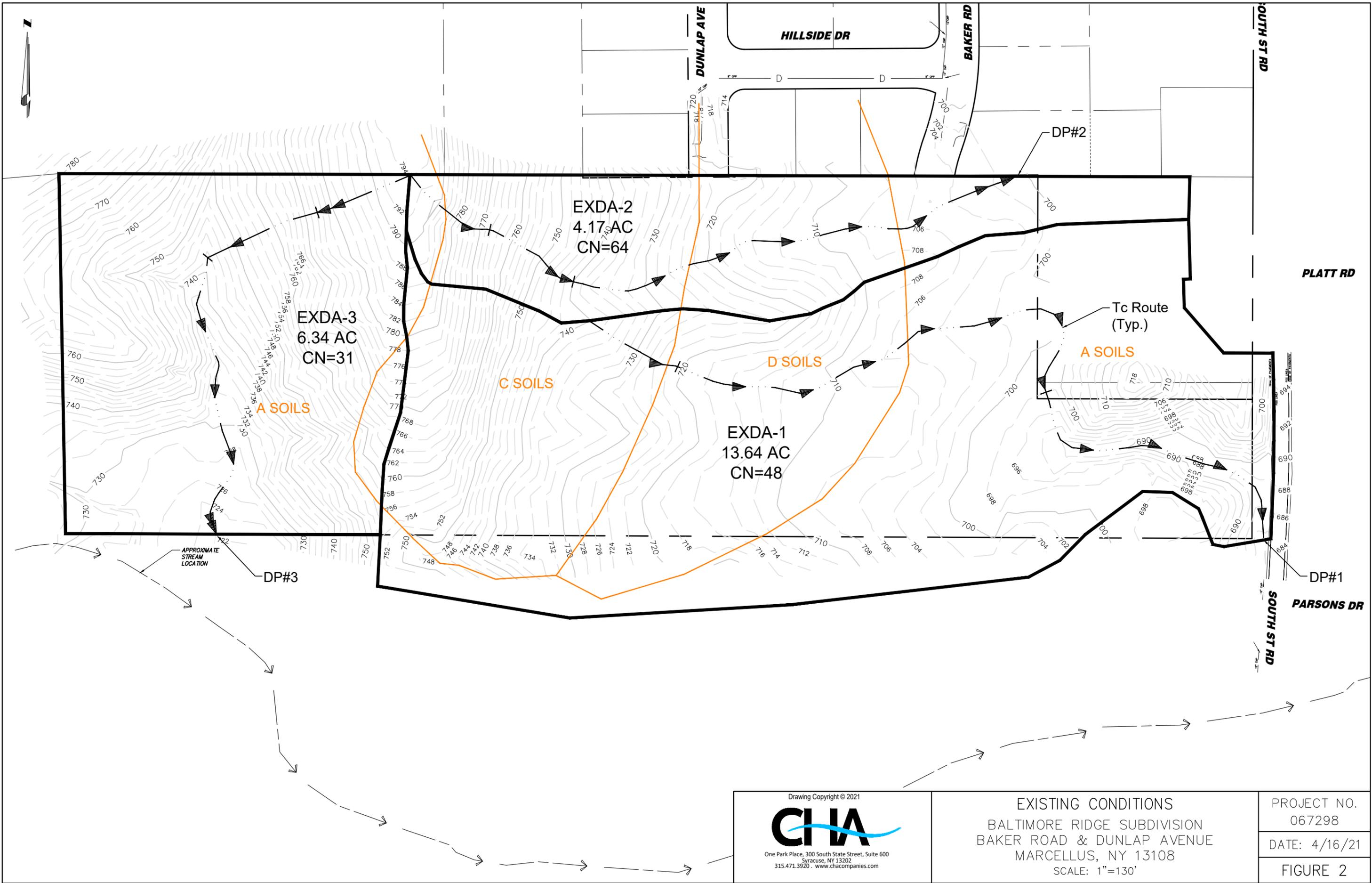
LOCATION PLAN  
BALTIMORE RIDGE SUBDIVISION  
BAKER ROAD & DUNLAP AVENUE  
MARCELLUS, NY 13108  
SCALE: 1"=1,000'

PROJECT NO.  
067298

DATE: 2/9/21

FIGURE 1

File: V:\PROJECTS\NY\K5\067298\009\DESIGN\EXHIBITS\STORMWATER\FIGURE 2 - EXISTING CONDITIONS\_REV3.DWG  
Saved: 4/16/2021 10:28:22 AM Plotted: 4/16/2021 10:40:43 AM Current User: Harris, Kristy LastSavedBy: 2691



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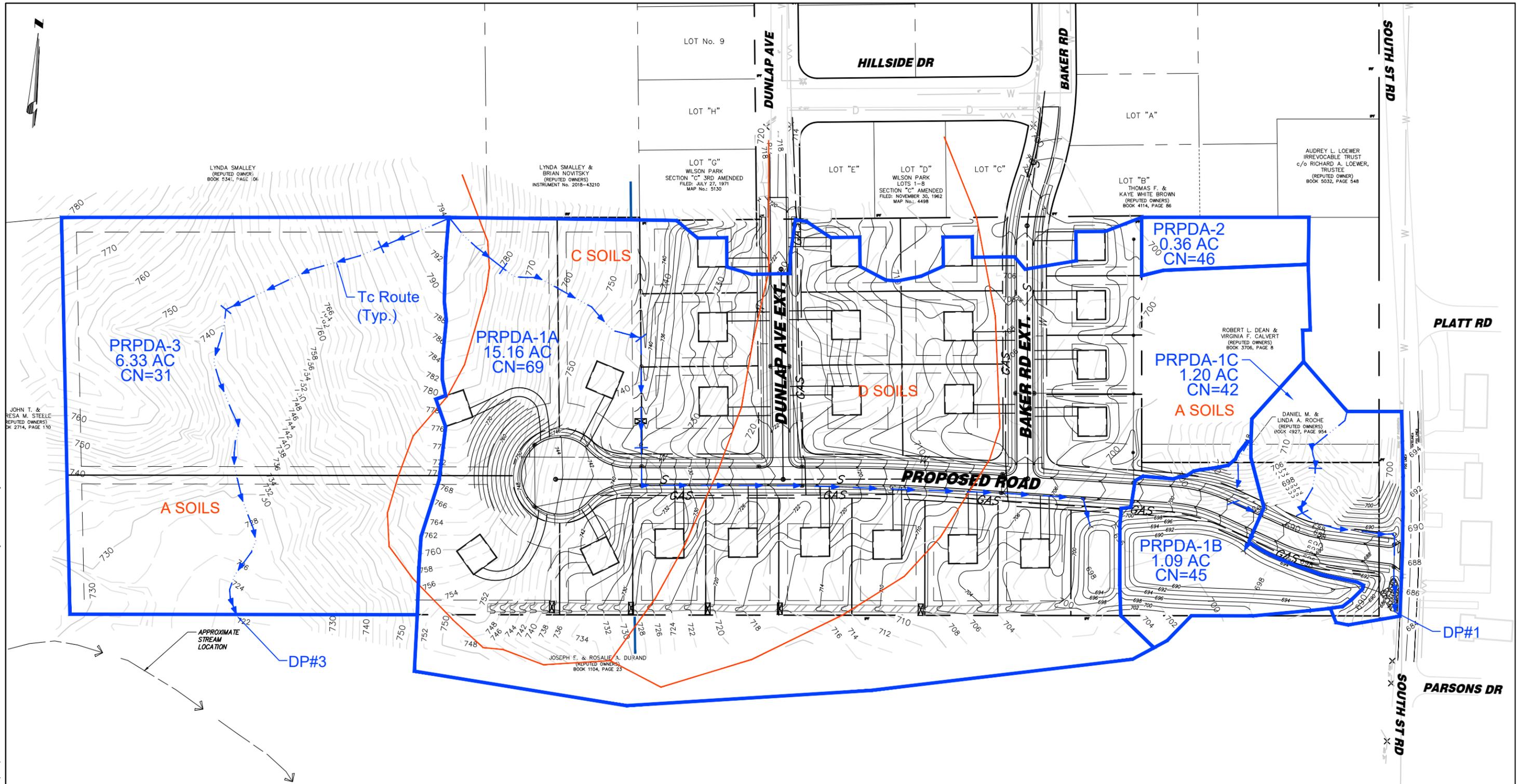
EXISTING CONDITIONS  
BALTIMORE RIDGE SUBDIVISION  
BAKER ROAD & DUNLAP AVENUE  
MARCELLUS, NY 13108  
SCALE: 1"=130'

PROJECT NO.  
067298

DATE: 4/16/21

FIGURE 2

File: V:\PROJECTS\ANY\K5\067298\000\09\_DESIGN\EXHIBITS\STORMWATER\FIGURE 3 - PROPOSED CONDITIONS\_REV4.DWG  
Saved: 5/11/2021 10:37:06 PM Plotted: 5/12/2021 11:10:08 AM Current User: Harris, Kristy LastSavedBy: 2691



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PROPOSED CONDITIONS  
BALTIMORE RIDGE SUBDIVISION  
BAKER ROAD & DUNLAP AVENUE  
MARCELLUS, NY 13108  
SCALE: 1"=130'

PROJECT NO. 067298
DATE: 5/11/21
FIGURE 3

***CURVE NUMBER  
AND  
TIME OF CONCENTRATION CALCULATIONS***

**CN CALCULATIONS**

**EXISTING CONDITIONS**

**PROPOSED CONDITIONS**

**EXDA-1**

USE	AREA	CN	AREA * CN
RES 2 ACRE (A SOILS)	0.88	46	40.48
WOODS (A SOILS)	6.42	30	192.60
WOODS (C SOILS)	3.20	70	224.00
WOODS (D SOILS)	3.14	77	241.78
<b>TOTALS</b>			658.38
<b>WEIGHTED CN</b>			<b>48</b>

**EXDA-2**

USE	AREA	CN	AREA * CN
RES 2 ACRE (A SOILS)	0.37	46	17.02
WOODS (A SOILS)	0.68	30	20.40
WOODS (C SOILS)	1.74	70	121.80
WOODS (D SOILS)	1.38	77	106.26
<b>TOTALS</b>			265.48
<b>WEIGHTED CN</b>			<b>64</b>

**EXDA-3**

USE	AREA	CN	AREA * CN
WOODS (A SOILS)	6.11	30	183.30
WOODS (C SOILS)	0.23	70	16.10
<b>TOTALS</b>			199.40
<b>WEIGHTED CN</b>			<b>31</b>

**PRPDA-1A**

USE	AREA	CN	AREA * CN
IMPERVIOUS	1.12	98	109.76
OPEN SPACE (A SOILS)	0.24	39	9.36
RES 1/3 ACRE (A SOILS)	2.06	57	117.42
RES 1/3 ACRE (C SOILS)	3.25	81	263.25
RES 1/3 ACRE (D SOILS)	3.39	86	291.54
RES 2 ACRE (A SOILS)	0.81	46	37.26
WOODS (A SOILS)	2.13	30	63.90
WOODS (C SOILS)	1.27	70	88.90
WOODS (D SOILS)	0.41	77	31.57
<b>TOTALS</b>			1012.96
<b>WEIGHTED CN</b>			<b>69</b>

**PRPDA-1B**

USE	AREA	CN	AREA * CN
IMPERVIOUS	0.12	98	11.76
OPEN SPACE (A SOILS)	0.86	39	33.54
WOODS (A SOILS)	0.09	30	2.70
<b>TOTALS</b>			48.00
<b>WEIGHTED CN</b>			<b>45</b>

**PRPDA-1C**

USE	AREA	CN	AREA * CN
IMPERVIOUS	0.15	98	14.70
RES 2 ACRE (A SOILS)	0.06	46	2.70
OPEN SPACE (A SOILS)	0.39	39	15.21
WOODS (A SOILS)	0.60	30	18.00
<b>TOTALS</b>			50.61
<b>WEIGHTED CN</b>			<b>42</b>

**PRPDA-2**

USE	AREA	CN	AREA * CN
RES 2 ACRE (A SOILS)	0.36	46	16.56
<b>TOTALS</b>			16.56
<b>WEIGHTED CN</b>			<b>46</b>

**PRPDA-3**

USE	AREA	CN	AREA * CN
OPEN SPACE (A SOILS)	0.05	39	1.95
OPEN SPACE (C SOILS)	0.03	74	2.22
WOODS (A SOILS)	6.05	30	181.50
WOODS (C SOILS)	0.20	70	14.00
<b>TOTALS</b>			195.50
<b>WEIGHTED CN</b>			<b>31</b>

# TR55 Tc Worksheet

## Hyd. No. 1

EXDA-1

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.32	0.00	0.00	
Land slope (%)	= 13.00	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 16.50</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 16.50</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 737.00	0.00	0.00	
Watercourse slope (%)	= 3.10	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=2.84	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 4.32</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 4.32</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 20.00	0.00	0.00	
Wetted perimeter (ft)	= 40.00	0.00	0.00	
Channel slope (%)	= 3.20	0.00	0.00	
Manning's n-value	= 0.035	0.015	0.015	
Velocity (ft/s)	=4.79	0.00	0.00	
Flow length (ft)	466.0	0.0	0.0	
<b>Travel Time (min)</b>	<b>= 1.62</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 1.62</b>
<b>Total Travel Time, Tc .....</b>				<b>22.40 min</b>

# TR55 Tc Worksheet

## Hyd. No. 2

EXDA-2

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.32	0.00	0.00	
Land slope (%)	= 18.30	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 14.39</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 14.39</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 150.00	0.00	0.00	
Watercourse slope (%)	= 17.30	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=6.71	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 0.37</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 0.37</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 20.00	0.00	0.00	
Wetted perimeter (ft)	= 40.00	0.00	0.00	
Channel slope (%)	= 5.50	0.00	0.00	
Manning's n-value	= 0.035	0.015	0.015	
Velocity (ft/s)	=6.27	0.00	0.00	
Flow length (ft)	707.0	0.0	0.0	
<b>Travel Time (min)</b>	<b>= 1.88</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 1.88</b>
<b>Total Travel Time, Tc .....</b>				<b>16.60 min</b>

# TR55 Tc Worksheet

## Hyd. No. 3

EXDA-3

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.32	0.00	0.00	
Land slope (%)	= 13.30	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 16.35</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 16.35</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 180.00	0.00	0.00	
Watercourse slope (%)	= 17.80	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=6.81	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 0.44</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 0.44</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 30.00	0.00	0.00	
Wetted perimeter (ft)	= 60.00	0.00	0.00	
Channel slope (%)	= 4.50	0.00	0.00	
Manning's n-value	= 0.035	0.015	0.015	
Velocity (ft/s)	=5.68	0.00	0.00	
Flow length (ft)	441.0	0.0	0.0	
<b>Travel Time (min)</b>	<b>= 1.29</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 1.29</b>
<b>Total Travel Time, Tc .....</b>				<b>18.10 min</b>

# TR55 Tc Worksheet

## Hyd. No. 6

PRPDA-1A

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.32	0.00	0.00	
Land slope (%)	= 14.60	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 11.39</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 11.39</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 218.00	0.00	0.00	
Watercourse slope (%)	= 18.60	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=6.96	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 0.52</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 0.52</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 5.00	0.79	1.77	
Wetted perimeter (ft)	= 10.00	3.14	4.71	
Channel slope (%)	= 6.30	5.08	4.37	
Manning's n-value	= 0.035	0.011	0.011	
Velocity (ft/s)	=6.72			
		12.06		
			14.70	
Flow length (ft)	150.0	245.0	424.0	
<b>Travel Time (min)</b>	<b>= 0.37</b>	<b>+ 0.34</b>	<b>+ 0.48</b>	<b>= 1.19</b>
<b>Total Travel Time, Tc .....</b>				<b>13.10 min</b>

# TR55 Tc Worksheet

## Hyd. No. 8

PRPDA-1B

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 89.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.32	0.00	0.00	
Land slope (%)	= 24.70	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 8.41</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 8.41</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 43.00	0.00	0.00	
Watercourse slope (%)	= 2.50	0.00	0.00	
Surface description	= Paved	Paved	Paved	
Average velocity (ft/s)	=3.21	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 0.22</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 0.22</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 0.79	0.79	0.00	
Wetted perimeter (ft)	= 3.14	3.14	0.00	
Channel slope (%)	= 1.00	0.50	0.00	
Manning's n-value	= 0.011	0.011	0.015	
Velocity (ft/s)	=5.35	3.78	0.00	
Flow length (ft)	30.0	25.0	0.0	
<b>Travel Time (min)</b>	<b>= 0.09</b>	<b>+ 0.11</b>	<b>+ 0.00</b>	<b>= 0.20</b>
<b>Total Travel Time, Tc</b> .....				<b>8.80 min</b>

# TR55 Tc Worksheet

## Hyd. No. 11

PRPDA-1C

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.32	0.00	0.00	
Land slope (%)	= 9.00	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 13.82</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 13.82</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 66.00	0.00	0.00	
Watercourse slope (%)	= 13.60	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=5.95	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 0.18</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 0.18</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 5.00	1.77	5.00	
Wetted perimeter (ft)	= 10.00	4.71	10.00	
Channel slope (%)	= 2.70	1.00	1.00	
Manning's n-value	= 0.035	0.011	0.035	
Velocity (ft/s)	=4.40	7.03	2.68	
Flow length (ft)	135.0	55.0	47.0	
<b>Travel Time (min)</b>	<b>= 0.51</b>	<b>+ 0.13</b>	<b>+ 0.29</b>	<b>= 0.93</b>
<b>Total Travel Time, Tc</b> .....				<b>14.90 min</b>

# TR55 Tc Worksheet

## Hyd. No. 14

PRPDA-3

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.32	0.00	0.00	
Land slope (%)	= 13.30	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 16.35</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 16.35</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 180.00	0.00	0.00	
Watercourse slope (%)	= 17.80	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=6.81	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 0.44</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 0.44</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 30.00	0.00	0.00	
Wetted perimeter (ft)	= 60.00	0.00	0.00	
Channel slope (%)	= 4.50	0.00	0.00	
Manning's n-value	= 0.035	0.015	0.015	
Velocity (ft/s)	=5.68	0.00	0.00	
Flow length (ft)	441.0	0.0	0.0	
<b>Travel Time (min)</b>	<b>= 1.29</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 1.29</b>
<b>Total Travel Time, Tc .....</b>				<b>18.10 min</b>

***HYDROGRAPH SUMMARY REPORTS  
&  
PRECIPITATION TABLES***

# Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph Description
1	SCS Runoff	0.000	5	n/a	0.000	-----	-----	-----	EXDA-1
2	SCS Runoff	0.124	5	745	0.040	-----	-----	-----	EXDA-2
3	SCS Runoff	0.000	5	n/a	0.000	-----	-----	-----	EXDA-3
4	Combine	0.124	5	745	0.040	1, 2, 3	-----	-----	Total Existing Conditions
6	SCS Runoff	2.177	5	725	0.244	-----	-----	-----	PRPDA-1A
7	Reservoir	0.196	5	1135	0.052	6	696.50	0.193	Forebay Discharge
8	SCS Runoff	0.000	5	n/a	0.000	-----	-----	-----	PRPDA-1B
9	Combine	0.196	5	1135	0.052	7, 8	-----	-----	Forebay + PRPDA-1B
10	Reservoir	0.000	5	n/a	0.000	9	689.54	0.011	Pond Discharge
11	SCS Runoff	0.000	5	n/a	0.000	-----	-----	-----	PRPDA-1C
12	Combine	0.000	5	n/a	0.000	10, 11	-----	-----	Total PRPDA-1 Discharge
13	SCS Runoff	0.000	5	n/a	0.000	-----	-----	-----	PRPDA-2
14	SCS Runoff	0.000	5	n/a	0.000	-----	-----	-----	PRPDA-3
16	Combine	2.177	5	725	0.244	6, 8, 11, 13, 14,	-----	-----	Total Proposed Unmitigated
17	Combine	0.000	5	n/a	0.000	12, 13, 14,	-----	-----	Total Proposed Mitigated
067298_REV4.gpw					Return Period: 1 Year			Tuesday, 05 / 11 / 2021	

# Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph Description
1	SCS Runoff	0.198	5	765	0.124	----	----	----	EXDA-1
2	SCS Runoff	1.981	5	730	0.212	----	----	----	EXDA-2
3	SCS Runoff	0.000	5	n/a	0.000	----	----	----	EXDA-3
4	Combine	2.008	5	730	0.336	1, 2, 3	----	----	Total Existing Conditions
6	SCS Runoff	13.88	5	720	0.966	----	----	----	PRPDA-1A
7	Reservoir	11.40	5	730	0.774	6	696.72	0.205	Forebay Discharge
8	SCS Runoff	0.006	5	915	0.005	----	----	----	PRPDA-1B
9	Combine	11.40	5	730	0.778	7, 8	----	----	Forebay + PRPDA-1B
10	Reservoir	0.000	5	985	0.000	9	690.12	0.189	Pond Discharge
11	SCS Runoff	0.003	5	1440	0.002	----	----	----	PRPDA-1C
12	Combine	0.003	5	1440	0.002	10, 11	----	----	Total PRPDA-1 Discharge
13	SCS Runoff	0.003	5	895	0.002	----	----	----	PRPDA-2
14	SCS Runoff	0.000	5	n/a	0.000	----	----	----	PRPDA-3
16	Combine	13.88	5	720	0.975	6, 8, 11, 13, 14,	----	----	Total Proposed Unmitigated
17	Combine	0.005	5	1095	0.004	12, 13, 14,	----	----	Total Proposed Mitigated
067298_REV4.gpw					Return Period: 10 Year			Tuesday, 05 / 11 / 2021	

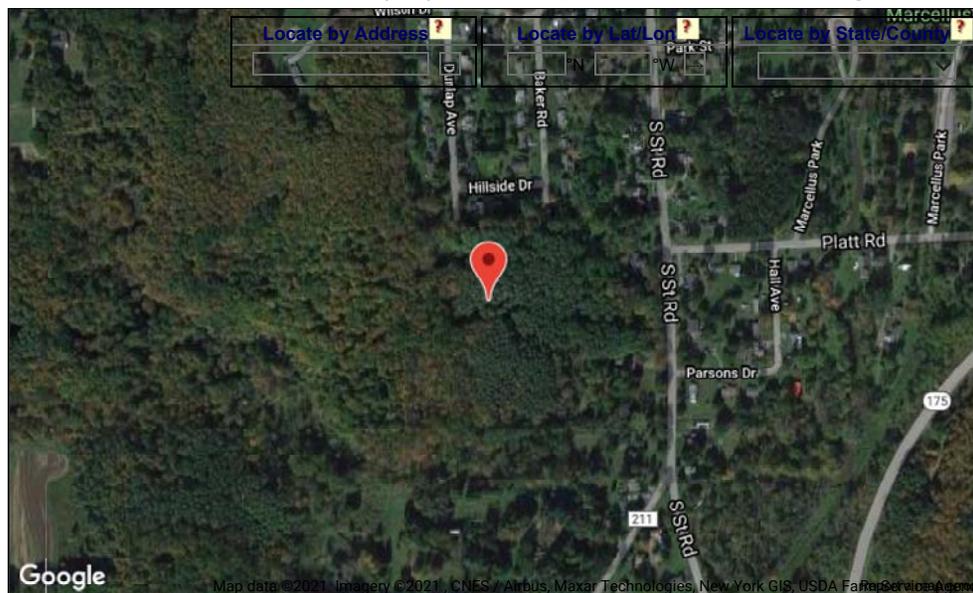
# Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph Description
1	SCS Runoff	7.334	5	730	0.906	-----	-----	-----	EXDA-1
2	SCS Runoff	7.828	5	725	0.672	-----	-----	-----	EXDA-2
3	SCS Runoff	0.035	5	1105	0.026	-----	-----	-----	EXDA-3
4	Combine	14.86	5	730	1.604	1, 2, 3	-----	-----	Total Existing Conditions
6	SCS Runoff	42.99	5	720	2.696	-----	-----	-----	PRPDA-1A
7	Reservoir	40.38	5	720	2.504	6	696.87	0.221	Forebay Discharge
8	SCS Runoff	0.480	5	725	0.052	-----	-----	-----	PRPDA-1B
9	Combine	40.78	5	720	2.556	7, 8	-----	-----	Forebay + PRPDA-1B
10	Reservoir	4.200	5	750	0.921	9	692.33	0.996	Pond Discharge
11	SCS Runoff	0.288	5	725	0.043	-----	-----	-----	PRPDA-1C
12	Combine	4.320	5	745	0.964	10, 11	-----	-----	Total PRPDA-1 Discharge
13	SCS Runoff	0.188	5	725	0.019	-----	-----	-----	PRPDA-2
14	SCS Runoff	0.035	5	1105	0.026	-----	-----	-----	PRPDA-3
16	Combine	43.75	5	720	2.836	6, 8, 11, 13, 14,	-----	-----	Total Proposed Unmitigated
17	Combine	4.378	5	745	1.009	12, 13, 14,	-----	-----	Total Proposed Mitigated
067298_REV4.gpw					Return Period: 100 Year			Tuesday, 05 / 11 / 2021	

<b>Select Product ?</b>
Extreme Precipitation Tables - HTML ?
Extreme Precipitation Tables - Text/CSV ?
Partial Duration Series - by Point ?
Partial Duration Series - by Station ?
Distribution Curves - Graphical ?
Distribution Curves - Text/TBL ?
Intensity Frequency Duration Graphs ?
Precipitation Frequency Duration Graphs ?
GIS Data Files ?
Regional/State Maps ?

**Select Location ?** Double-click the map to place a marker, or enter address or latitude/longitude.



**Select Options ?**

<b>Smoothing ?</b>
Yes ▾

<b>Delivery ?</b>
Popup ▾

<b>Submit ?</b>
-----------------

# Extreme Precipitation Tables

## Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

<b>Smoothing</b>	Yes
<b>State</b>	New York
<b>Location</b>	
<b>Longitude</b>	76.343 degrees West
<b>Latitude</b>	42.975 degrees North
<b>Elevation</b>	0 feet
<b>Date/Time</b>	Thu, 04 Feb 2021 20:41:32 -0500

### Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
<b>1yr</b>	0.28	0.43	0.53	0.70	0.87	1.07	<b>1yr</b>	0.75	0.97	1.21	1.44	1.70	1.99	2.25	<b>1yr</b>	1.76	2.16	2.58	3.13	3.63	<b>1yr</b>
<b>2yr</b>	0.33	0.51	0.63	0.83	1.05	1.28	<b>2yr</b>	0.90	1.17	1.45	1.71	2.00	2.32	2.60	<b>2yr</b>	2.05	2.50	2.95	3.54	4.07	<b>2yr</b>
<b>5yr</b>	0.39	0.61	0.77	1.03	1.32	1.62	<b>5yr</b>	1.14	1.45	1.83	2.15	2.49	2.84	3.20	<b>5yr</b>	2.51	3.08	3.61	4.24	4.86	<b>5yr</b>
<b>10yr</b>	0.45	0.70	0.89	1.21	1.57	1.94	<b>10yr</b>	1.36	1.69	2.19	2.56	2.93	3.31	3.75	<b>10yr</b>	2.93	3.61	4.20	4.87	5.56	<b>10yr</b>
<b>25yr</b>	0.54	0.85	1.08	1.49	1.98	2.45	<b>25yr</b>	1.71	2.10	2.76	3.20	3.64	4.06	4.62	<b>25yr</b>	3.59	4.44	5.15	5.85	6.63	<b>25yr</b>
<b>50yr</b>	0.61	0.98	1.25	1.76	2.37	2.94	<b>50yr</b>	2.04	2.46	3.30	3.82	4.29	4.74	5.41	<b>50yr</b>	4.19	5.20	6.00	6.72	7.59	<b>50yr</b>
<b>100yr</b>	0.70	1.14	1.47	2.08	2.82	3.51	<b>100yr</b>	2.44	2.90	3.93	4.52	5.05	5.53	6.34	<b>100yr</b>	4.89	6.10	7.00	7.72	8.68	<b>100yr</b>
<b>200yr</b>	0.81	1.32	1.71	2.45	3.38	4.19	<b>200yr</b>	2.91	3.41	4.70	5.36	5.94	6.45	7.44	<b>200yr</b>	5.71	7.15	8.17	8.87	9.94	<b>200yr</b>
<b>500yr</b>	0.98	1.61	2.10	3.05	4.27	5.30	<b>500yr</b>	3.69	4.24	5.92	6.71	7.37	7.92	9.18	<b>500yr</b>	7.01	8.83	10.03	10.66	11.88	<b>500yr</b>

### Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
<b>1yr</b>	0.25	0.39	0.47	0.64	0.78	0.87	<b>1yr</b>	0.68	0.85	0.91	1.08	1.39	1.58	2.03	<b>1yr</b>	1.40	1.95	2.39	2.91	3.29	<b>1yr</b>
<b>2yr</b>	0.32	0.50	0.61	0.83	1.03	1.15	<b>2yr</b>	0.89	1.12	1.27	1.56	1.89	2.25	2.53	<b>2yr</b>	1.99	2.43	2.89	3.46	3.98	<b>2yr</b>
<b>5yr</b>	0.37	0.56	0.70	0.96	1.22	1.37	<b>5yr</b>	1.06	1.34	1.51	1.88	2.28	2.66	3.01	<b>5yr</b>	2.35	2.89	3.40	4.01	4.59	<b>5yr</b>
<b>10yr</b>	0.40	0.62	0.77	1.07	1.38	1.55	<b>10yr</b>	1.19	1.52	1.71	2.11	2.58	3.03	3.42	<b>10yr</b>	2.68	3.29	3.85	4.48	5.11	<b>10yr</b>
<b>25yr</b>	0.46	0.69	0.86	1.23	1.62	1.83	<b>25yr</b>	1.40	1.79	2.03	2.48	2.99	3.58	4.07	<b>25yr</b>	3.17	3.92	4.47	5.18	5.89	<b>25yr</b>
<b>50yr</b>	0.49	0.75	0.93	1.34	1.81	2.07	<b>50yr</b>	1.56	2.03	2.31	2.77	3.33	4.07	4.64	<b>50yr</b>	3.60	4.46	5.17	5.79	6.55	<b>50yr</b>
<b>100yr</b>	0.54	0.82	1.02	1.48	2.03	2.35	<b>100yr</b>	1.75	2.30	2.63	3.12	3.71	4.62	5.30	<b>100yr</b>	4.09	5.09	5.89	6.46	7.29	<b>100yr</b>
<b>200yr</b>	0.59	0.89	1.13	1.64	2.29	2.68	<b>200yr</b>	1.97	2.62	3.00	3.48	4.13	5.25	6.06	<b>200yr</b>	4.65	5.83	6.69	7.21	8.11	<b>200yr</b>
<b>500yr</b>	0.74	1.09	1.41	2.04	2.91	3.21	<b>500yr</b>	2.51	3.13	3.57	4.06	4.77	6.23	7.26	<b>500yr</b>	5.51	6.98	7.95	8.37	9.32	<b>500yr</b>

### Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
<b>1yr</b>	0.30	0.47	0.57	0.77	0.95	1.06	<b>1yr</b>	0.82	1.04	1.20	1.53	1.83	2.14	2.42	<b>1yr</b>	1.89	2.33	2.76	3.30	3.84	<b>1yr</b>
<b>2yr</b>	0.35	0.54	0.67	0.90	1.11	1.24	<b>2yr</b>	0.96	1.22	1.37	1.71	2.08	2.39	2.67	<b>2yr</b>	2.12	2.57	3.04	3.65	4.19	<b>2yr</b>
<b>5yr</b>	0.42	0.65	0.81	1.11	1.41	1.61	<b>5yr</b>	1.22	1.57	1.75	2.19	2.61	3.04	3.40	<b>5yr</b>	2.69	3.27	3.80	4.50	5.15	<b>5yr</b>
<b>10yr</b>	0.50	0.76	0.95	1.32	1.71	1.98	<b>10yr</b>	1.47	1.93	2.13	2.69	3.20	3.68	4.08	<b>10yr</b>	3.26	3.92	4.54	5.29	6.03	<b>10yr</b>
<b>25yr</b>	0.62	0.95	1.18	1.68	2.21	2.60	<b>25yr</b>	1.91	2.54	2.75	3.54	4.20	4.70	5.21	<b>25yr</b>	4.16	5.01	5.64	6.57	7.45	<b>25yr</b>
<b>50yr</b>	0.73	1.12	1.39	2.00	2.69	3.19	<b>50yr</b>	2.32	3.12	3.35	4.35	5.13	5.66	6.26	<b>50yr</b>	5.01	6.02	6.83	7.74	8.74	<b>50yr</b>
<b>100yr</b>	0.88	1.32	1.66	2.40	3.29	3.91	<b>100yr</b>	2.84	3.82	4.08	5.37	6.28	6.82	7.52	<b>100yr</b>	6.04	7.23	8.13	9.11	10.24	<b>100yr</b>
<b>200yr</b>	1.04	1.57	1.98	2.87	4.01	4.81	<b>200yr</b>	3.46	4.70	4.95	6.63	7.71	8.22	9.03	<b>200yr</b>	7.28	8.68	9.69	10.73	12.02	<b>200yr</b>
<b>500yr</b>	1.35	2.00	2.58	3.74	5.32	6.31	<b>500yr</b>	4.59	6.17	6.40	8.75	10.12	10.51	11.50	<b>500yr</b>	9.30	11.06	12.21	13.30	14.86	<b>500yr</b>



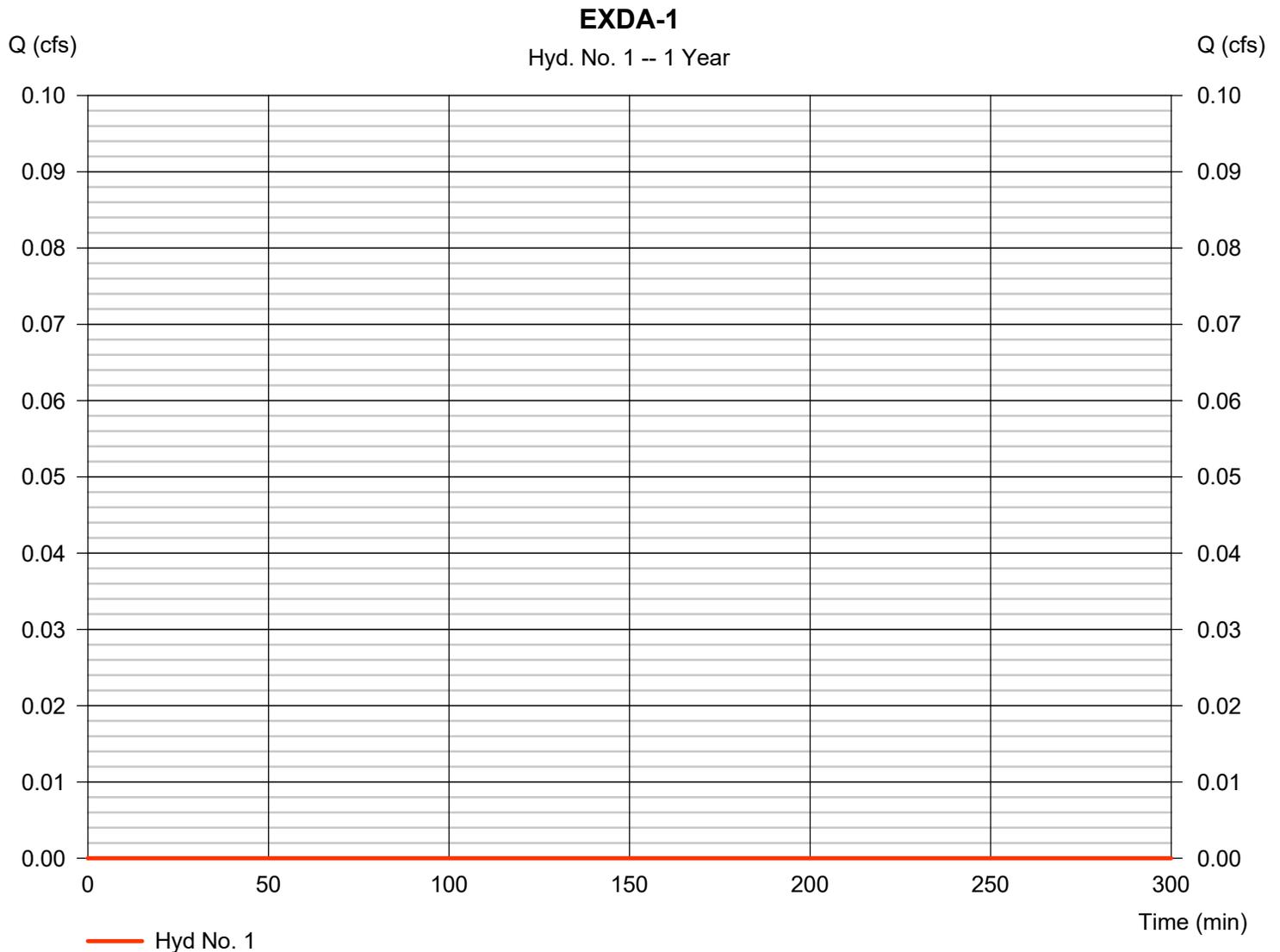
***EXISTING CONDITIONS HYDROGRAPHS***

# Hydrograph Report

## Hyd. No. 1

EXDA-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 13.640 ac	Curve number	= 48
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 22.40 min
Total precip.	= 1.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

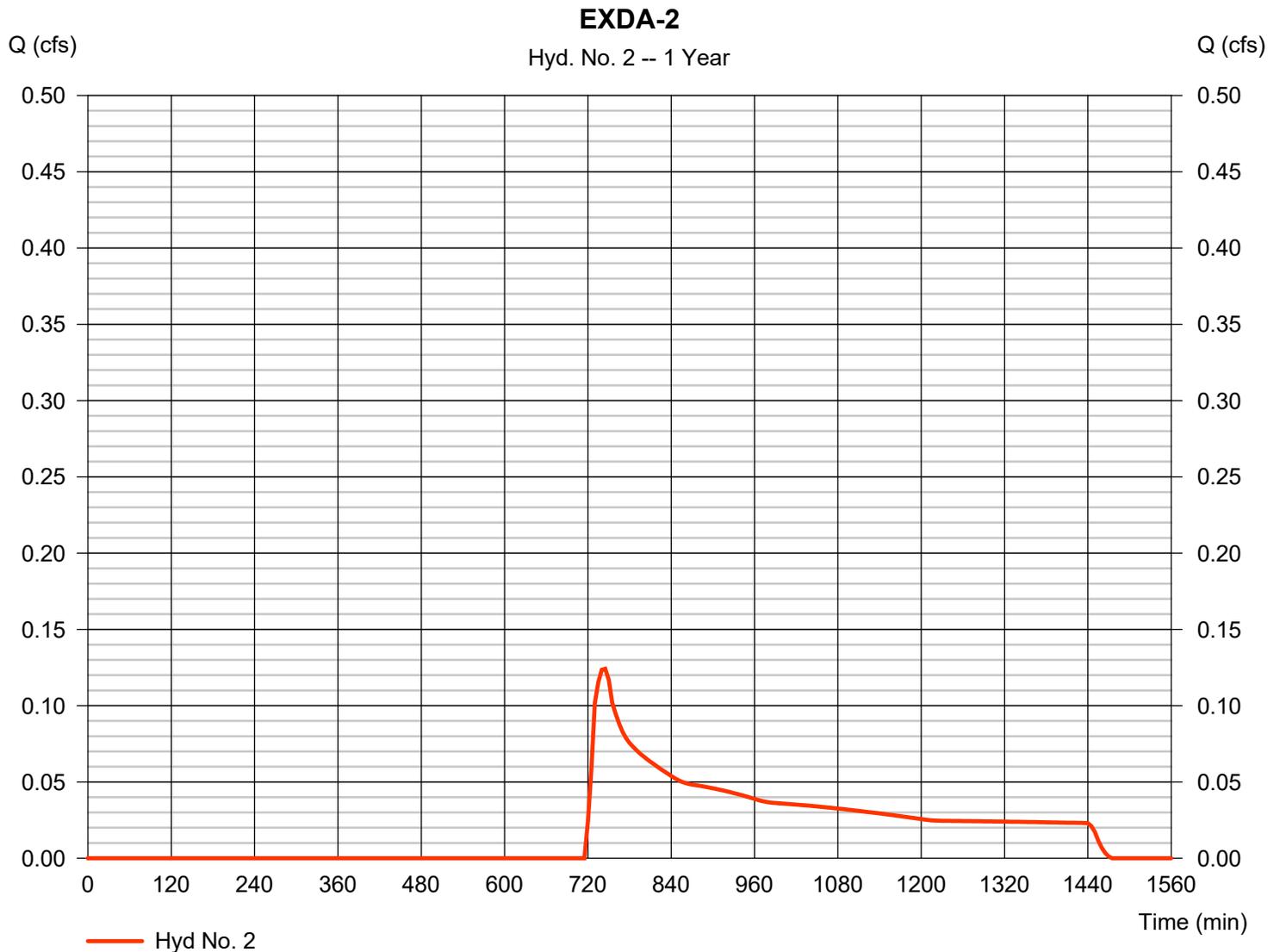


# Hydrograph Report

## Hyd. No. 2

EXDA-2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.124 cfs
Storm frequency	= 1 yrs	Time to peak	= 745 min
Time interval	= 5 min	Hyd. volume	= 0.040 acft
Drainage area	= 4.170 ac	Curve number	= 64
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 16.60 min
Total precip.	= 1.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

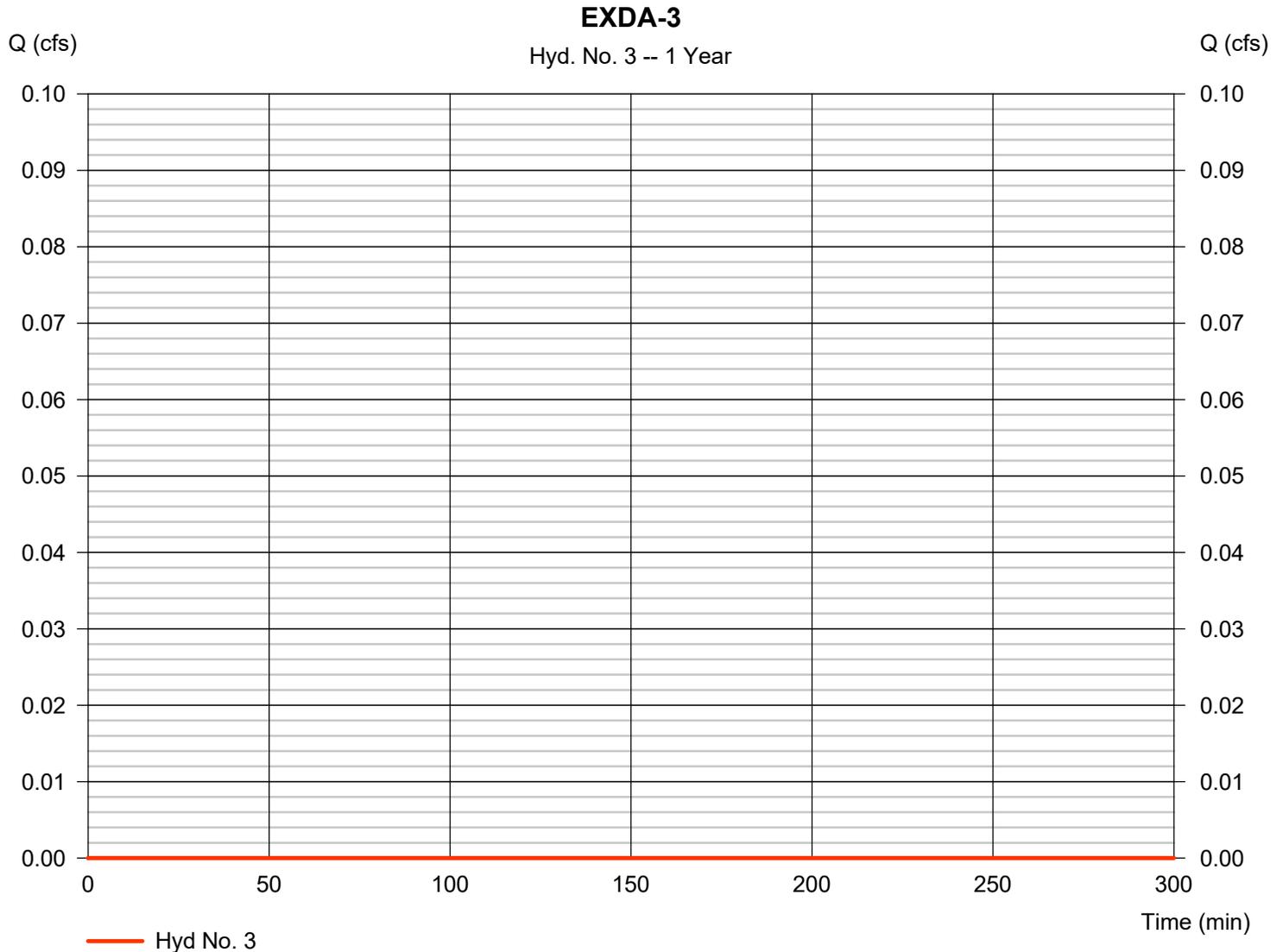


# Hydrograph Report

## Hyd. No. 3

EXDA-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 6.340 ac	Curve number	= 31
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 18.10 min
Total precip.	= 1.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



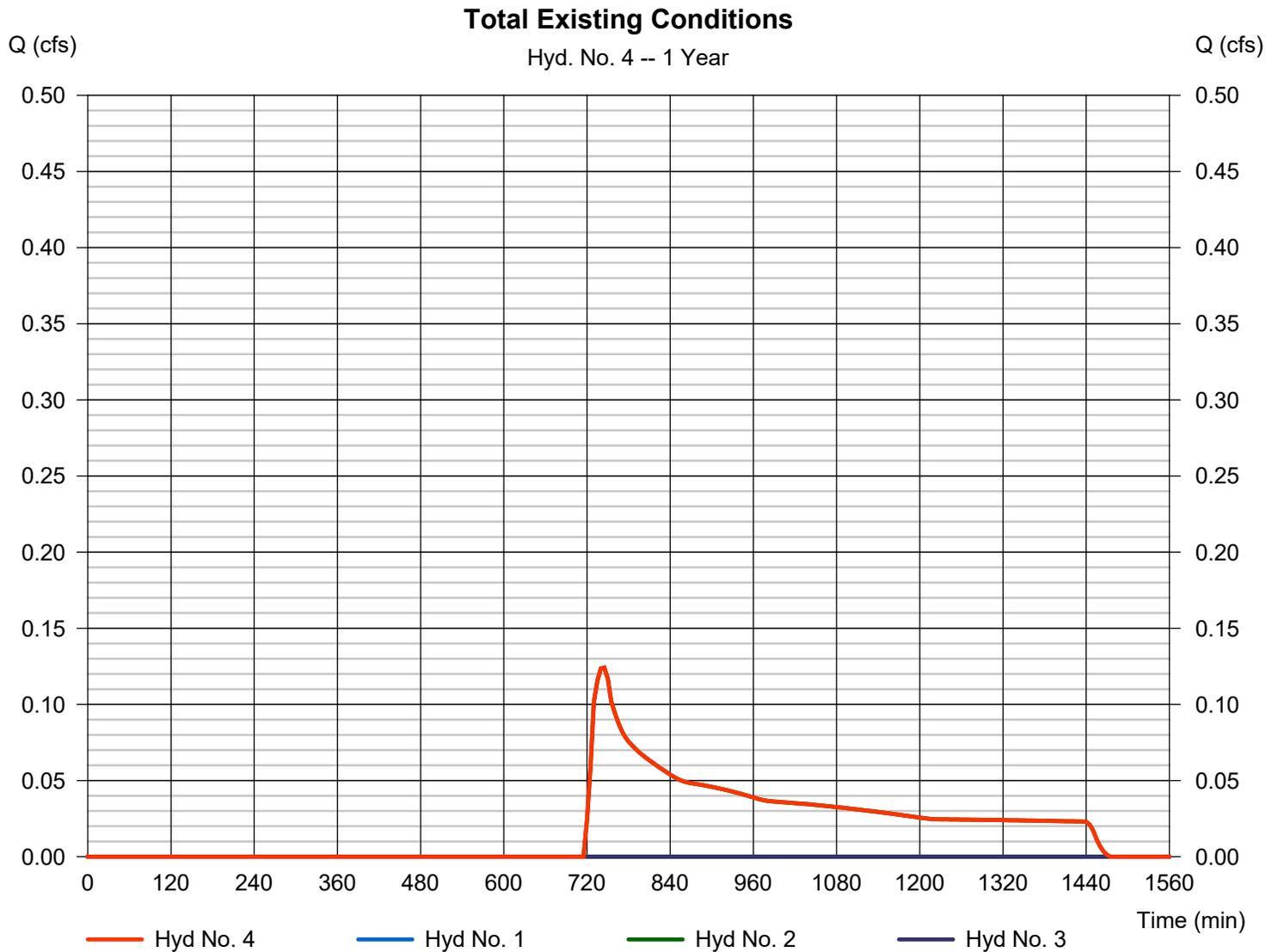
# Hydrograph Report

## Hyd. No. 4

### Total Existing Conditions

Hydrograph type = Combine  
Storm frequency = 1 yrs  
Time interval = 5 min  
Inflow hyds. = 1, 2, 3

Peak discharge = 0.124 cfs  
Time to peak = 745 min  
Hyd. volume = 0.040 acft  
Contrib. drain. area = 24.150 ac

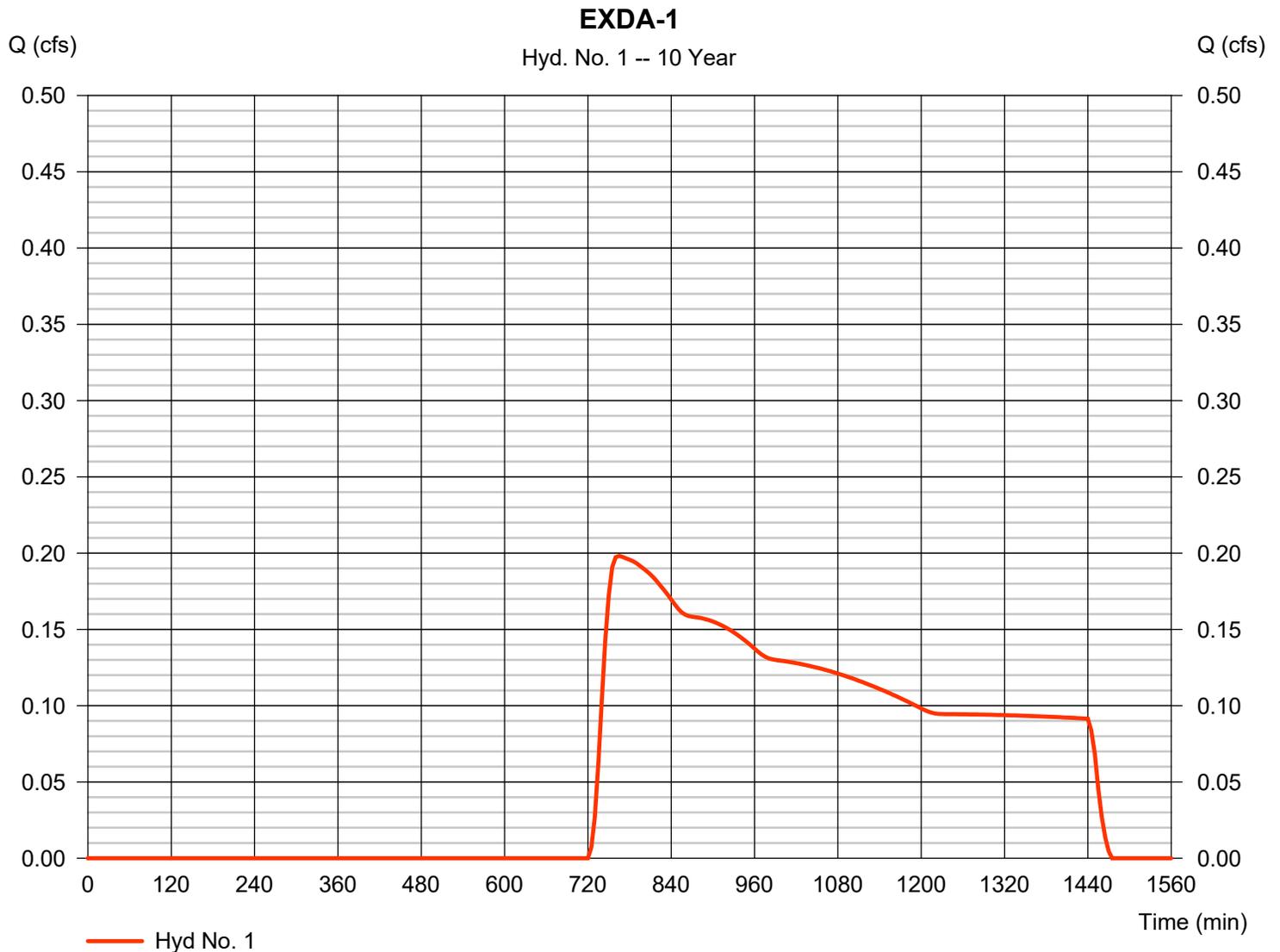


# Hydrograph Report

## Hyd. No. 1

EXDA-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.198 cfs
Storm frequency	= 10 yrs	Time to peak	= 765 min
Time interval	= 5 min	Hyd. volume	= 0.124 acft
Drainage area	= 13.640 ac	Curve number	= 48
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 22.40 min
Total precip.	= 3.31 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

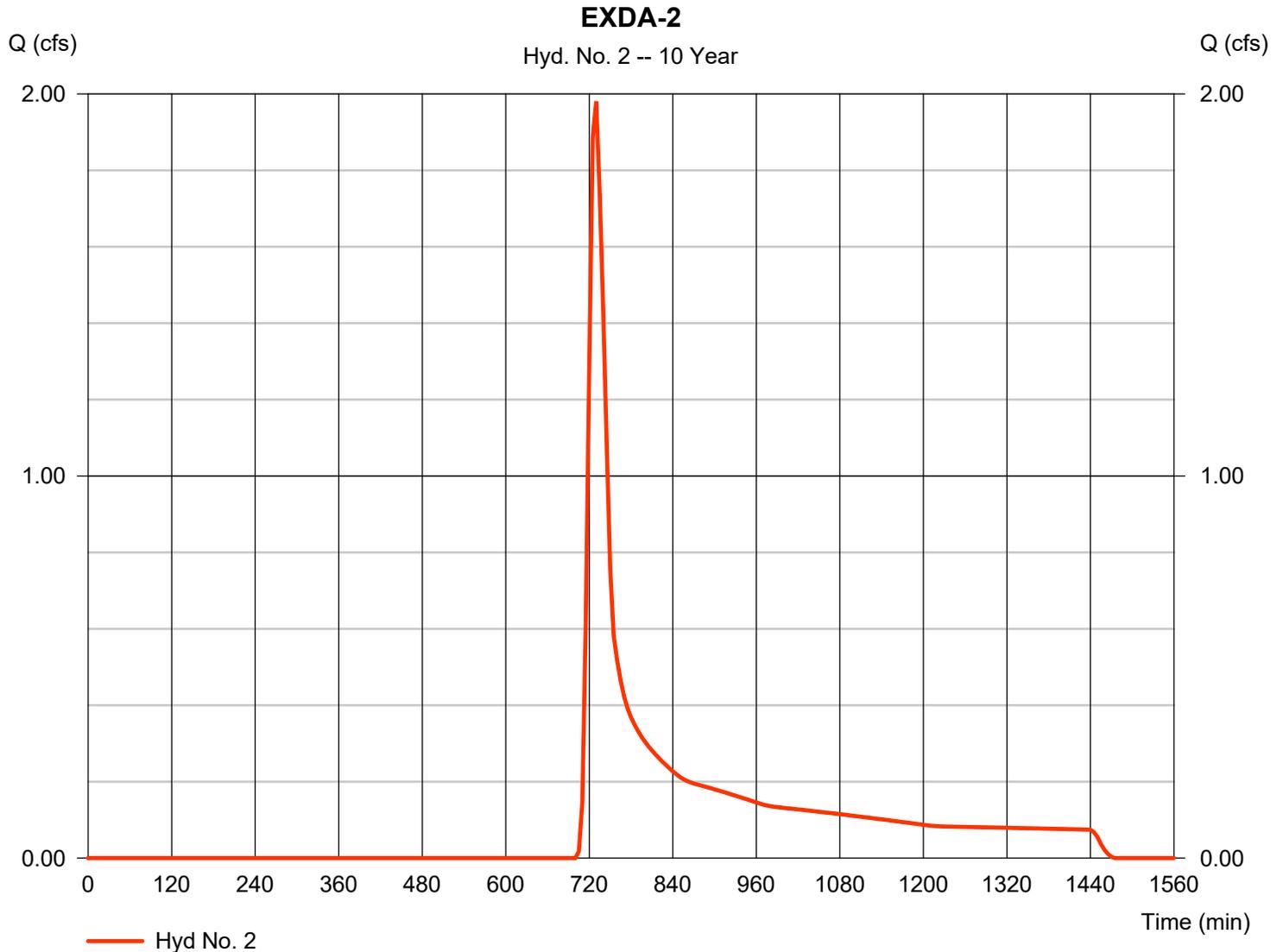


# Hydrograph Report

## Hyd. No. 2

EXDA-2

Hydrograph type	= SCS Runoff	Peak discharge	= 1.981 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.212 acft
Drainage area	= 4.170 ac	Curve number	= 64
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 16.60 min
Total precip.	= 3.31 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

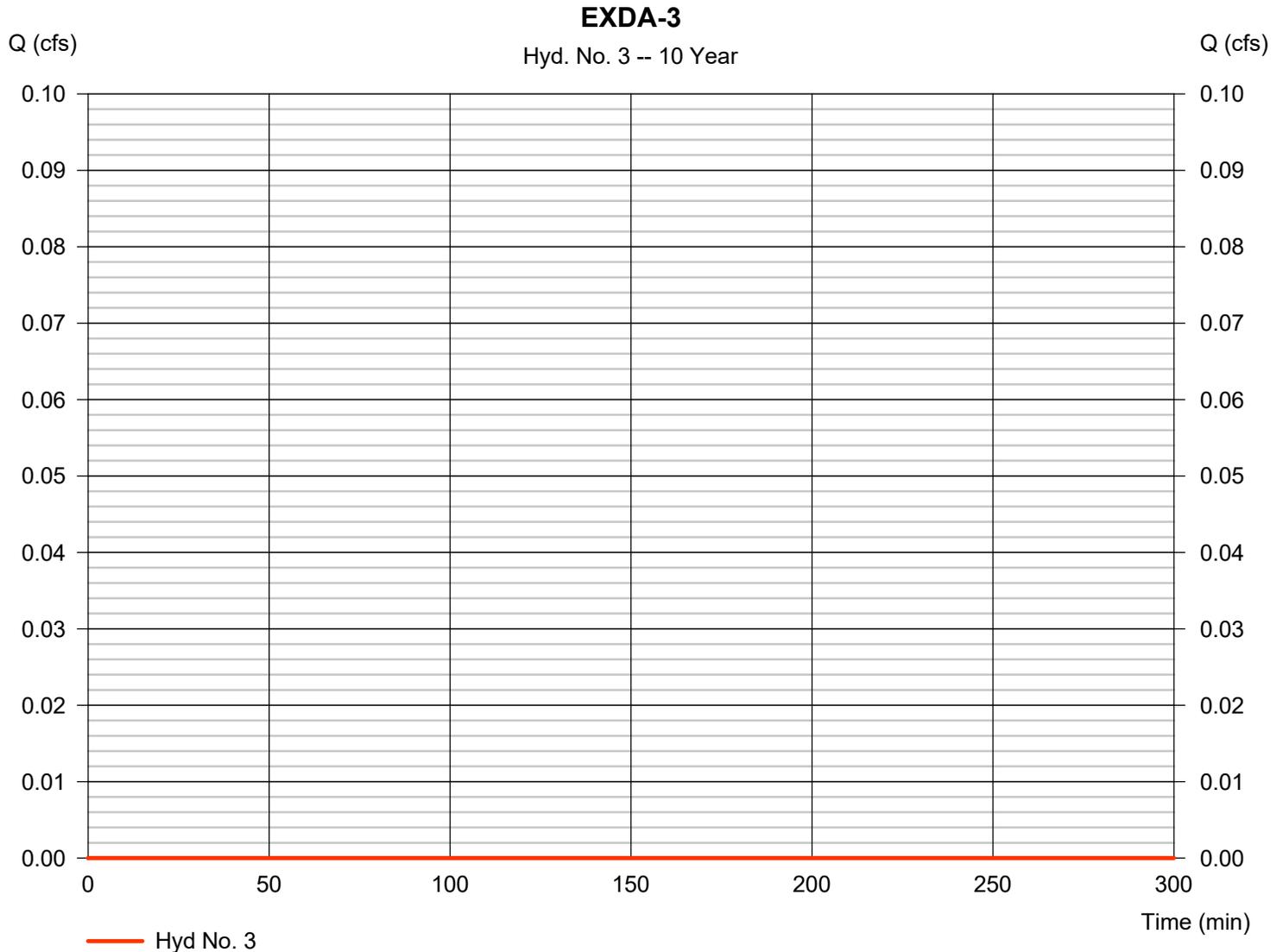


# Hydrograph Report

## Hyd. No. 3

EXDA-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 6.340 ac	Curve number	= 31
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 18.10 min
Total precip.	= 3.31 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



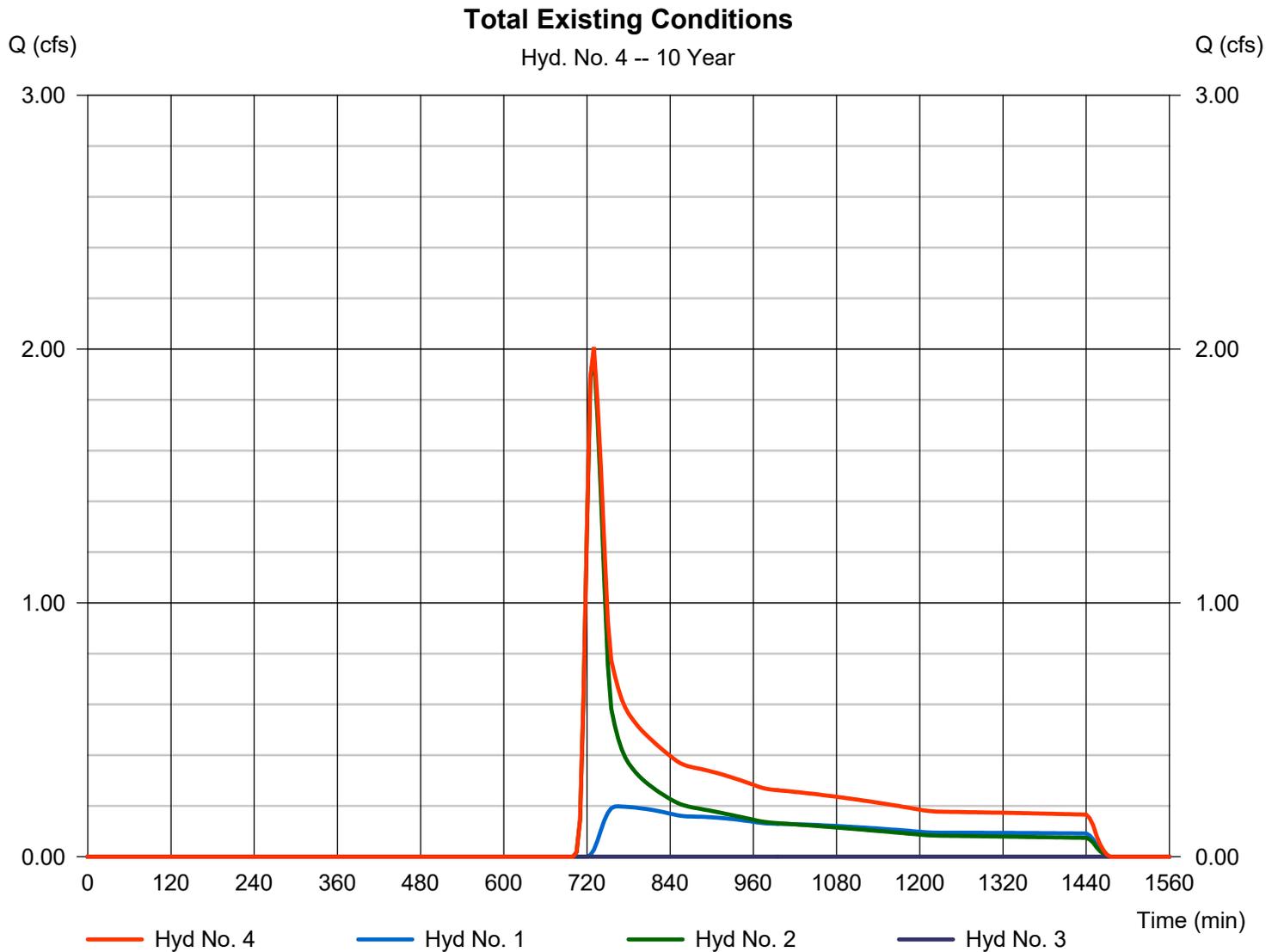
# Hydrograph Report

## Hyd. No. 4

### Total Existing Conditions

Hydrograph type = Combine  
Storm frequency = 10 yrs  
Time interval = 5 min  
Inflow hyds. = 1, 2, 3

Peak discharge = 2.008 cfs  
Time to peak = 730 min  
Hyd. volume = 0.336 acft  
Contrib. drain. area = 24.150 ac

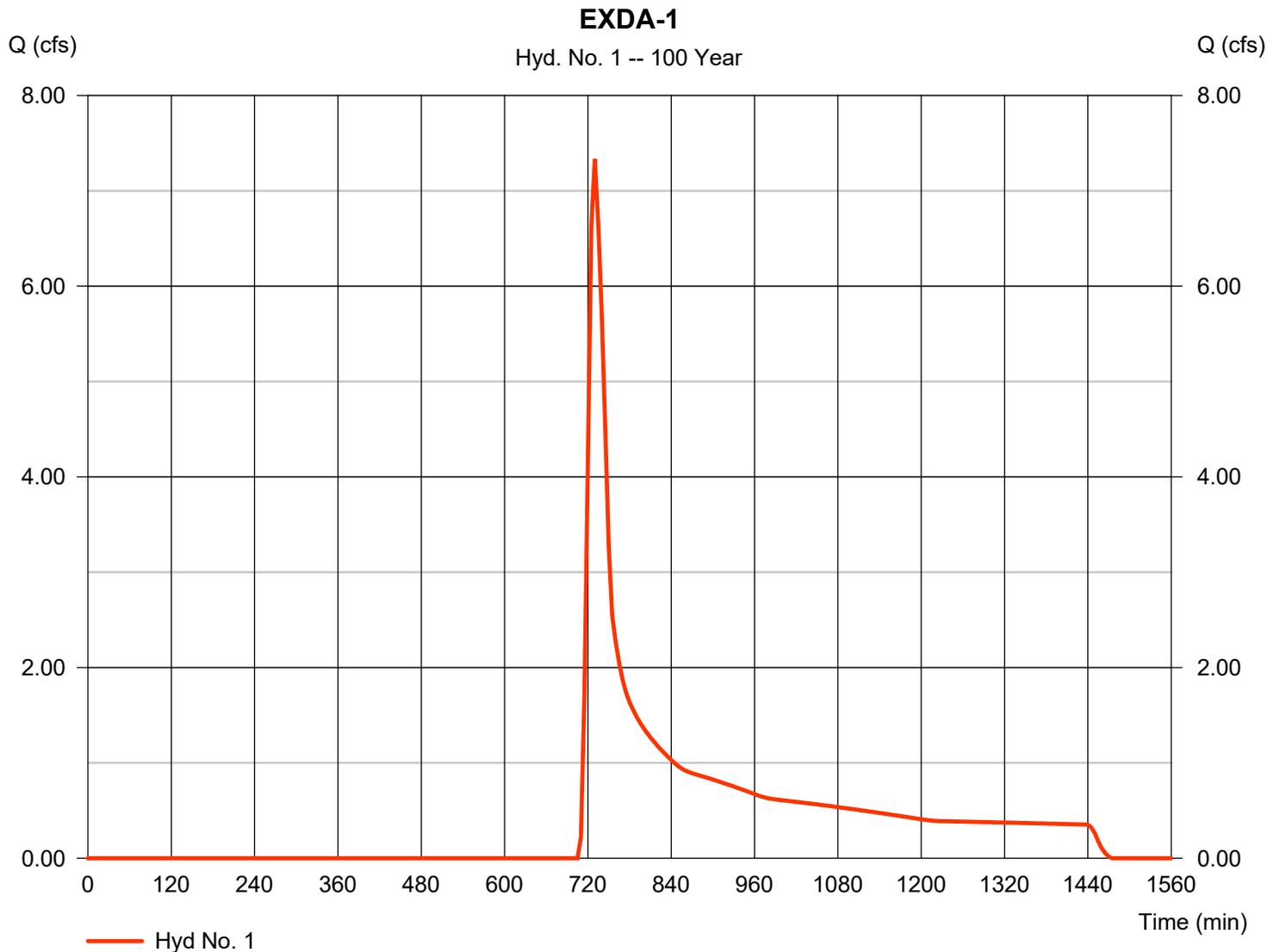


# Hydrograph Report

## Hyd. No. 1

EXDA-1

Hydrograph type	= SCS Runoff	Peak discharge	= 7.334 cfs
Storm frequency	= 100 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.906 acft
Drainage area	= 13.640 ac	Curve number	= 48
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 22.40 min
Total precip.	= 5.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

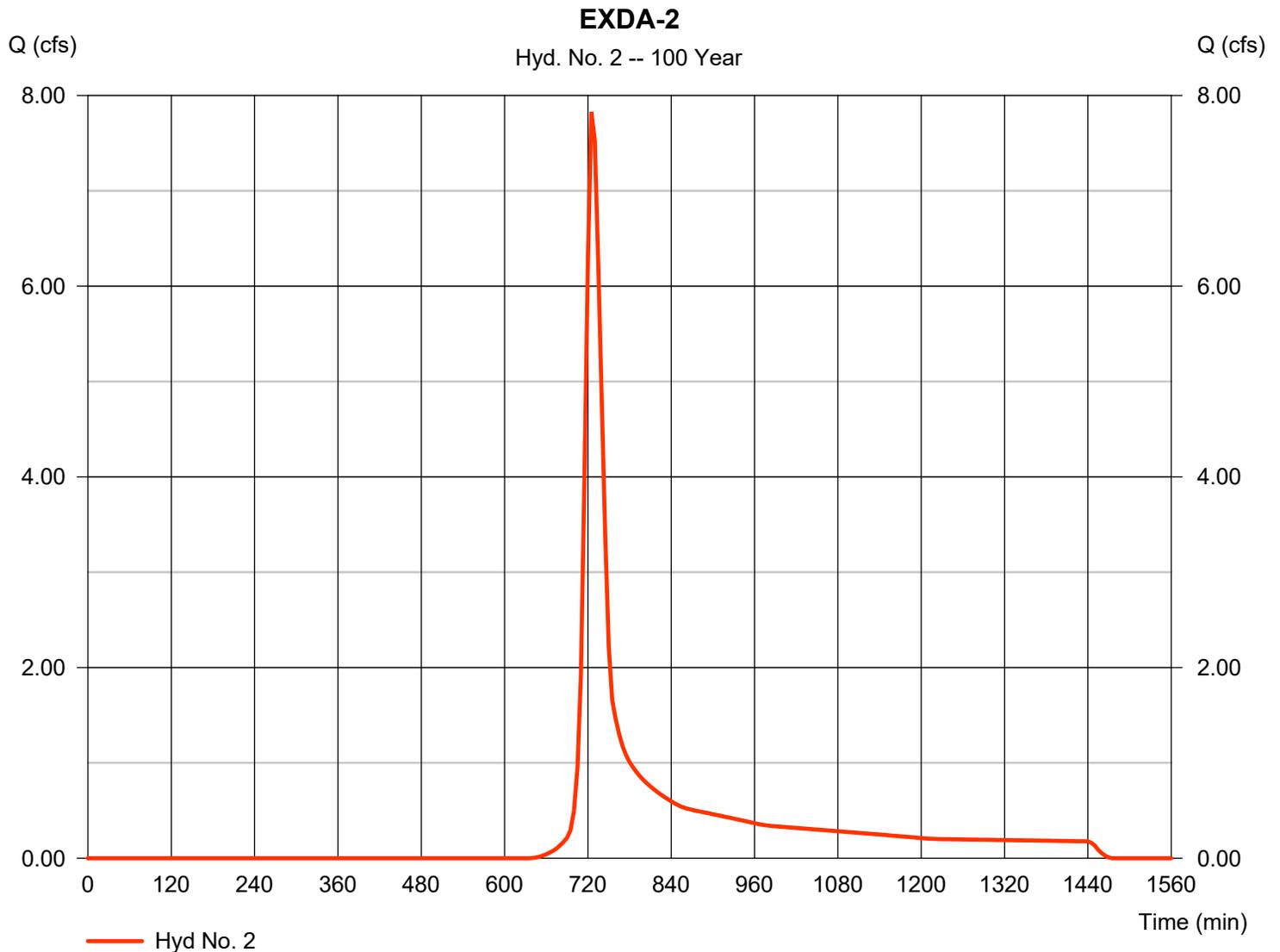


# Hydrograph Report

## Hyd. No. 2

EXDA-2

Hydrograph type	= SCS Runoff	Peak discharge	= 7.828 cfs
Storm frequency	= 100 yrs	Time to peak	= 725 min
Time interval	= 5 min	Hyd. volume	= 0.672 acft
Drainage area	= 4.170 ac	Curve number	= 64
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 16.60 min
Total precip.	= 5.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

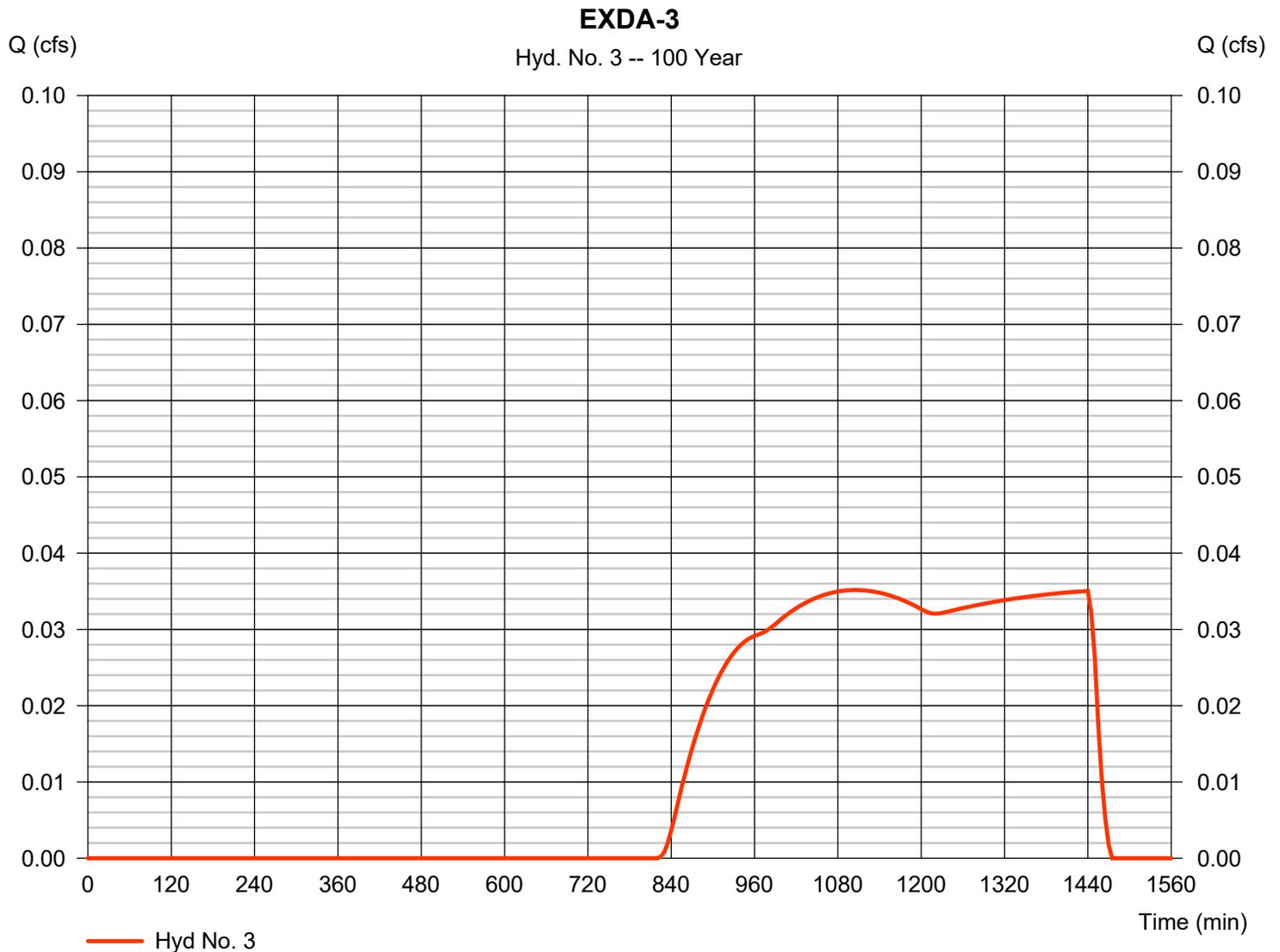


# Hydrograph Report

## Hyd. No. 3

EXDA-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.035 cfs
Storm frequency	= 100 yrs	Time to peak	= 1105 min
Time interval	= 5 min	Hyd. volume	= 0.026 acft
Drainage area	= 6.340 ac	Curve number	= 31
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 18.10 min
Total precip.	= 5.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



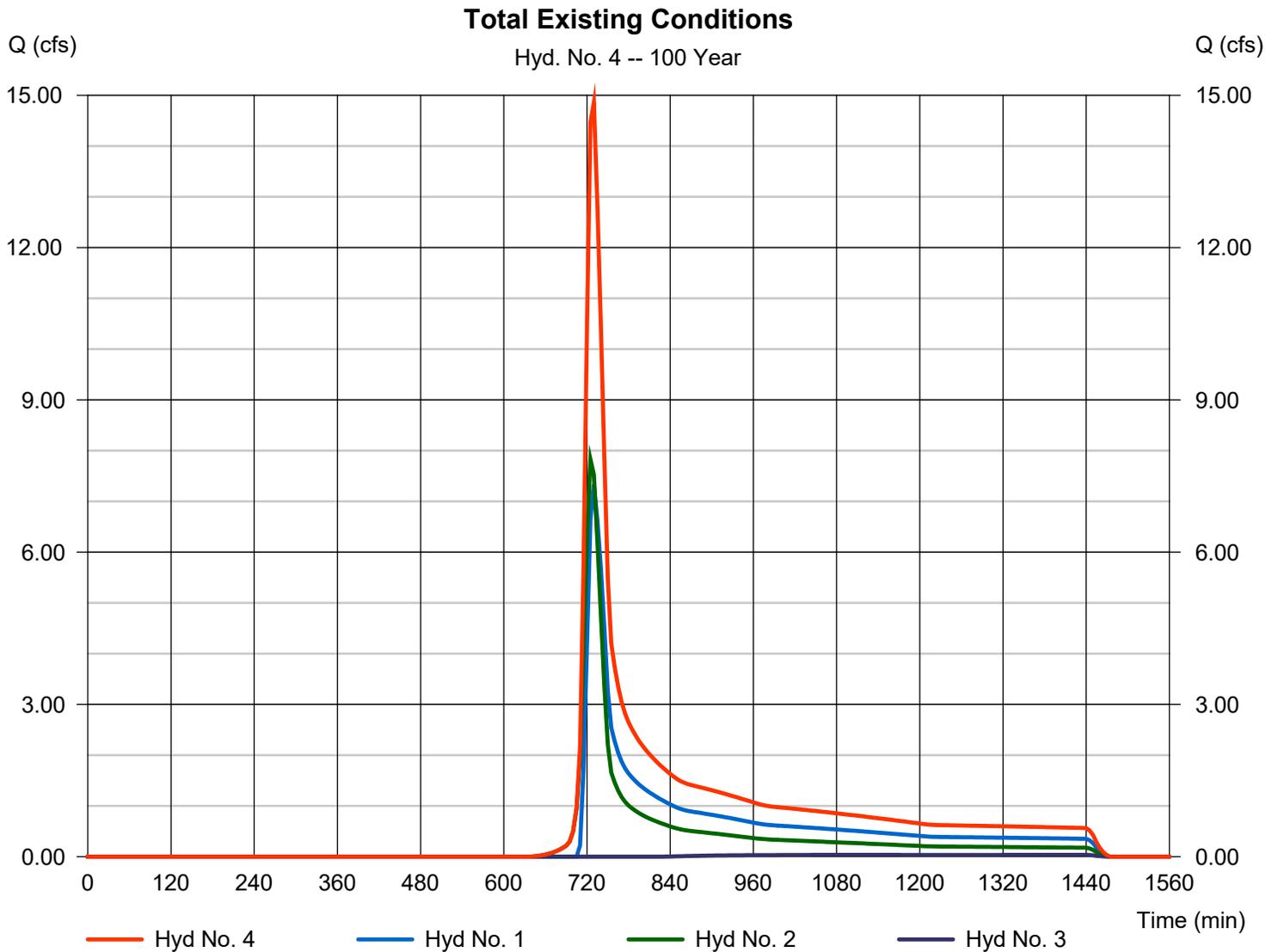
# Hydrograph Report

## Hyd. No. 4

### Total Existing Conditions

Hydrograph type = Combine  
Storm frequency = 100 yrs  
Time interval = 5 min  
Inflow hyds. = 1, 2, 3

Peak discharge = 14.86 cfs  
Time to peak = 730 min  
Hyd. volume = 1.604 acft  
Contrib. drain. area = 24.150 ac



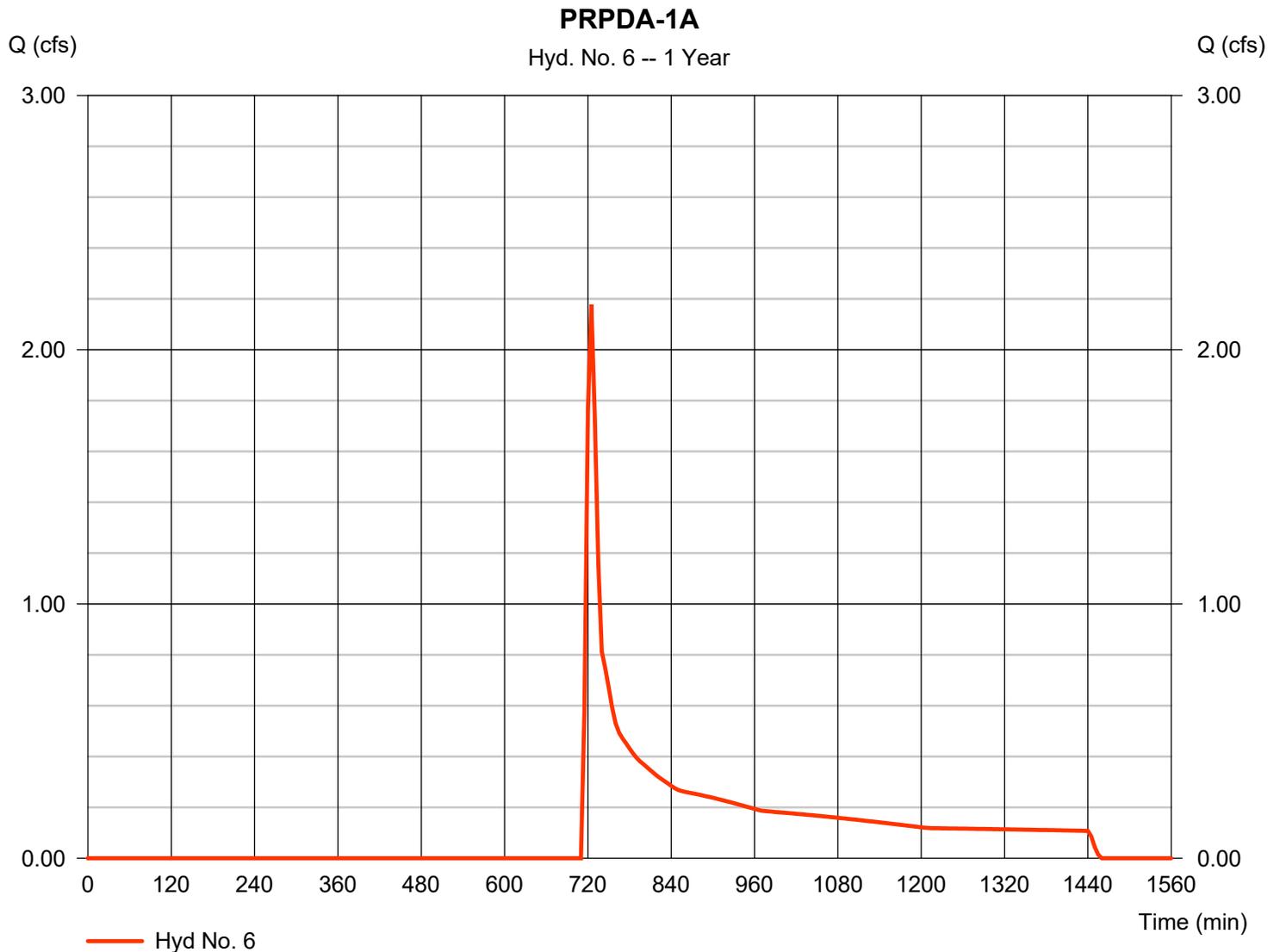
***PROPOSED CONDITIONS HYDROGRAPHS***

# Hydrograph Report

## Hyd. No. 6

PRPDA-1A

Hydrograph type	= SCS Runoff	Peak discharge	= 2.177 cfs
Storm frequency	= 1 yrs	Time to peak	= 725 min
Time interval	= 5 min	Hyd. volume	= 0.244 acft
Drainage area	= 14.680 ac	Curve number	= 69
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 13.10 min
Total precip.	= 1.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



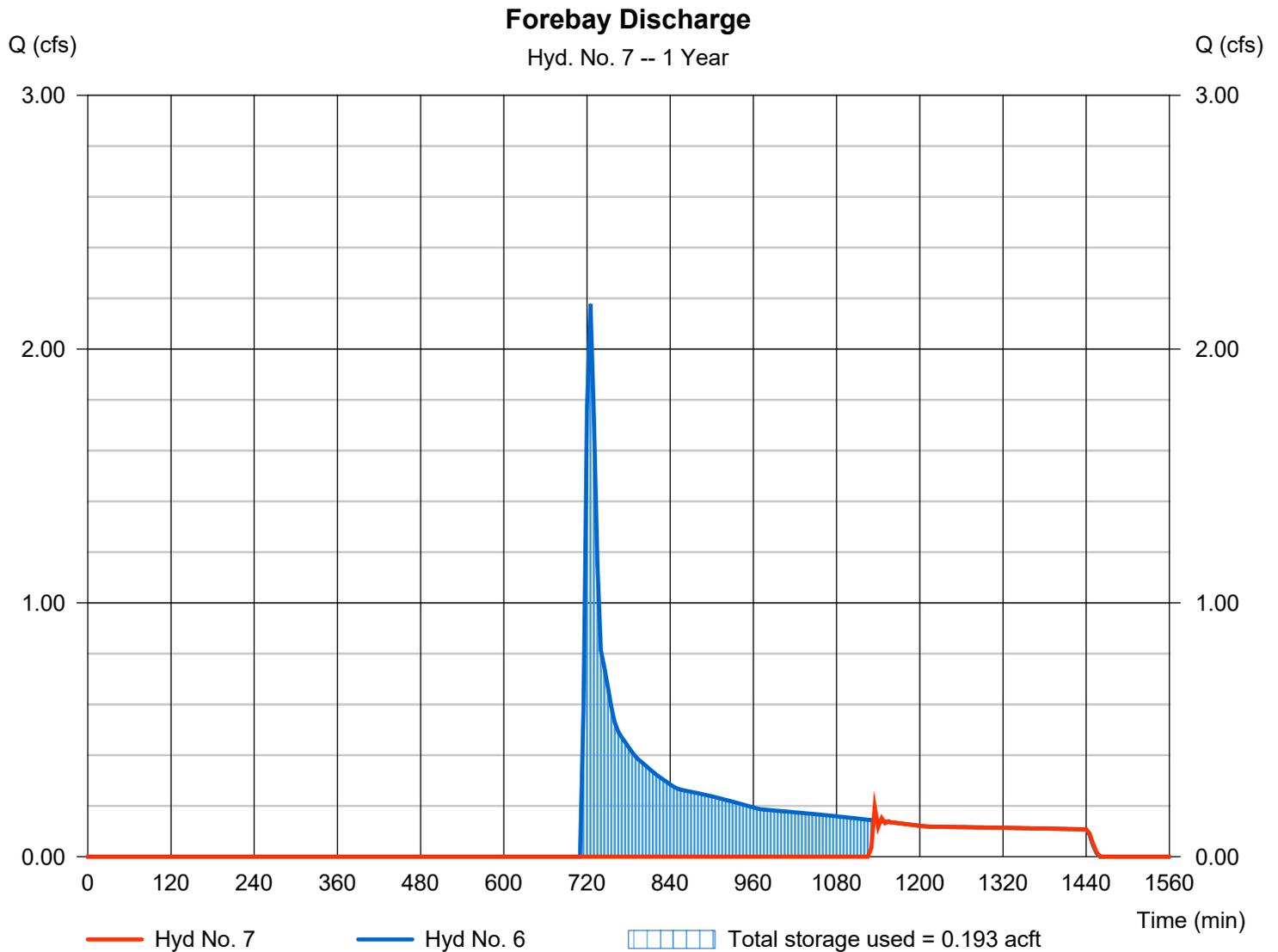
# Hydrograph Report

## Hyd. No. 7

### Forebay Discharge

Hydrograph type	= Reservoir	Peak discharge	= 0.196 cfs
Storm frequency	= 1 yrs	Time to peak	= 1135 min
Time interval	= 5 min	Hyd. volume	= 0.052 acft
Inflow hyd. No.	= 6 - PRPDA-1A	Max. Elevation	= 696.50 ft
Reservoir name	= Forebay	Max. Storage	= 0.193 acft

Storage Indication method used.

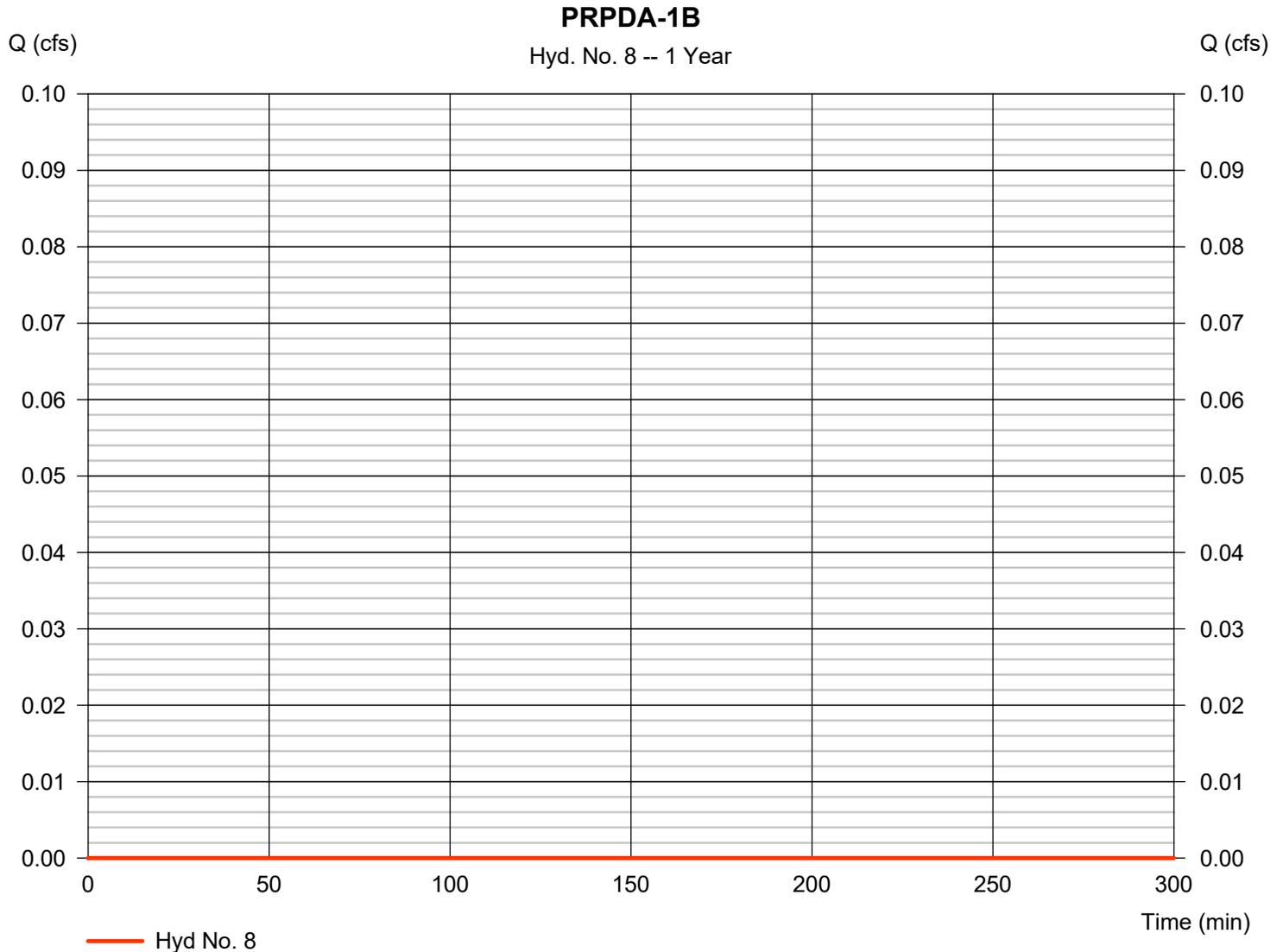


# Hydrograph Report

## Hyd. No. 8

PRPDA-1B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 1.070 ac	Curve number	= 45
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.80 min
Total precip.	= 1.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



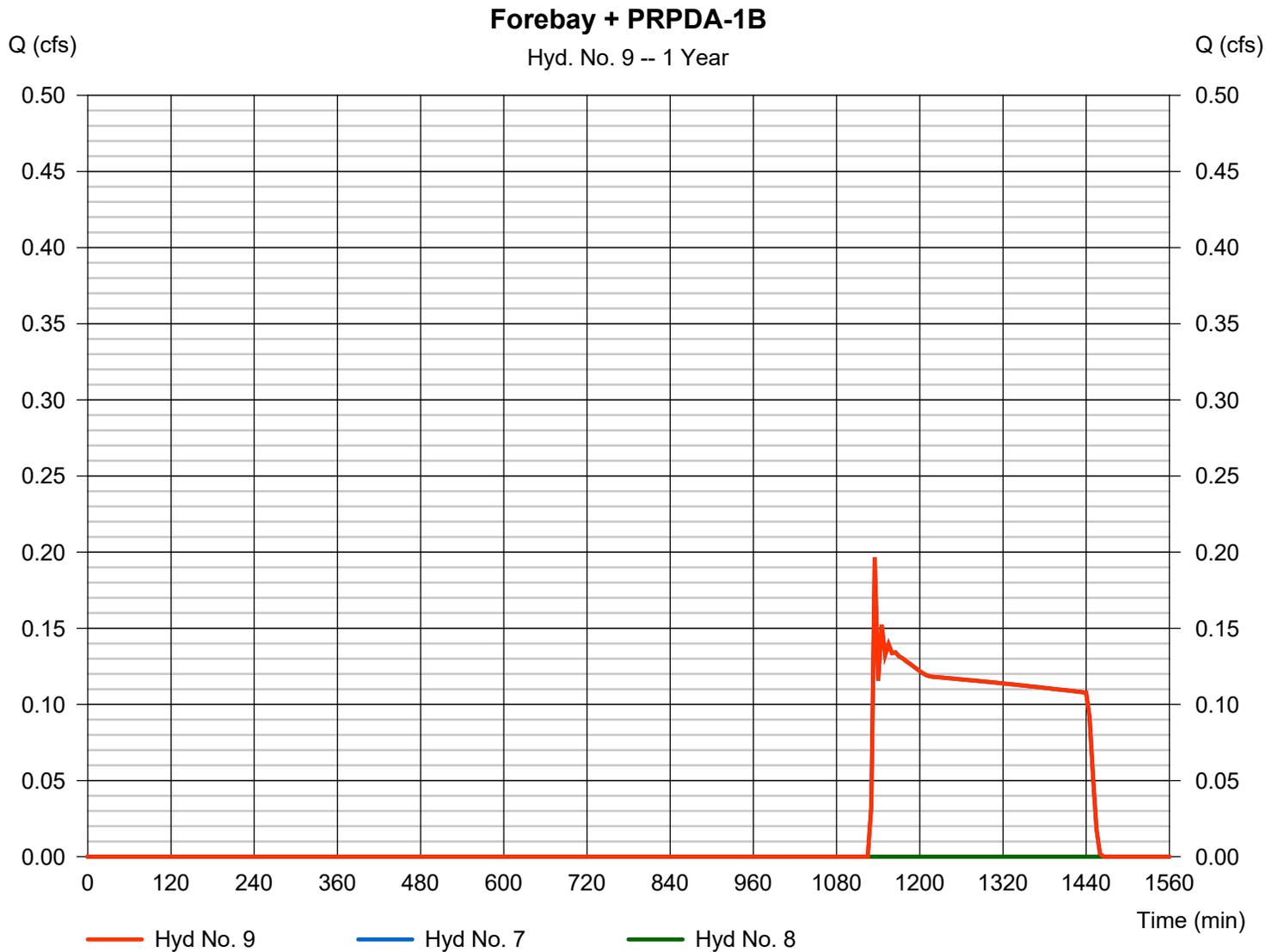
# Hydrograph Report

## Hyd. No. 9

Forebay + PRPDA-1B

Hydrograph type = Combine  
Storm frequency = 1 yrs  
Time interval = 5 min  
Inflow hyds. = 7, 8

Peak discharge = 0.196 cfs  
Time to peak = 1135 min  
Hyd. volume = 0.052 acft  
Contrib. drain. area = 1.070 ac



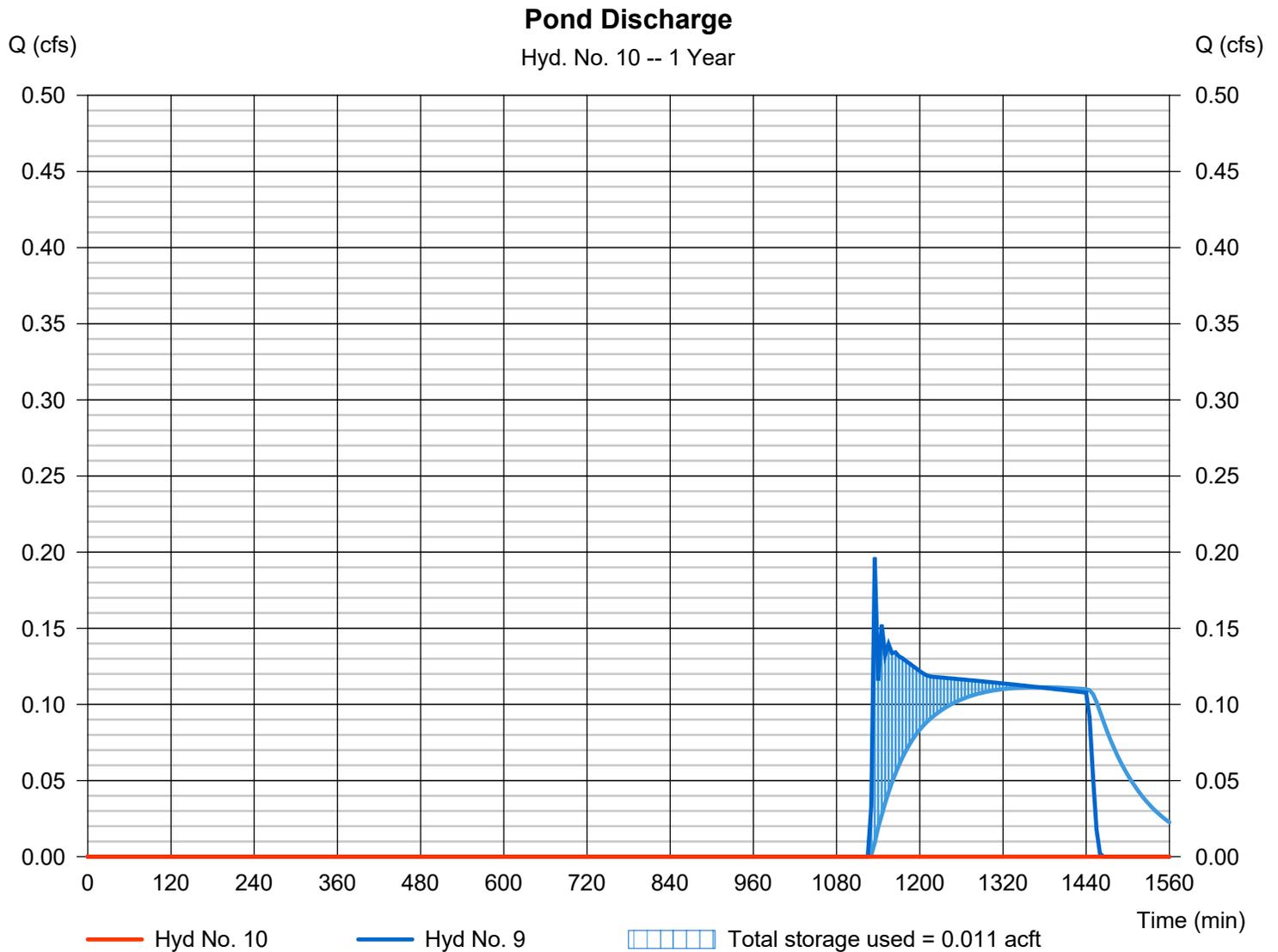
# Hydrograph Report

## Hyd. No. 10

### Pond Discharge

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Inflow hyd. No.	= 9 - Forebay + PRPDA-1B	Max. Elevation	= 689.54 ft
Reservoir name	= Infiltration Basin	Max. Storage	= 0.011 acft

Storage Indication method used. Exfiltration extracted from Outflow.

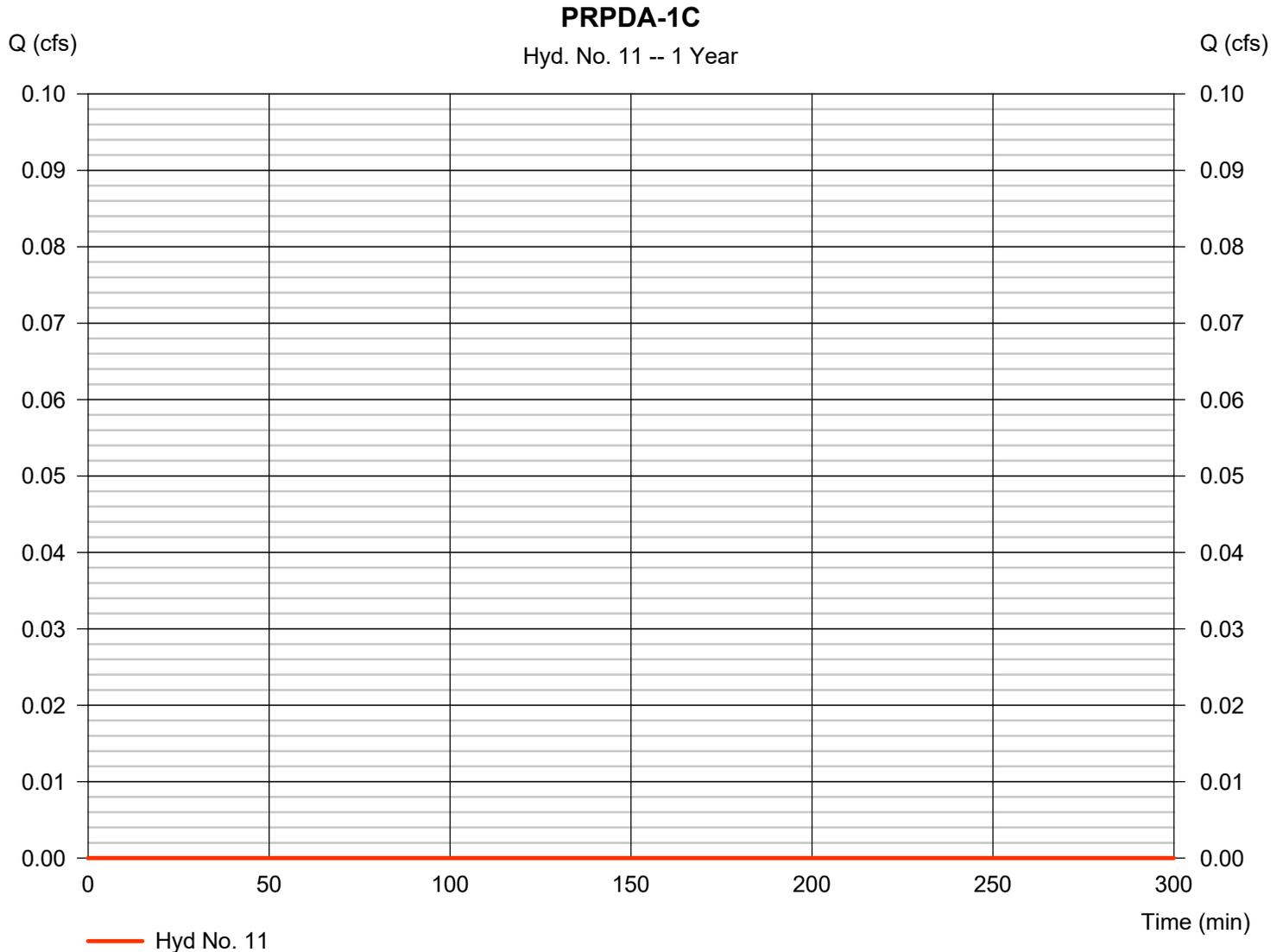


# Hydrograph Report

## Hyd. No. 11

PRPDA-1C

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 1.200 ac	Curve number	= 42
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 14.90 min
Total precip.	= 1.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

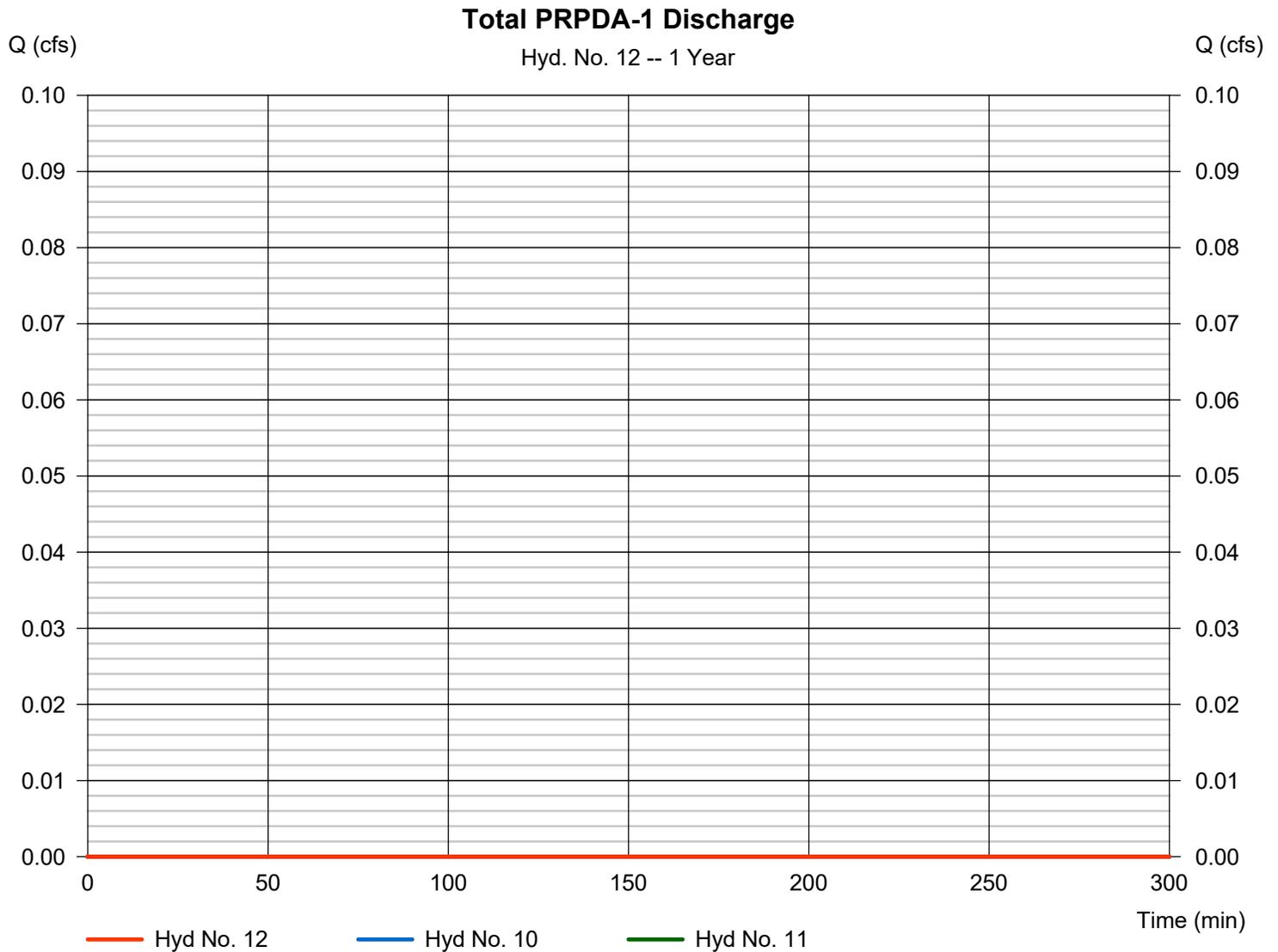


# Hydrograph Report

## Hyd. No. 12

### Total PRPDA-1 Discharge

Hydrograph type	= Combine	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Inflow hyds.	= 10, 11	Contrib. drain. area	= 1.200 ac

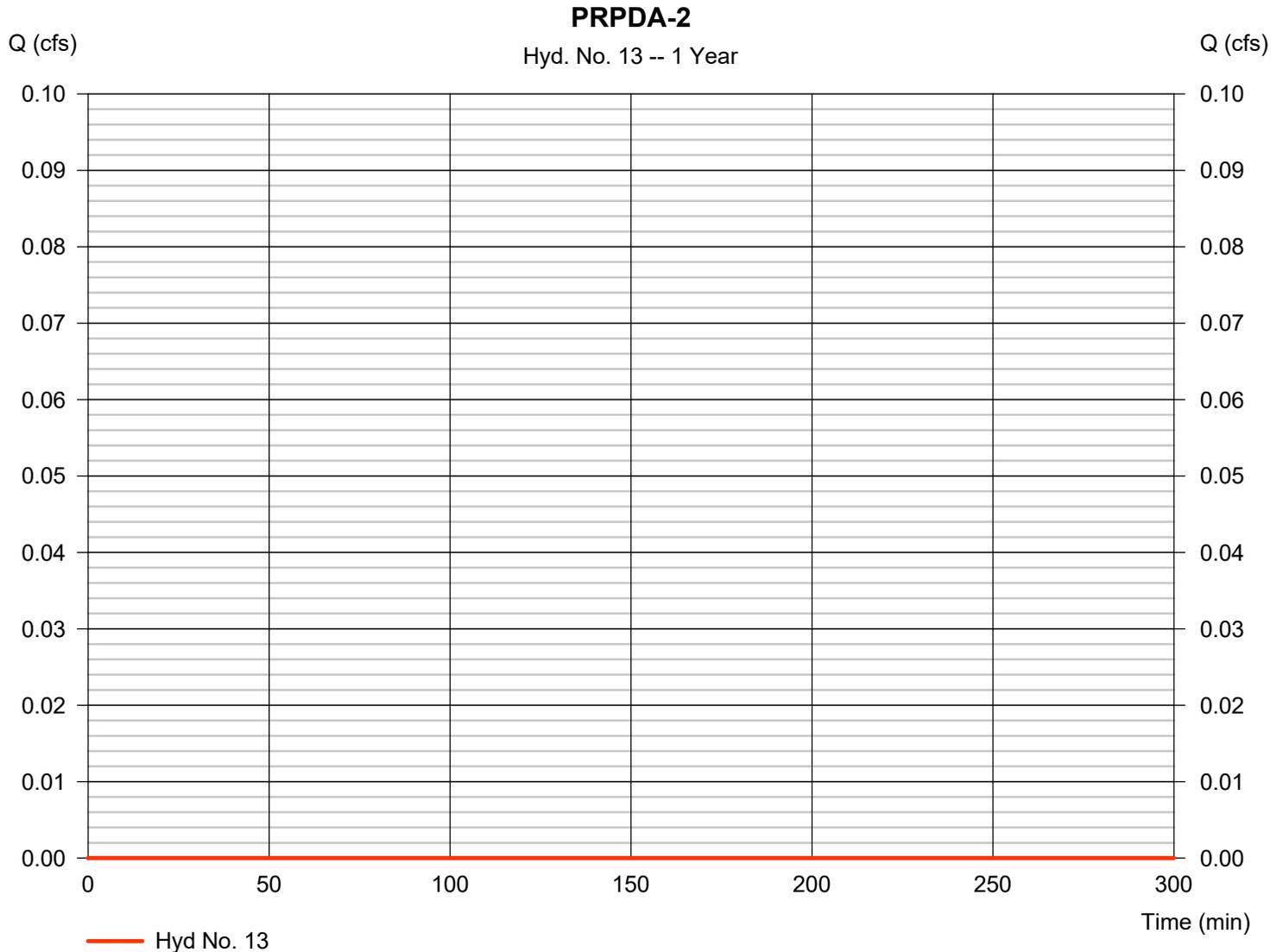


# Hydrograph Report

## Hyd. No. 13

PRPDA-2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 0.360 ac	Curve number	= 46
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 1.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

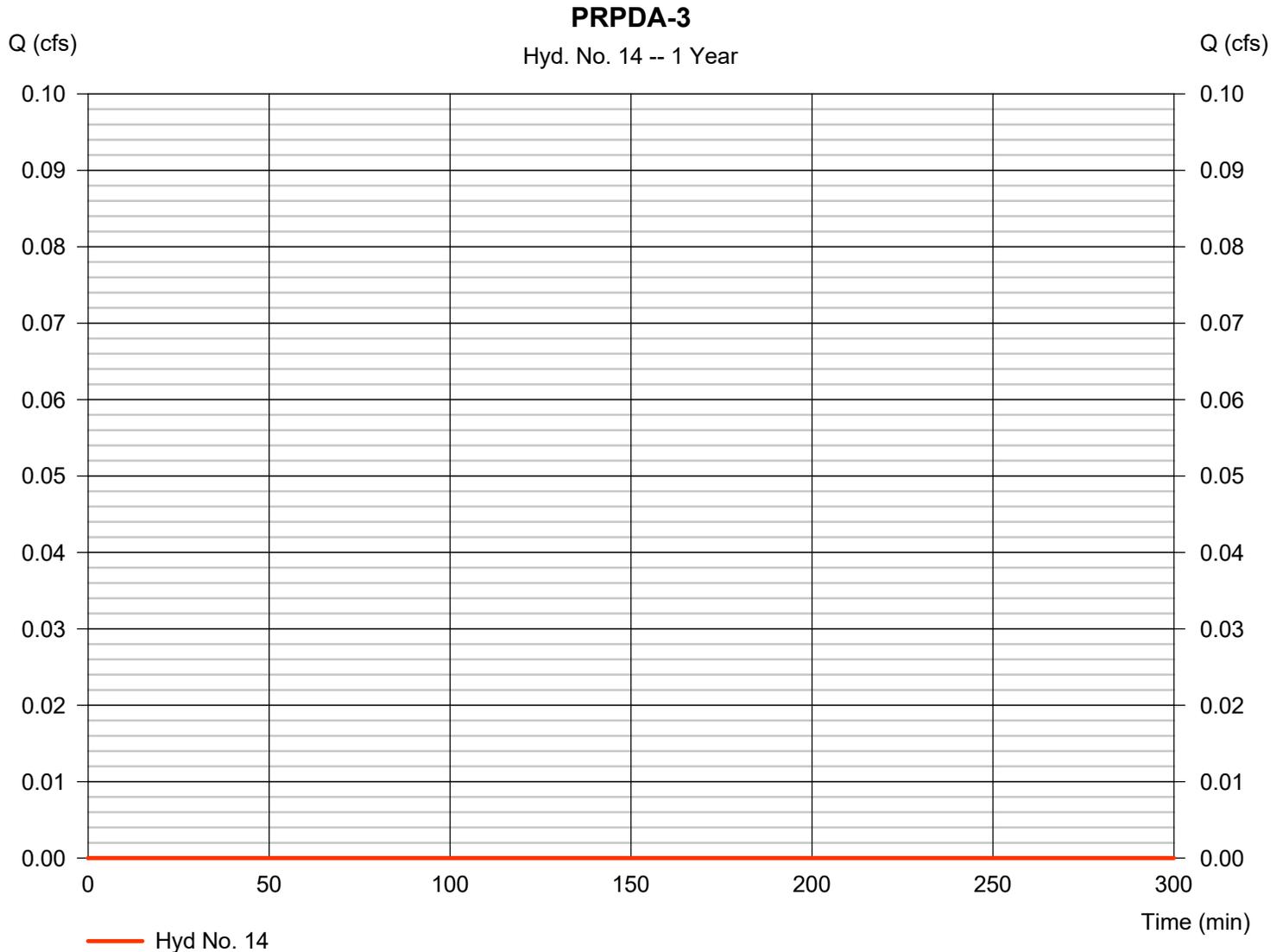


# Hydrograph Report

## Hyd. No. 14

PRPDA-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 6.330 ac	Curve number	= 31
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 18.10 min
Total precip.	= 1.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

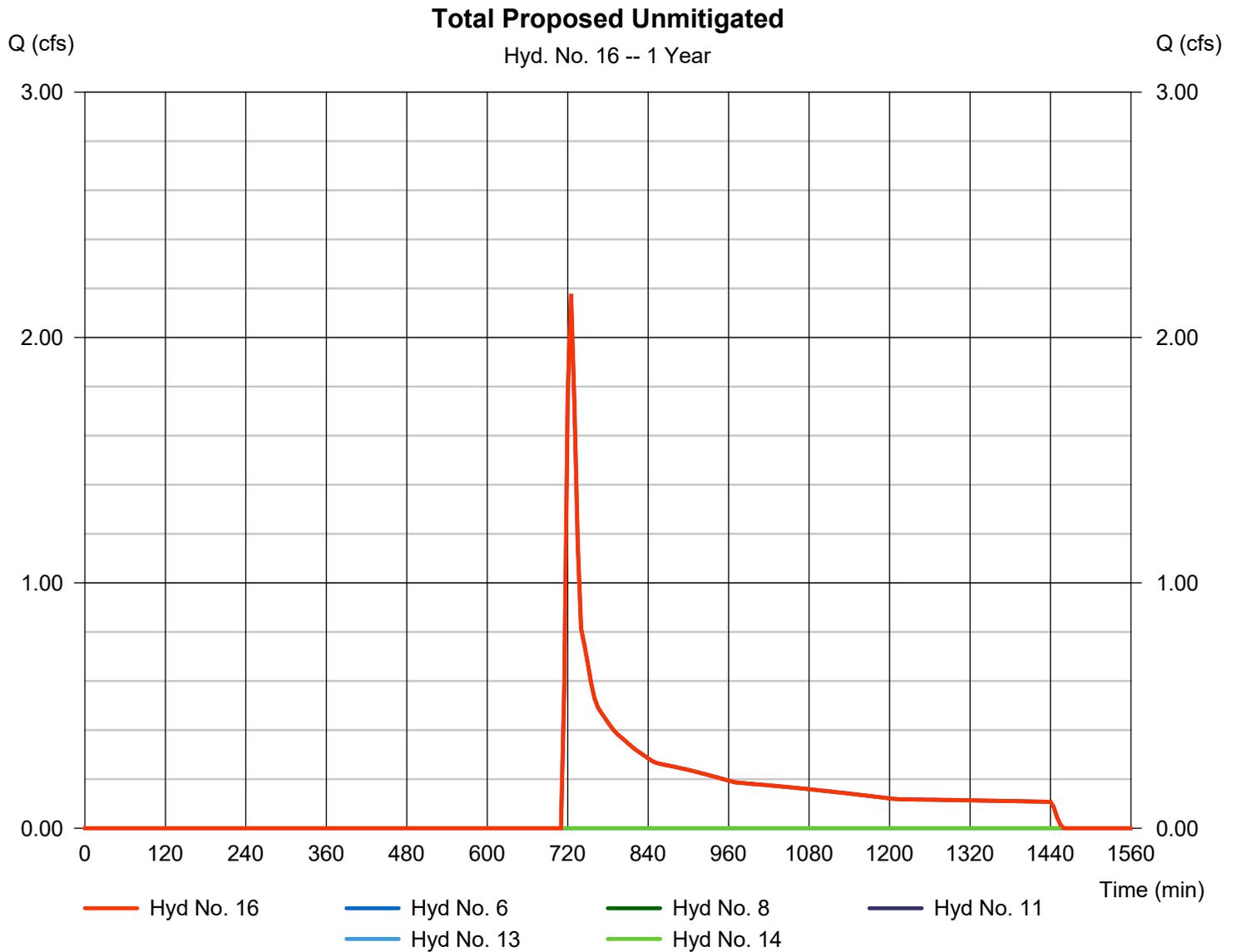


# Hydrograph Report

## Hyd. No. 16

Total Proposed Unmitigated

Hydrograph type	= Combine	Peak discharge	= 2.177 cfs
Storm frequency	= 1 yrs	Time to peak	= 725 min
Time interval	= 5 min	Hyd. volume	= 0.244 acft
Inflow hyds.	= 6, 8, 11, 13, 14	Contrib. drain. area	= 23.640 ac

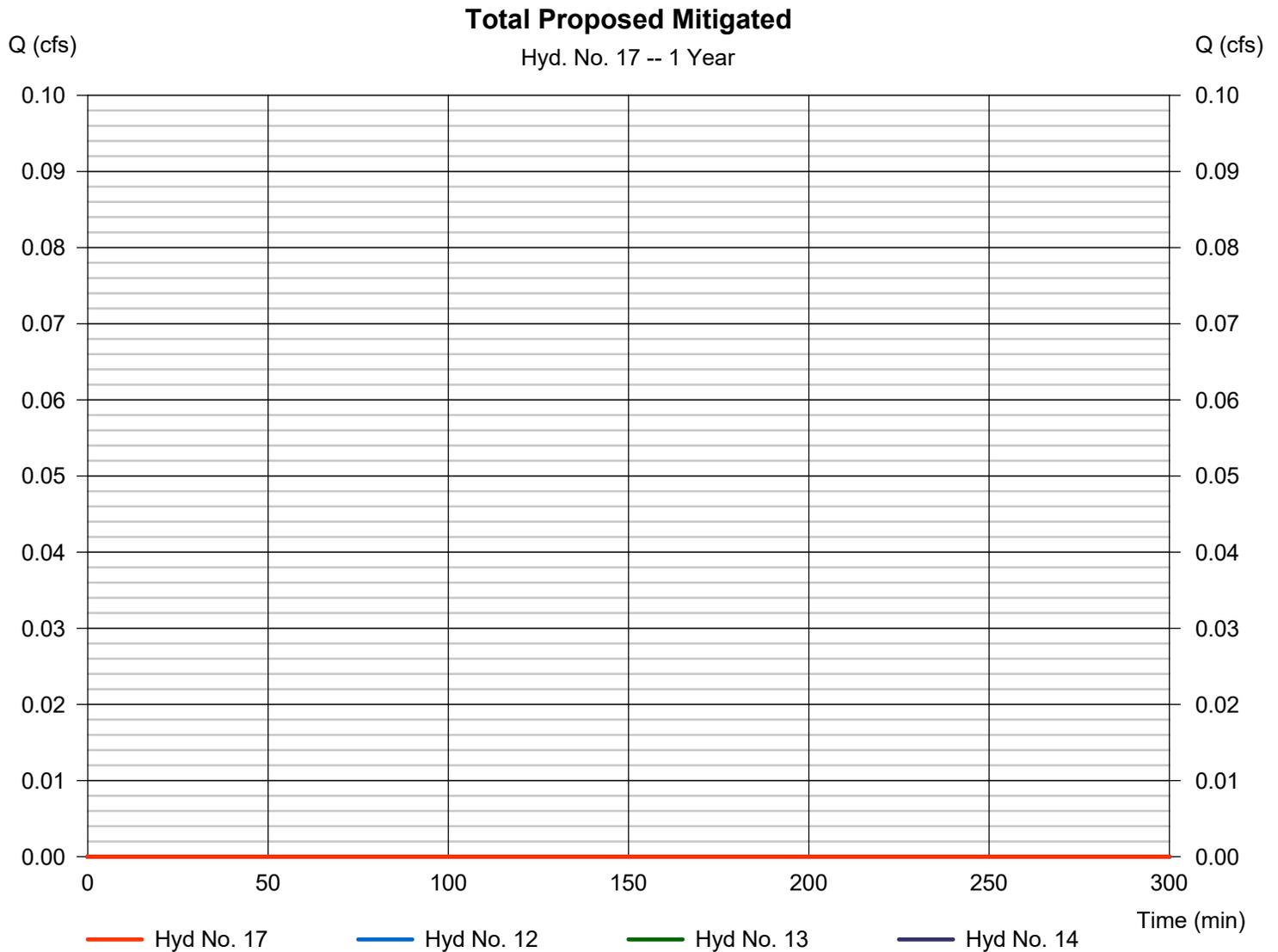


# Hydrograph Report

## Hyd. No. 17

Total Proposed Mitigated

Hydrograph type	= Combine	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Inflow hyds.	= 12, 13, 14	Contrib. drain. area	= 6.690 ac

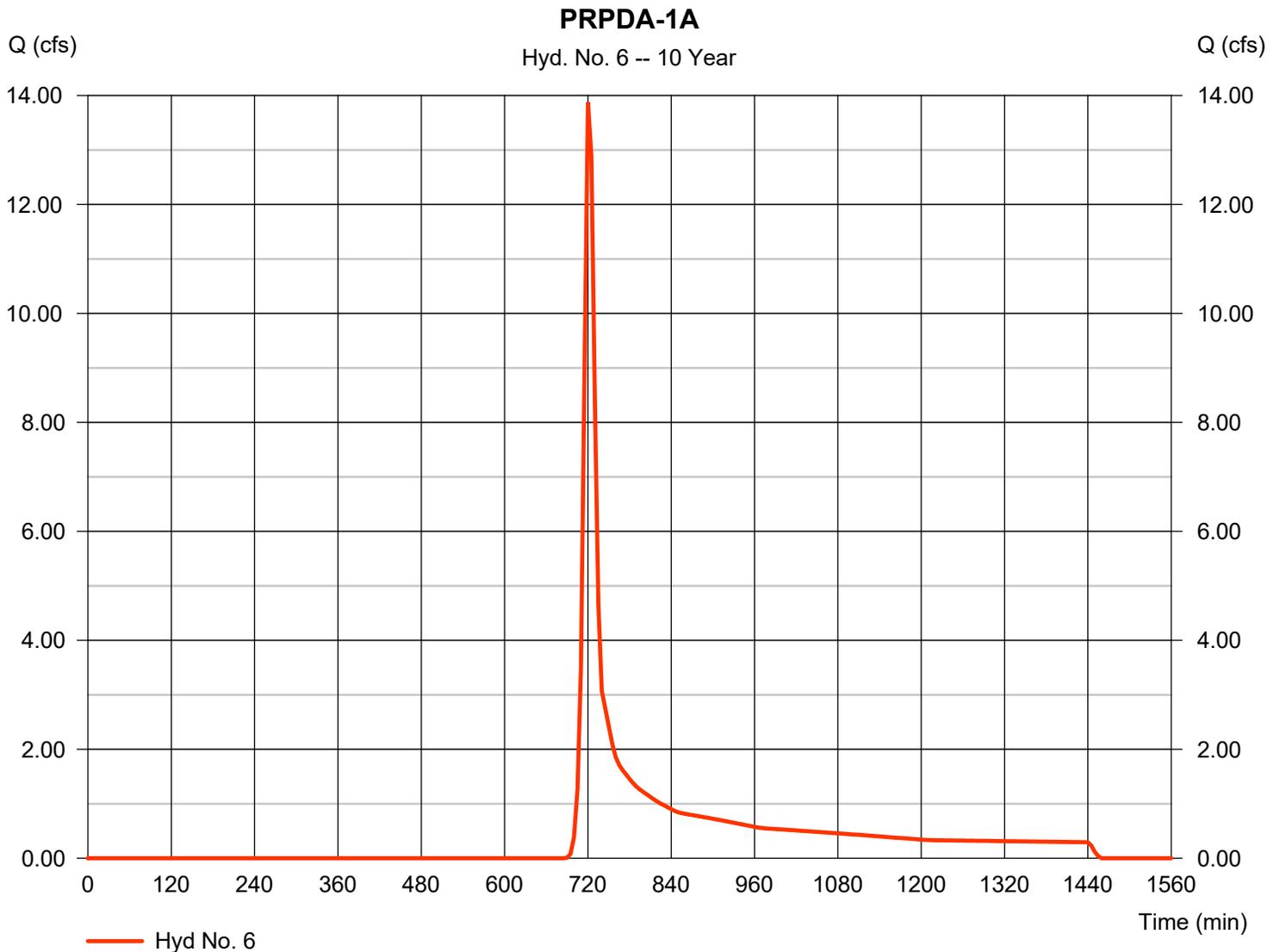


# Hydrograph Report

## Hyd. No. 6

PRPDA-1A

Hydrograph type	= SCS Runoff	Peak discharge	= 13.88 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 5 min	Hyd. volume	= 0.966 acft
Drainage area	= 14.680 ac	Curve number	= 69
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 13.10 min
Total precip.	= 3.31 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



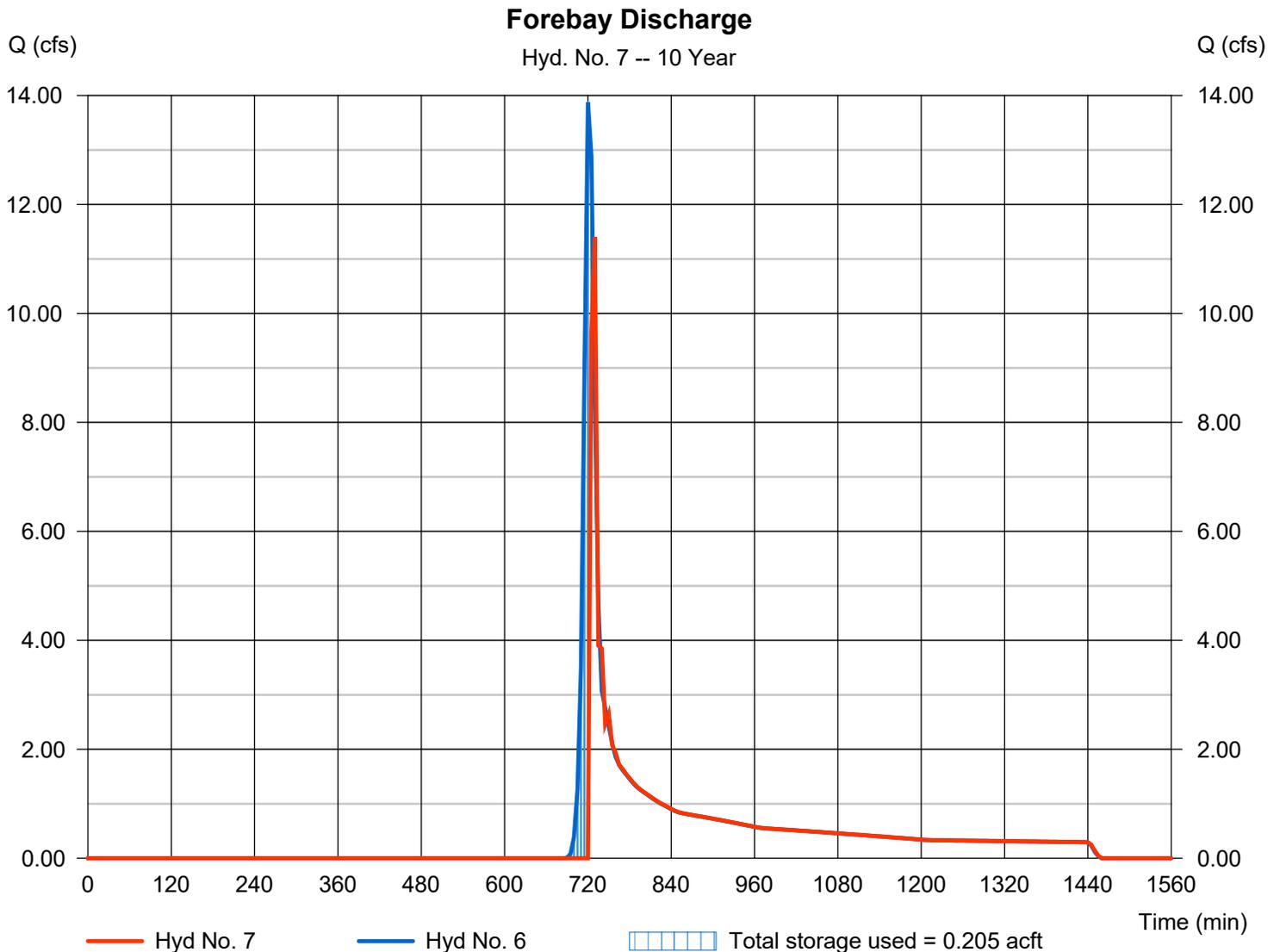
# Hydrograph Report

## Hyd. No. 7

### Forebay Discharge

Hydrograph type	= Reservoir	Peak discharge	= 11.40 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.774 acft
Inflow hyd. No.	= 6 - PRPDA-1A	Max. Elevation	= 696.72 ft
Reservoir name	= Forebay	Max. Storage	= 0.205 acft

Storage Indication method used.

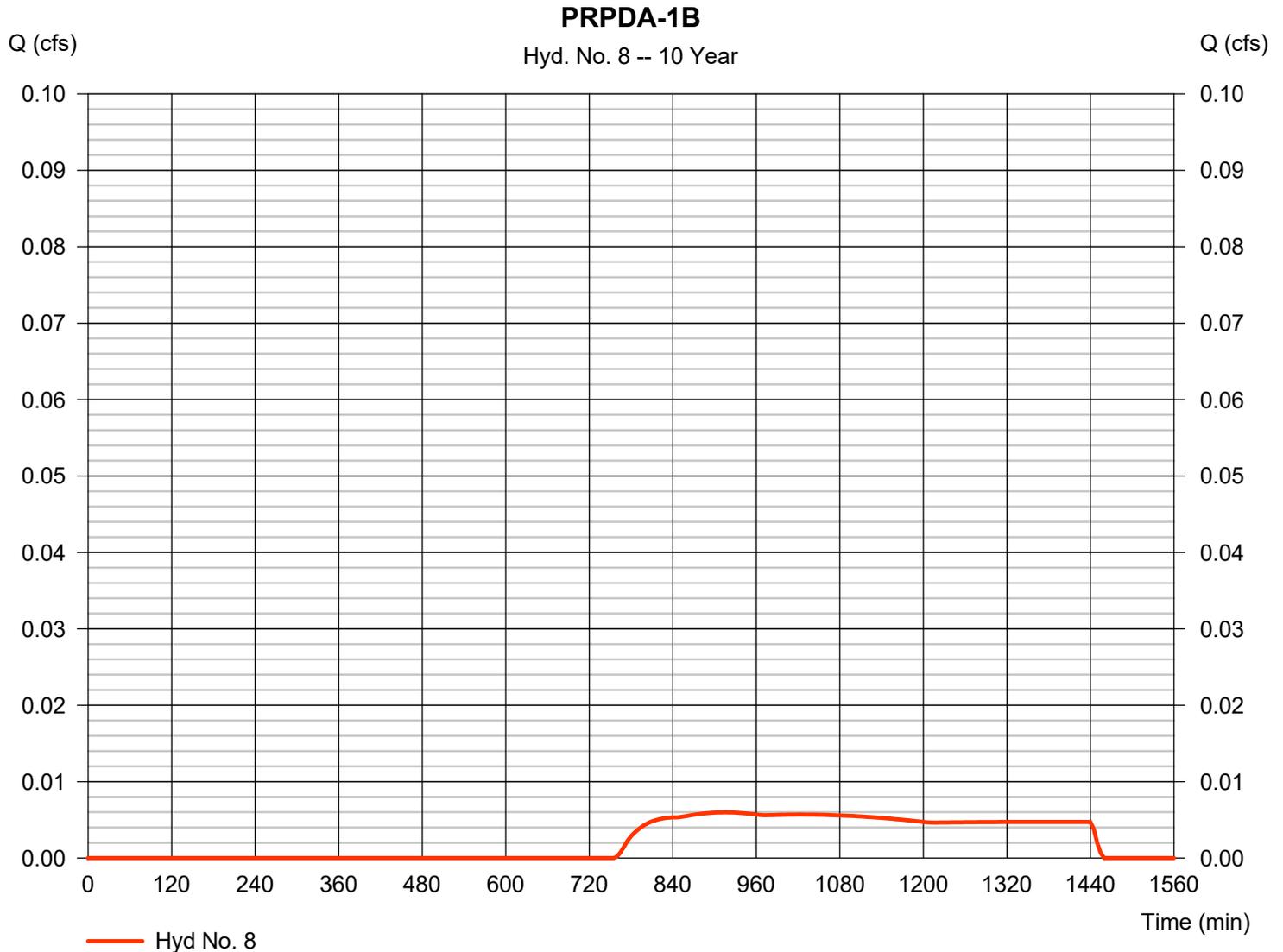


# Hydrograph Report

## Hyd. No. 8

PRPDA-1B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.006 cfs
Storm frequency	= 10 yrs	Time to peak	= 915 min
Time interval	= 5 min	Hyd. volume	= 0.005 acft
Drainage area	= 1.070 ac	Curve number	= 45
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.80 min
Total precip.	= 3.31 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



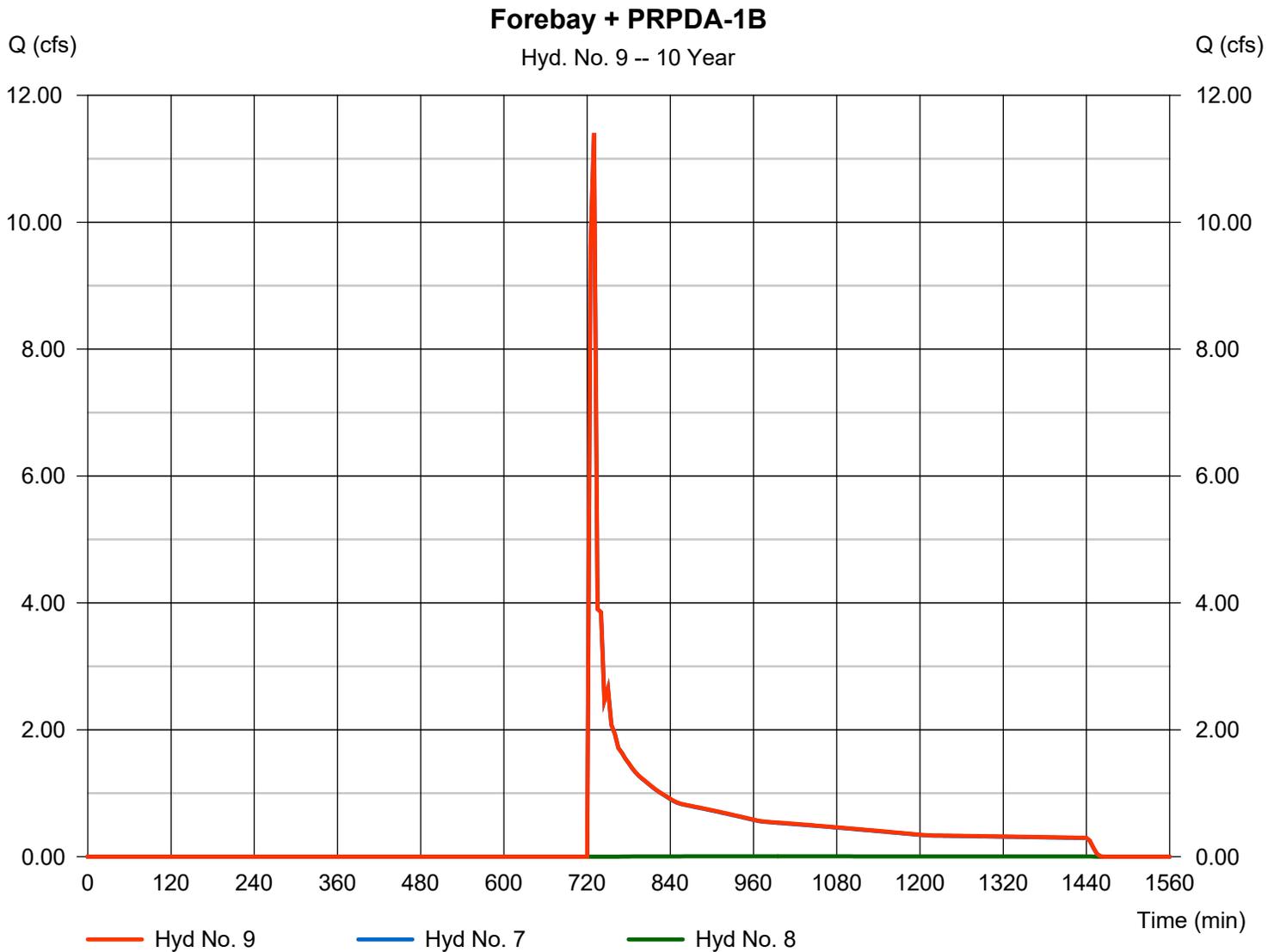
# Hydrograph Report

## Hyd. No. 9

Forebay + PRPDA-1B

Hydrograph type = Combine  
Storm frequency = 10 yrs  
Time interval = 5 min  
Inflow hyds. = 7, 8

Peak discharge = 11.40 cfs  
Time to peak = 730 min  
Hyd. volume = 0.778 acft  
Contrib. drain. area = 1.070 ac



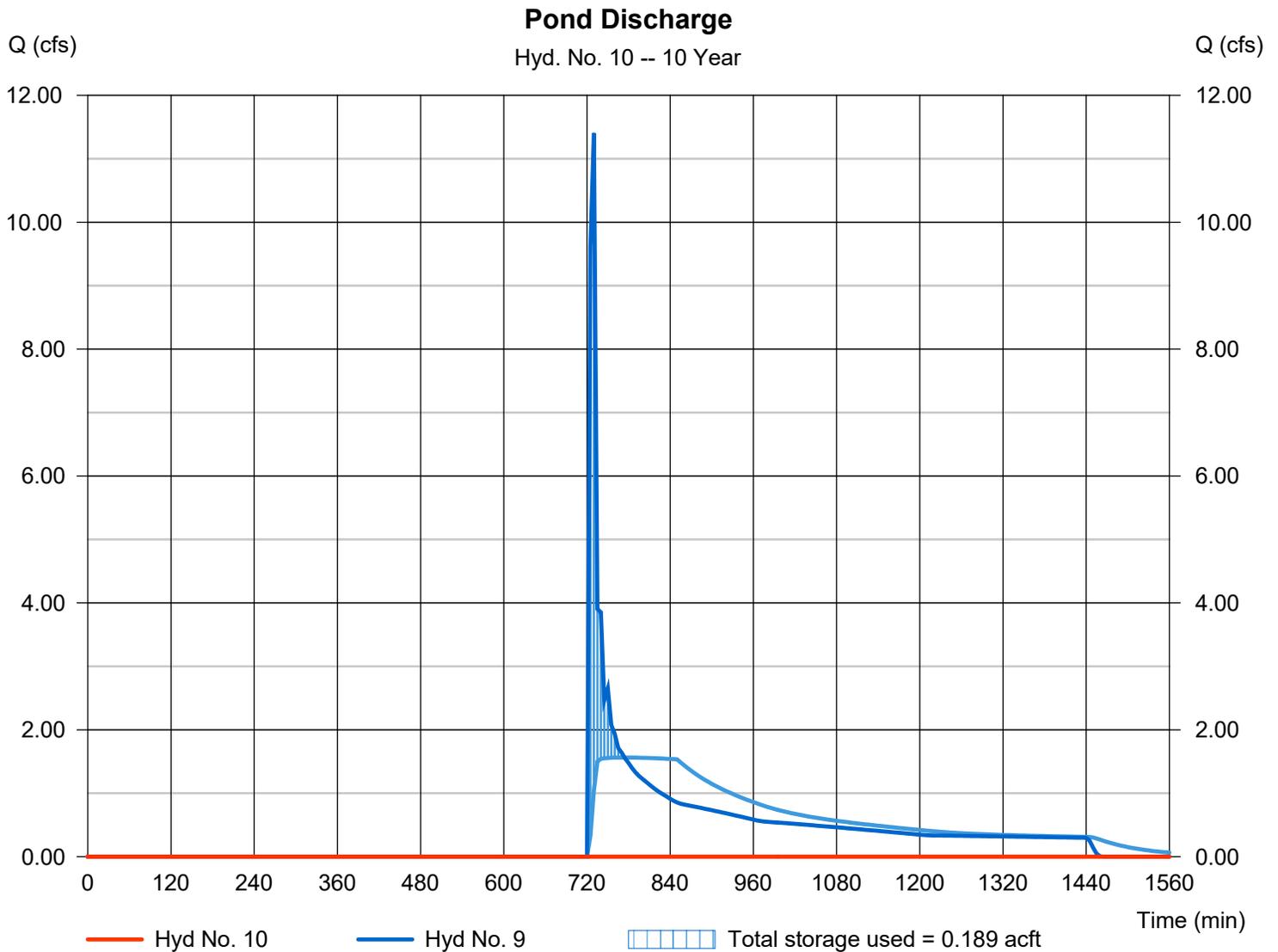
# Hydrograph Report

## Hyd. No. 10

### Pond Discharge

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= 985 min
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Inflow hyd. No.	= 9 - Forebay + PRPDA-1B	Max. Elevation	= 690.12 ft
Reservoir name	= Infiltration Basin	Max. Storage	= 0.189 acft

Storage Indication method used. Exfiltration extracted from Outflow.

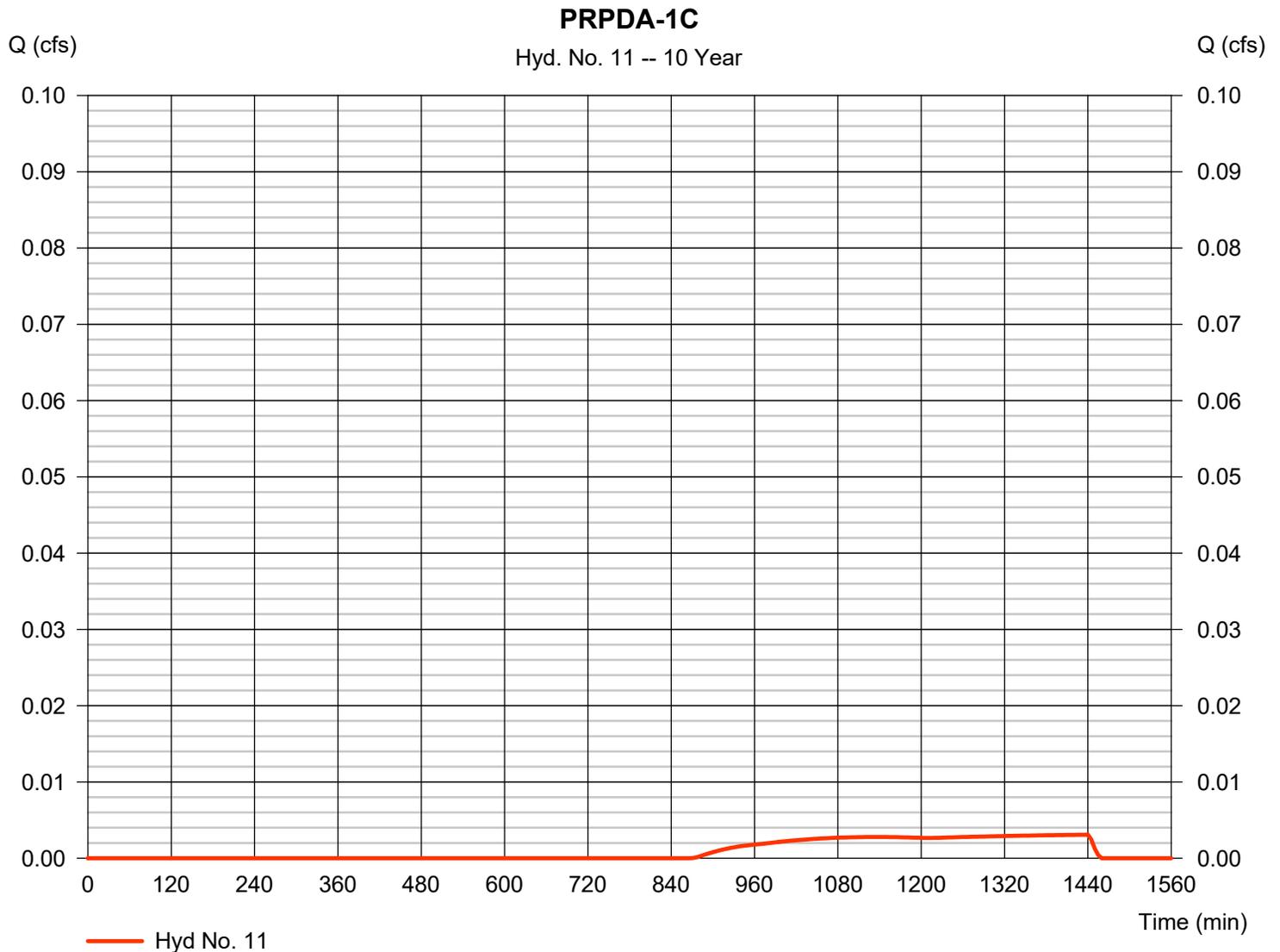


# Hydrograph Report

## Hyd. No. 11

PRPDA-1C

Hydrograph type	= SCS Runoff	Peak discharge	= 0.003 cfs
Storm frequency	= 10 yrs	Time to peak	= 1440 min
Time interval	= 5 min	Hyd. volume	= 0.002 acft
Drainage area	= 1.200 ac	Curve number	= 42
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 14.90 min
Total precip.	= 3.31 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



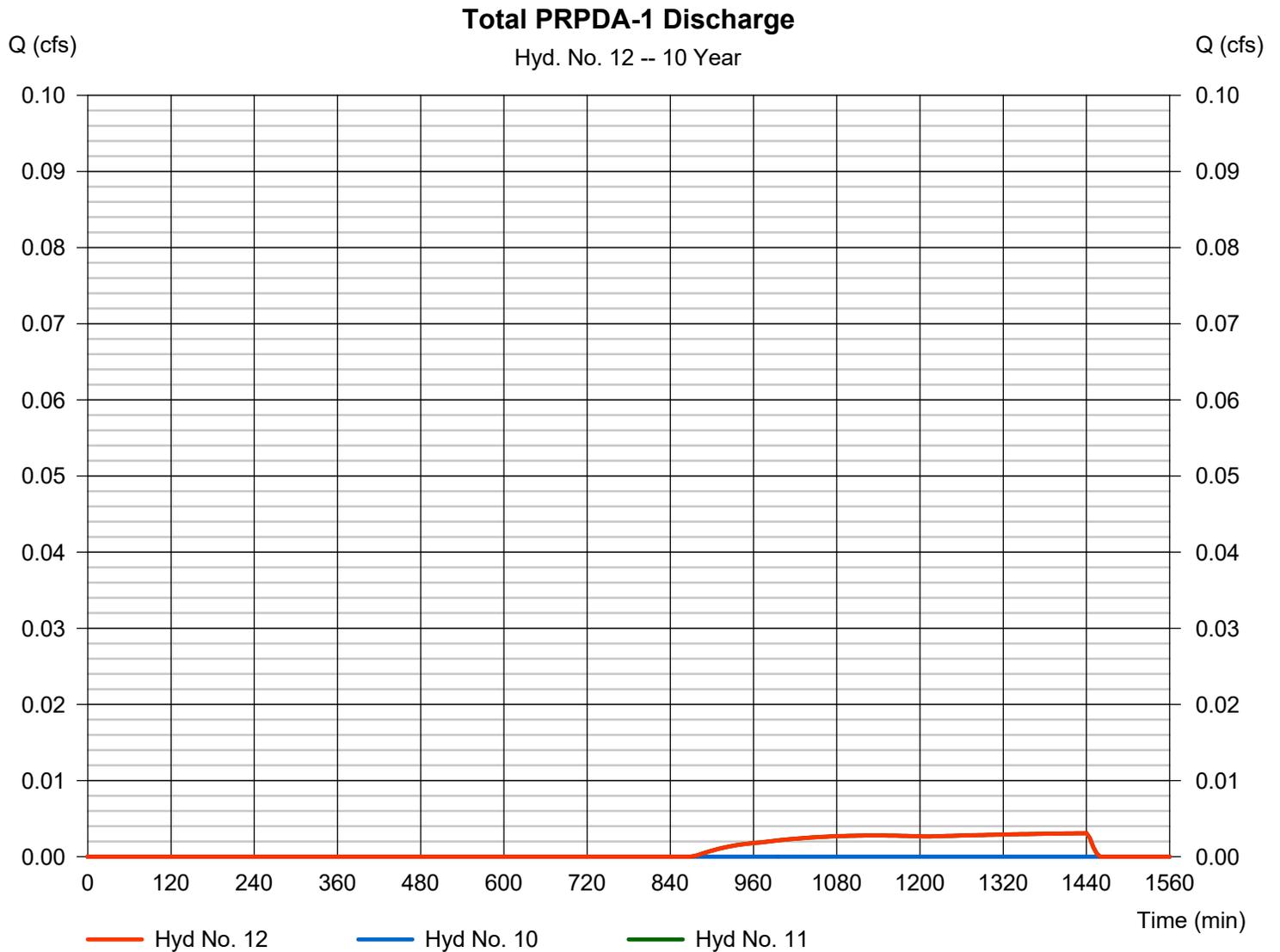
# Hydrograph Report

## Hyd. No. 12

### Total PRPDA-1 Discharge

Hydrograph type = Combine  
Storm frequency = 10 yrs  
Time interval = 5 min  
Inflow hyds. = 10, 11

Peak discharge = 0.003 cfs  
Time to peak = 1440 min  
Hyd. volume = 0.002 acft  
Contrib. drain. area = 1.200 ac

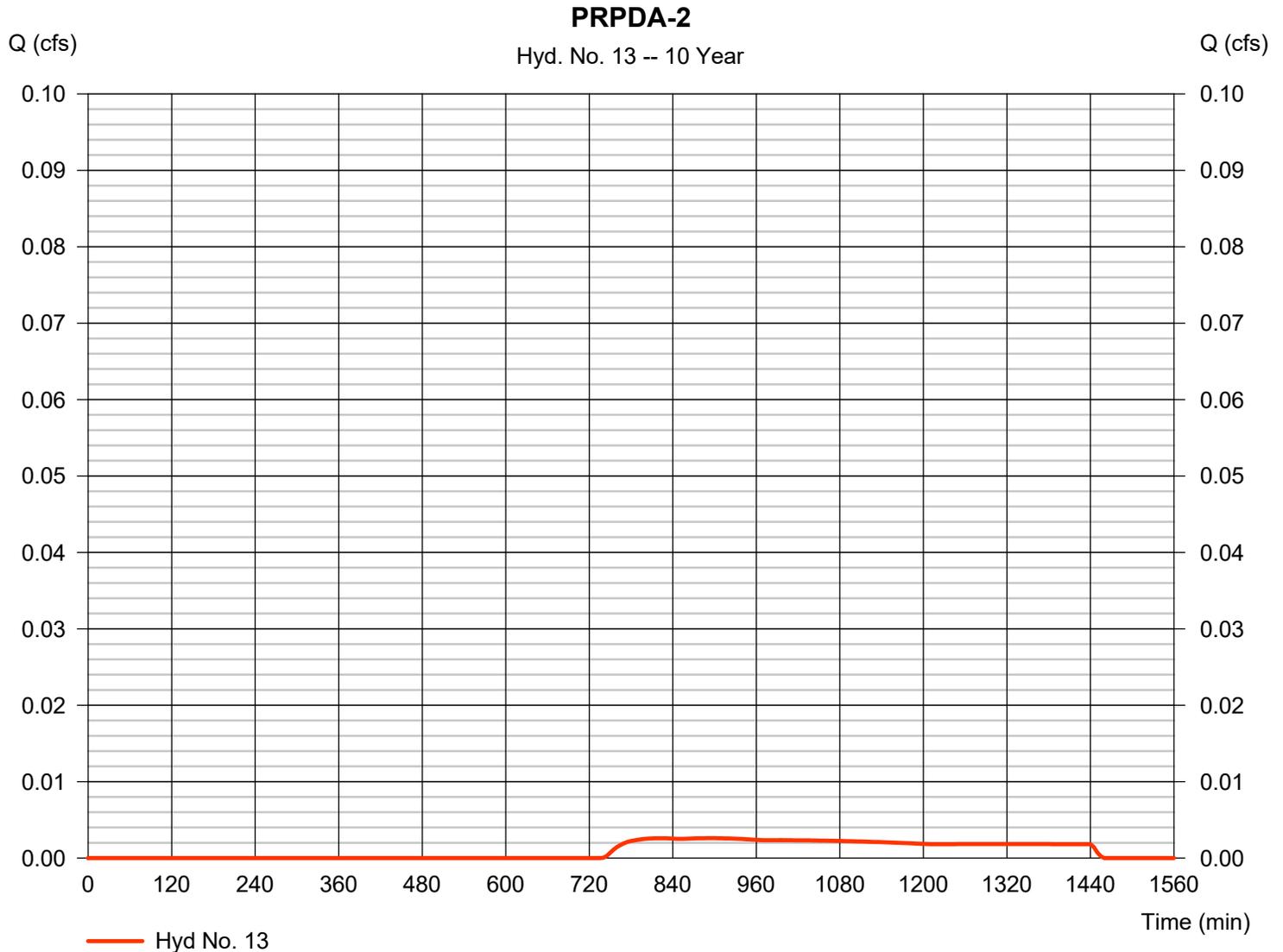


# Hydrograph Report

## Hyd. No. 13

PRPDA-2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.003 cfs
Storm frequency	= 10 yrs	Time to peak	= 895 min
Time interval	= 5 min	Hyd. volume	= 0.002 acft
Drainage area	= 0.360 ac	Curve number	= 46
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.31 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

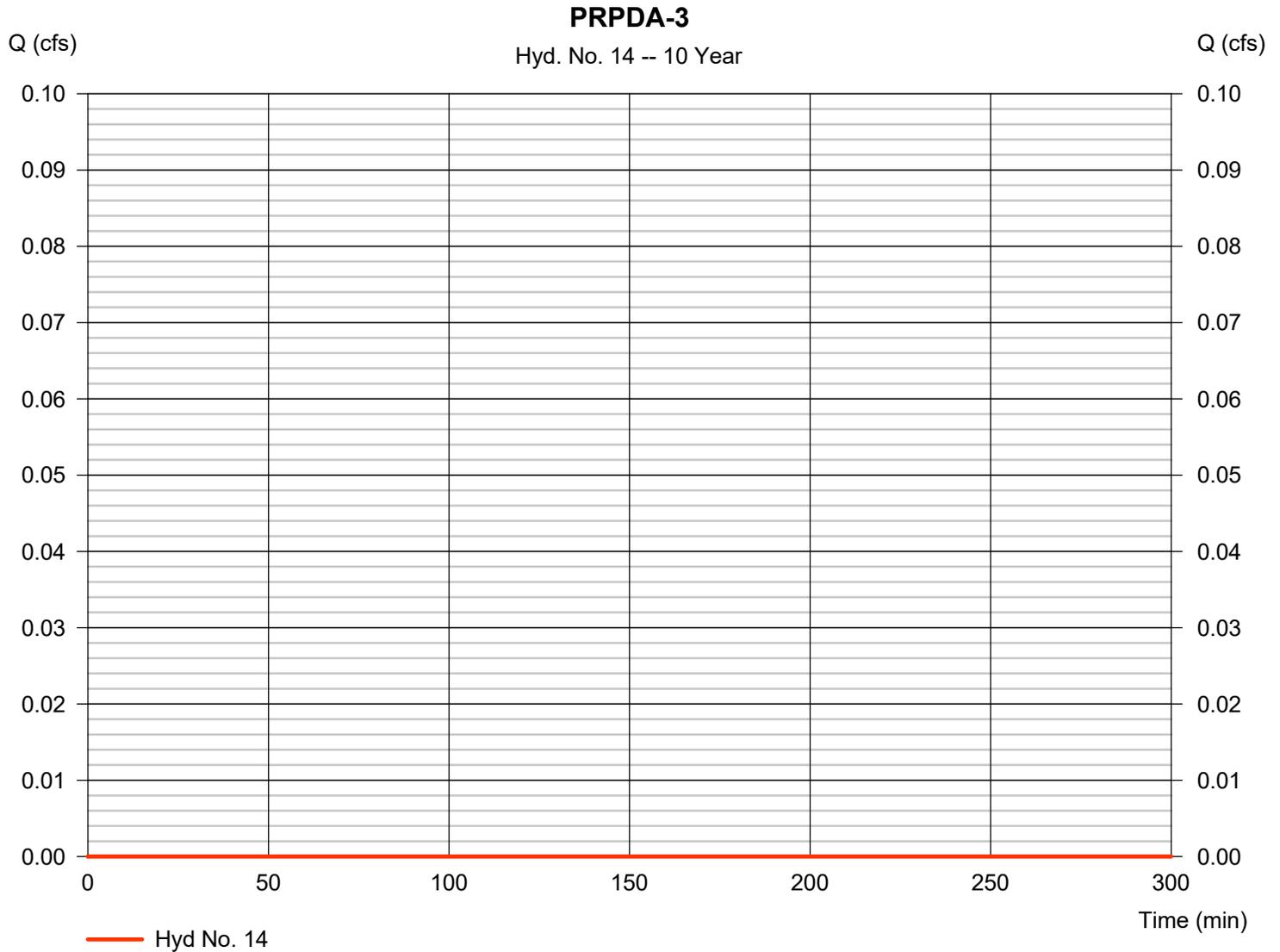


# Hydrograph Report

## Hyd. No. 14

PRPDA-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 6.330 ac	Curve number	= 31
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 18.10 min
Total precip.	= 3.31 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

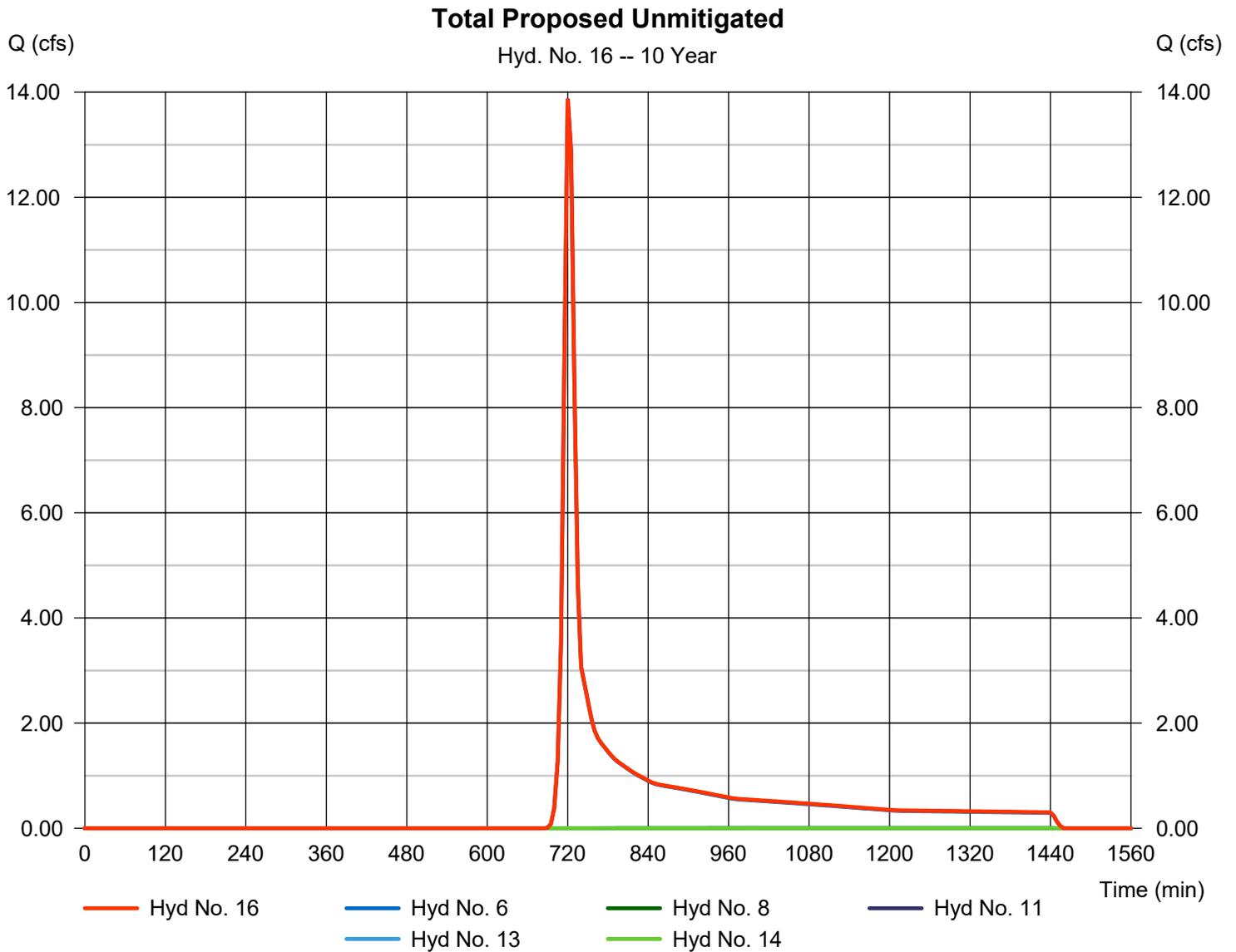


# Hydrograph Report

## Hyd. No. 16

Total Proposed Unmitigated

Hydrograph type	= Combine	Peak discharge	= 13.88 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 5 min	Hyd. volume	= 0.975 acft
Inflow hyds.	= 6, 8, 11, 13, 14	Contrib. drain. area	= 23.640 ac

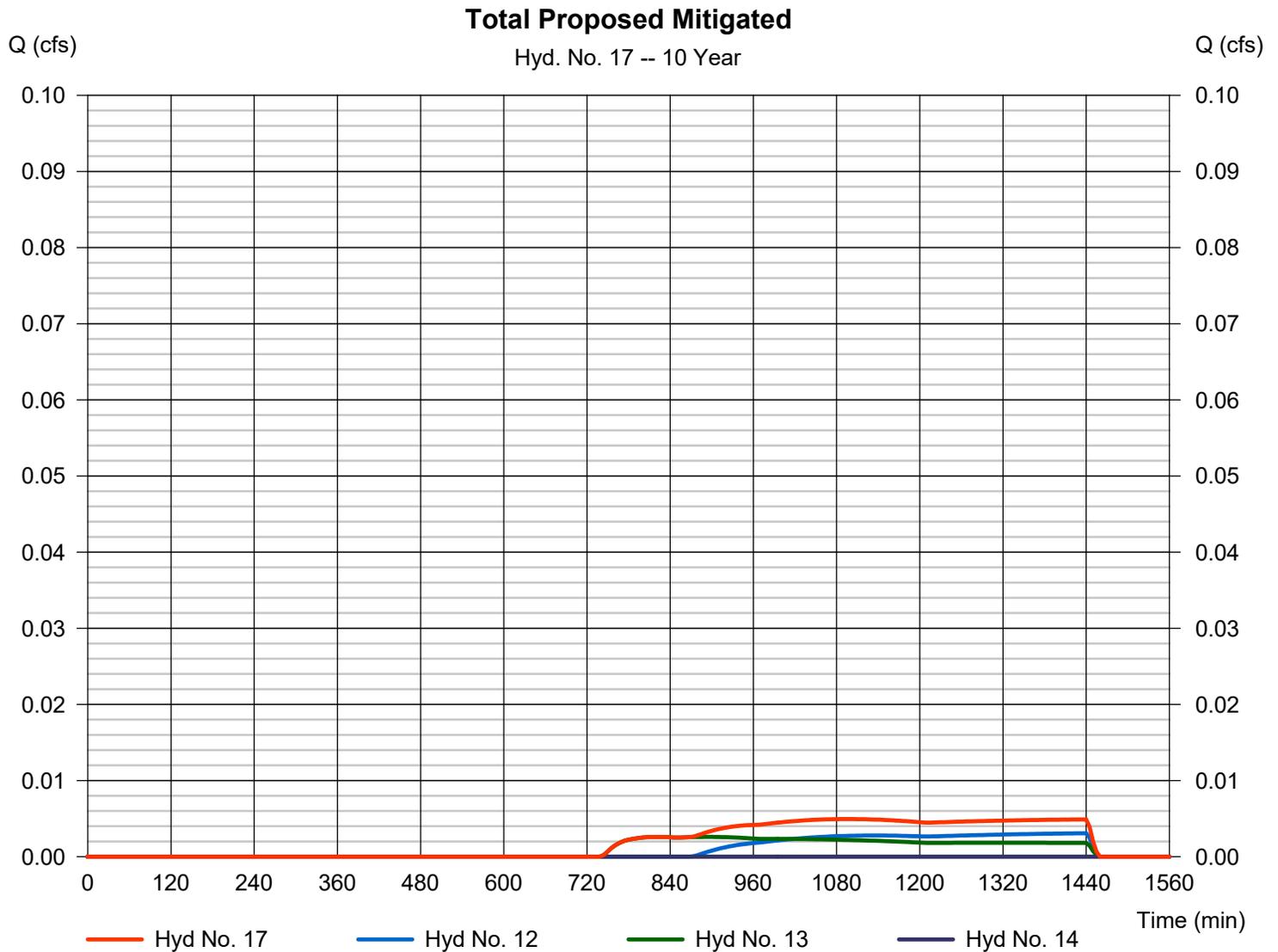


# Hydrograph Report

## Hyd. No. 17

### Total Proposed Mitigated

Hydrograph type	= Combine	Peak discharge	= 0.005 cfs
Storm frequency	= 10 yrs	Time to peak	= 1095 min
Time interval	= 5 min	Hyd. volume	= 0.004 acft
Inflow hyds.	= 12, 13, 14	Contrib. drain. area	= 6.690 ac

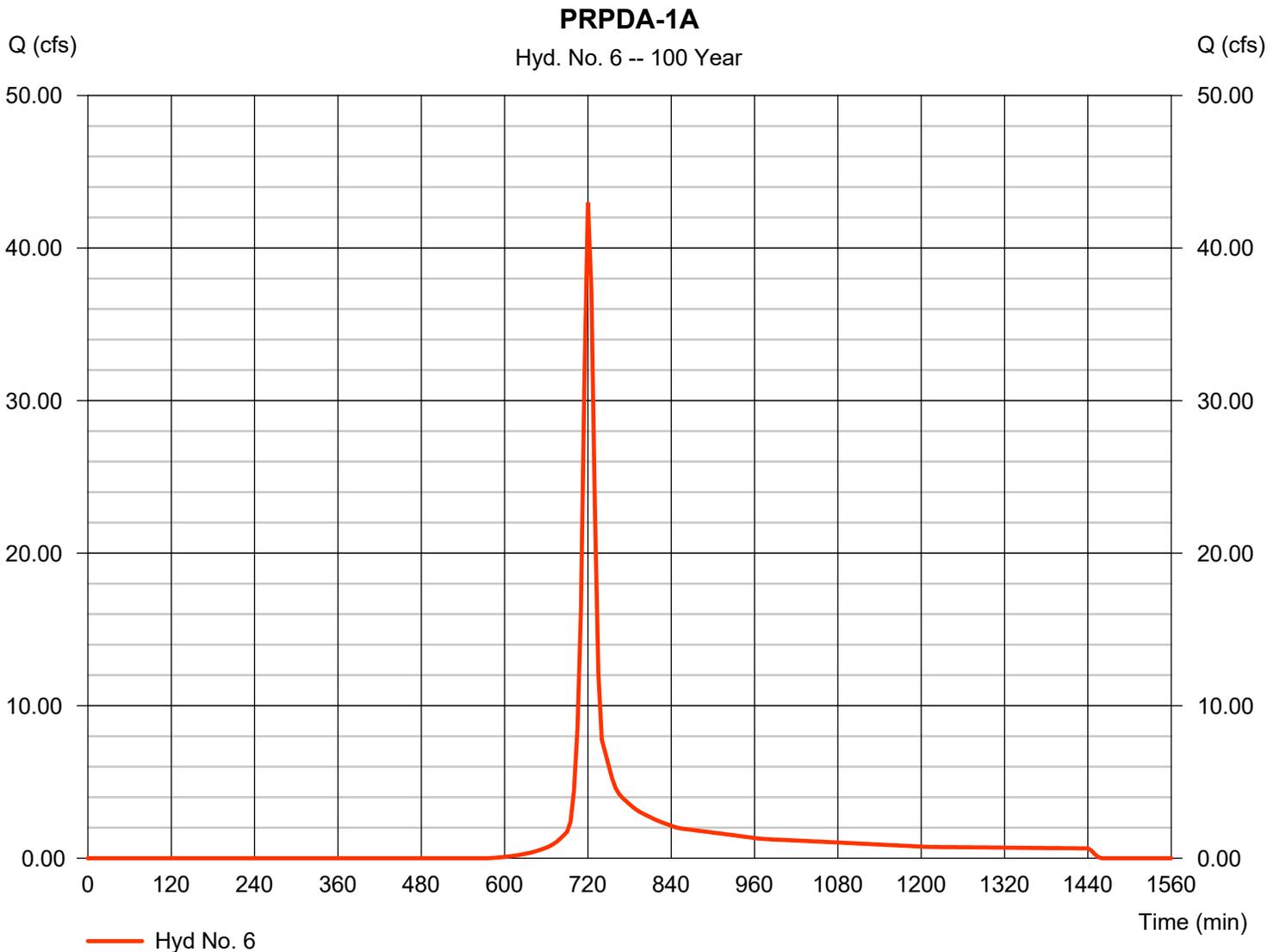


# Hydrograph Report

## Hyd. No. 6

PRPDA-1A

Hydrograph type	= SCS Runoff	Peak discharge	= 42.99 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 5 min	Hyd. volume	= 2.696 acft
Drainage area	= 14.680 ac	Curve number	= 69
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 13.10 min
Total precip.	= 5.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



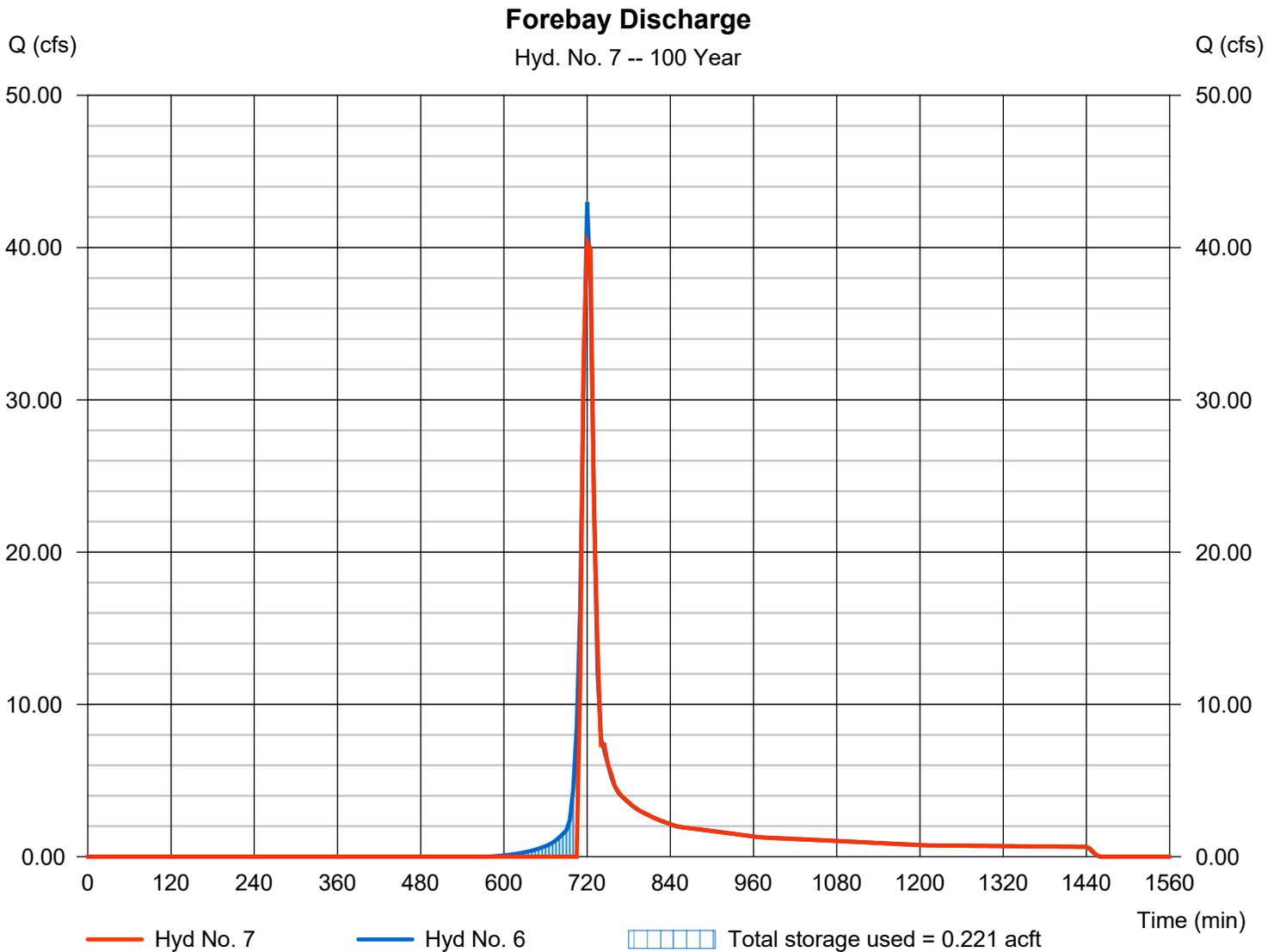
# Hydrograph Report

## Hyd. No. 7

### Forebay Discharge

Hydrograph type	= Reservoir	Peak discharge	= 40.38 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 5 min	Hyd. volume	= 2.504 acft
Inflow hyd. No.	= 6 - PRPDA-1A	Max. Elevation	= 696.87 ft
Reservoir name	= Forebay	Max. Storage	= 0.221 acft

Storage Indication method used.

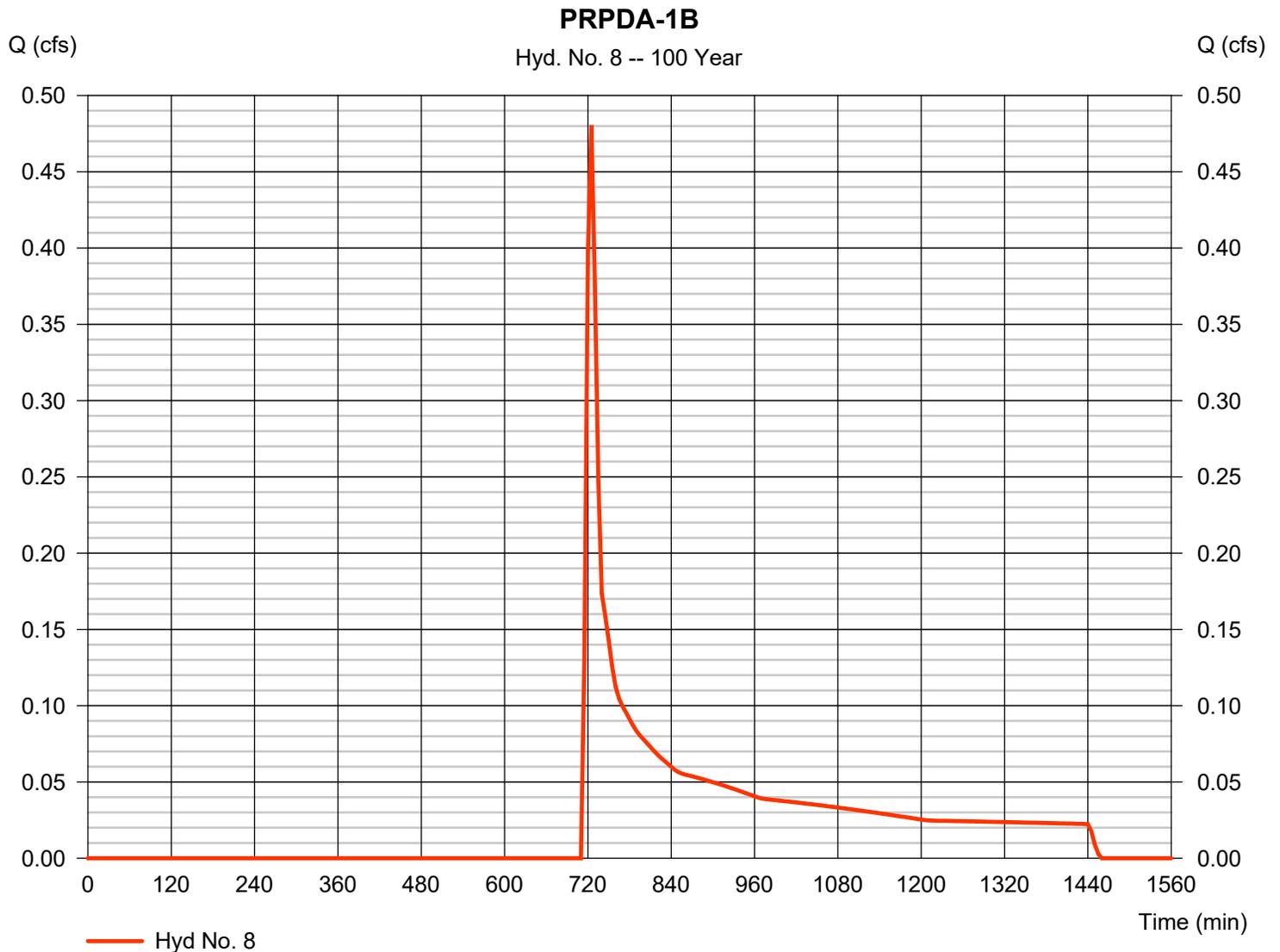


# Hydrograph Report

## Hyd. No. 8

PRPDA-1B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.480 cfs
Storm frequency	= 100 yrs	Time to peak	= 725 min
Time interval	= 5 min	Hyd. volume	= 0.052 acft
Drainage area	= 1.070 ac	Curve number	= 45
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.80 min
Total precip.	= 5.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



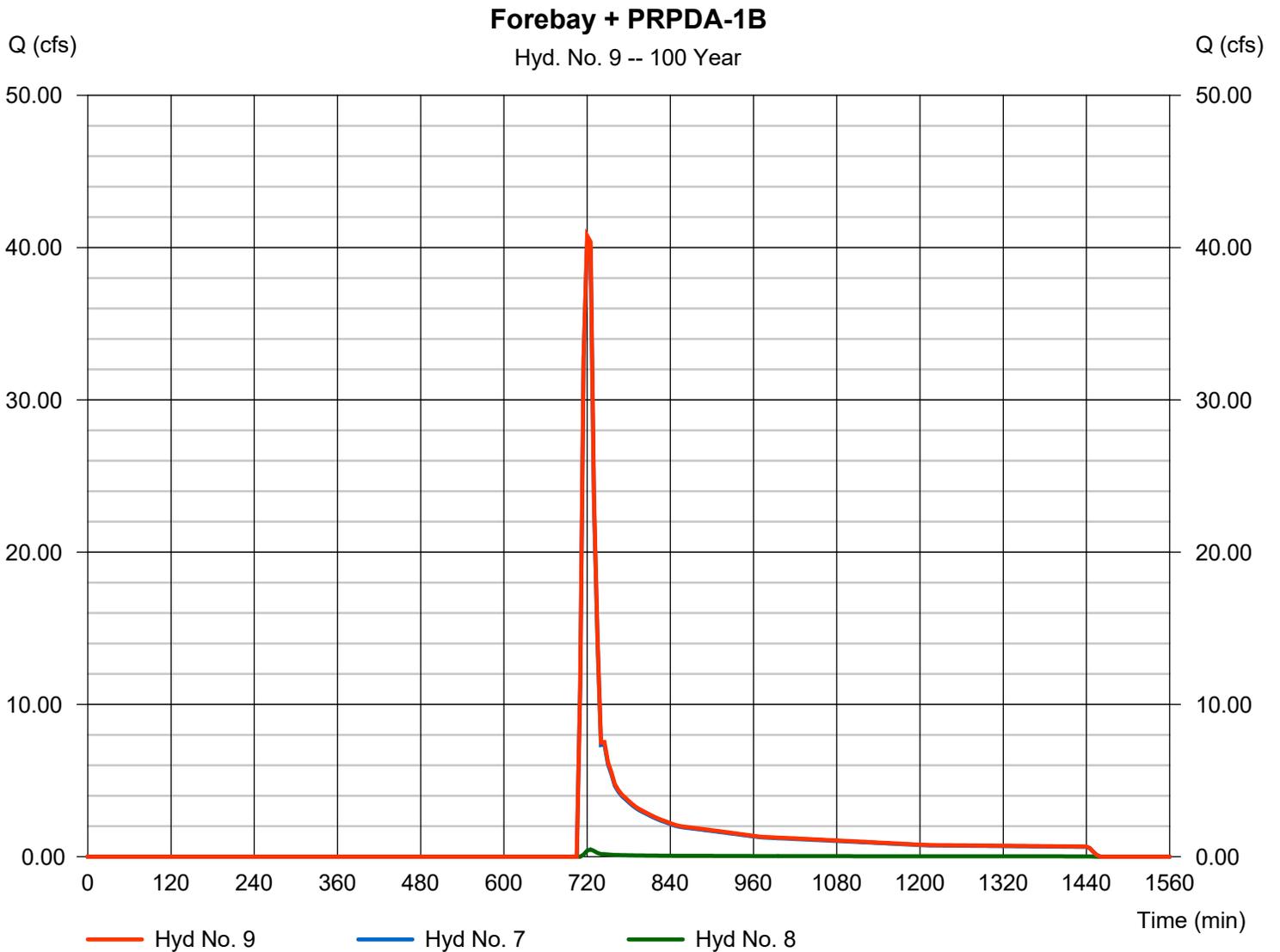
# Hydrograph Report

## Hyd. No. 9

Forebay + PRPDA-1B

Hydrograph type = Combine  
Storm frequency = 100 yrs  
Time interval = 5 min  
Inflow hyds. = 7, 8

Peak discharge = 40.78 cfs  
Time to peak = 720 min  
Hyd. volume = 2.556 acft  
Contrib. drain. area = 1.070 ac



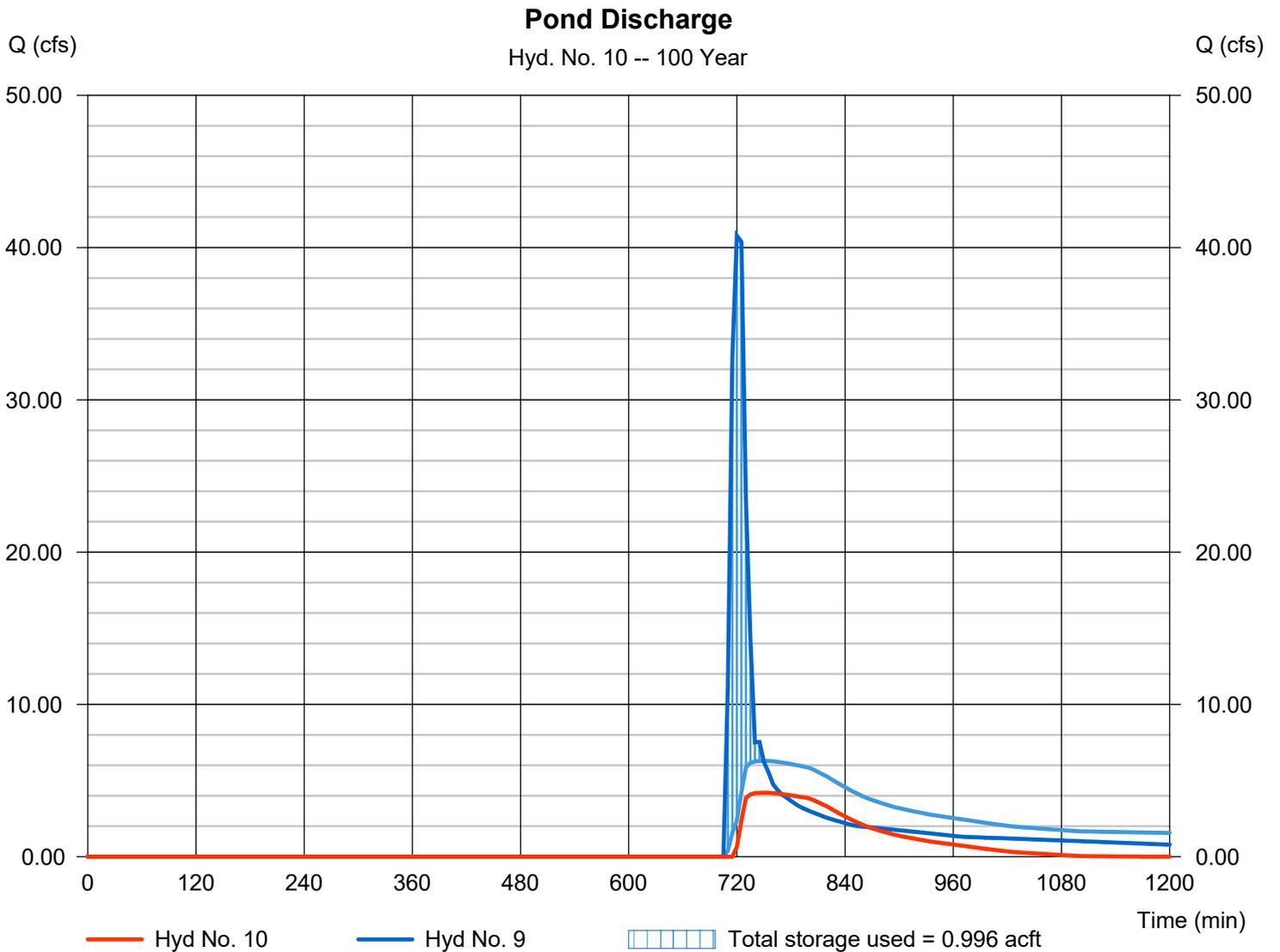
# Hydrograph Report

## Hyd. No. 10

### Pond Discharge

Hydrograph type	= Reservoir	Peak discharge	= 4.200 cfs
Storm frequency	= 100 yrs	Time to peak	= 750 min
Time interval	= 5 min	Hyd. volume	= 0.921 acft
Inflow hyd. No.	= 9 - Forebay + PRPDA-1B	Max. Elevation	= 692.33 ft
Reservoir name	= Infiltration Basin	Max. Storage	= 0.996 acft

Storage Indication method used. Exfiltration extracted from Outflow.

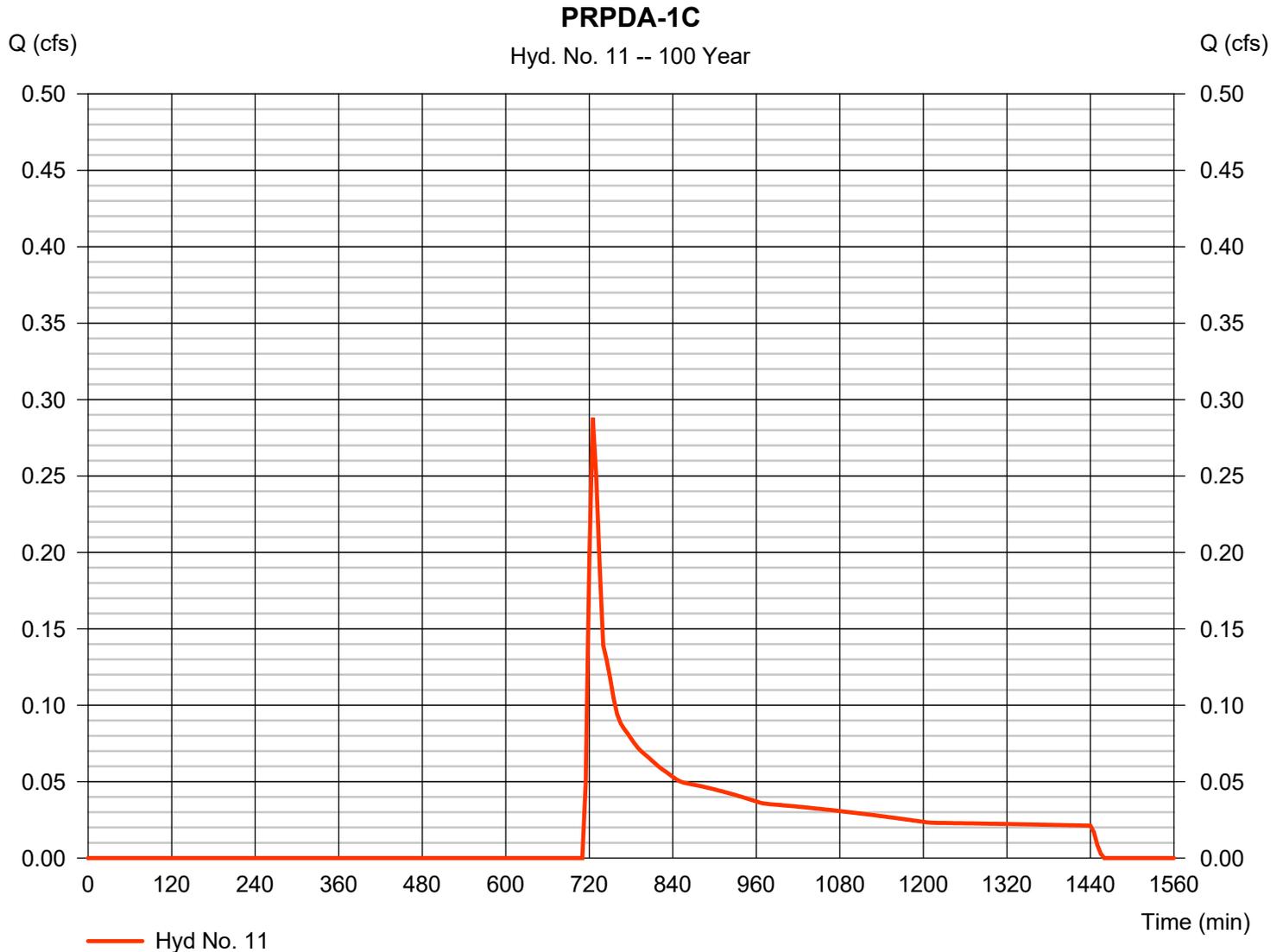


# Hydrograph Report

## Hyd. No. 11

PRPDA-1C

Hydrograph type	= SCS Runoff	Peak discharge	= 0.288 cfs
Storm frequency	= 100 yrs	Time to peak	= 725 min
Time interval	= 5 min	Hyd. volume	= 0.043 acft
Drainage area	= 1.200 ac	Curve number	= 42
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 14.90 min
Total precip.	= 5.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

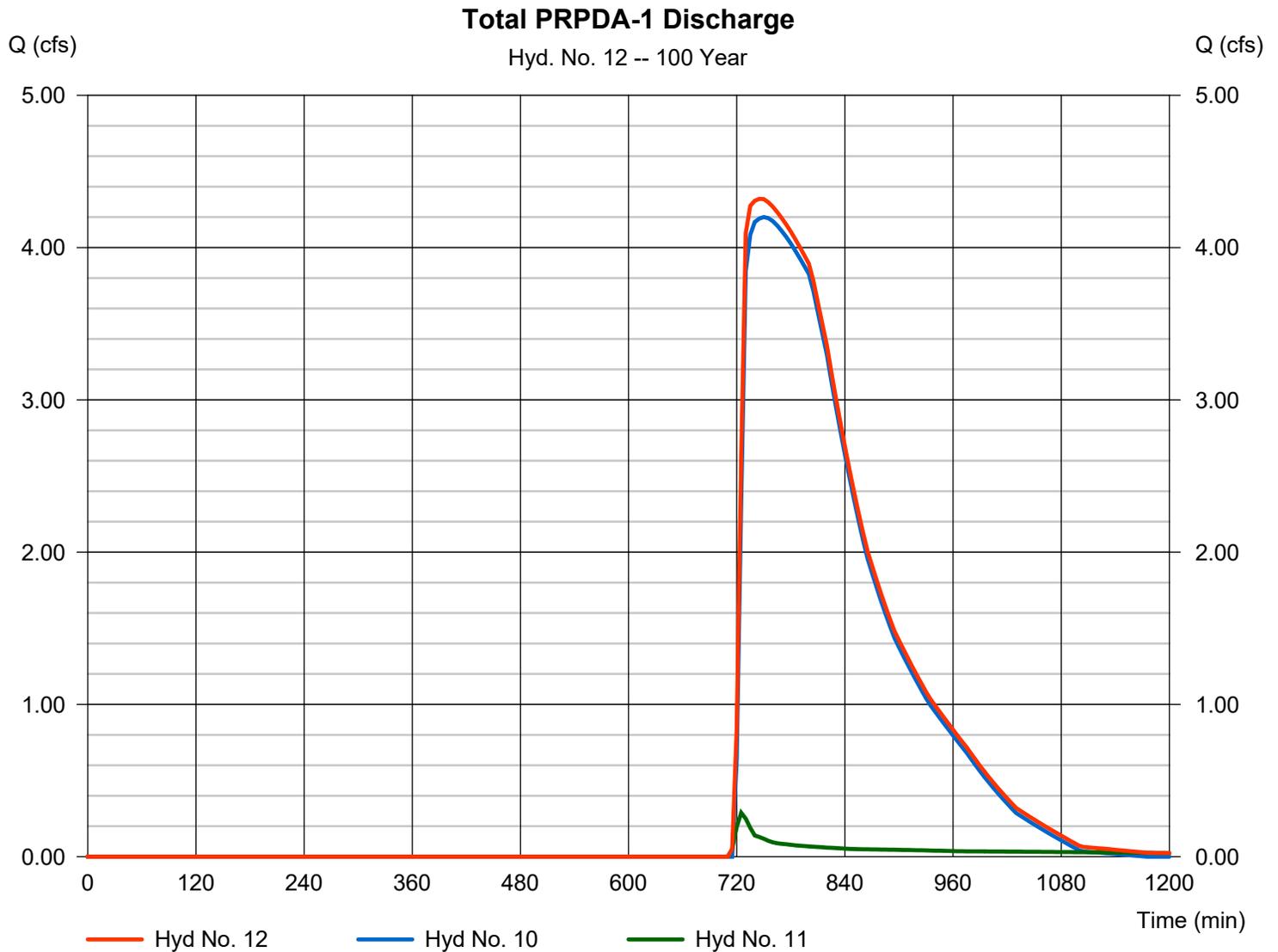


# Hydrograph Report

## Hyd. No. 12

### Total PRPDA-1 Discharge

Hydrograph type	= Combine	Peak discharge	= 4.320 cfs
Storm frequency	= 100 yrs	Time to peak	= 745 min
Time interval	= 5 min	Hyd. volume	= 0.964 acft
Inflow hyds.	= 10, 11	Contrib. drain. area	= 1.200 ac

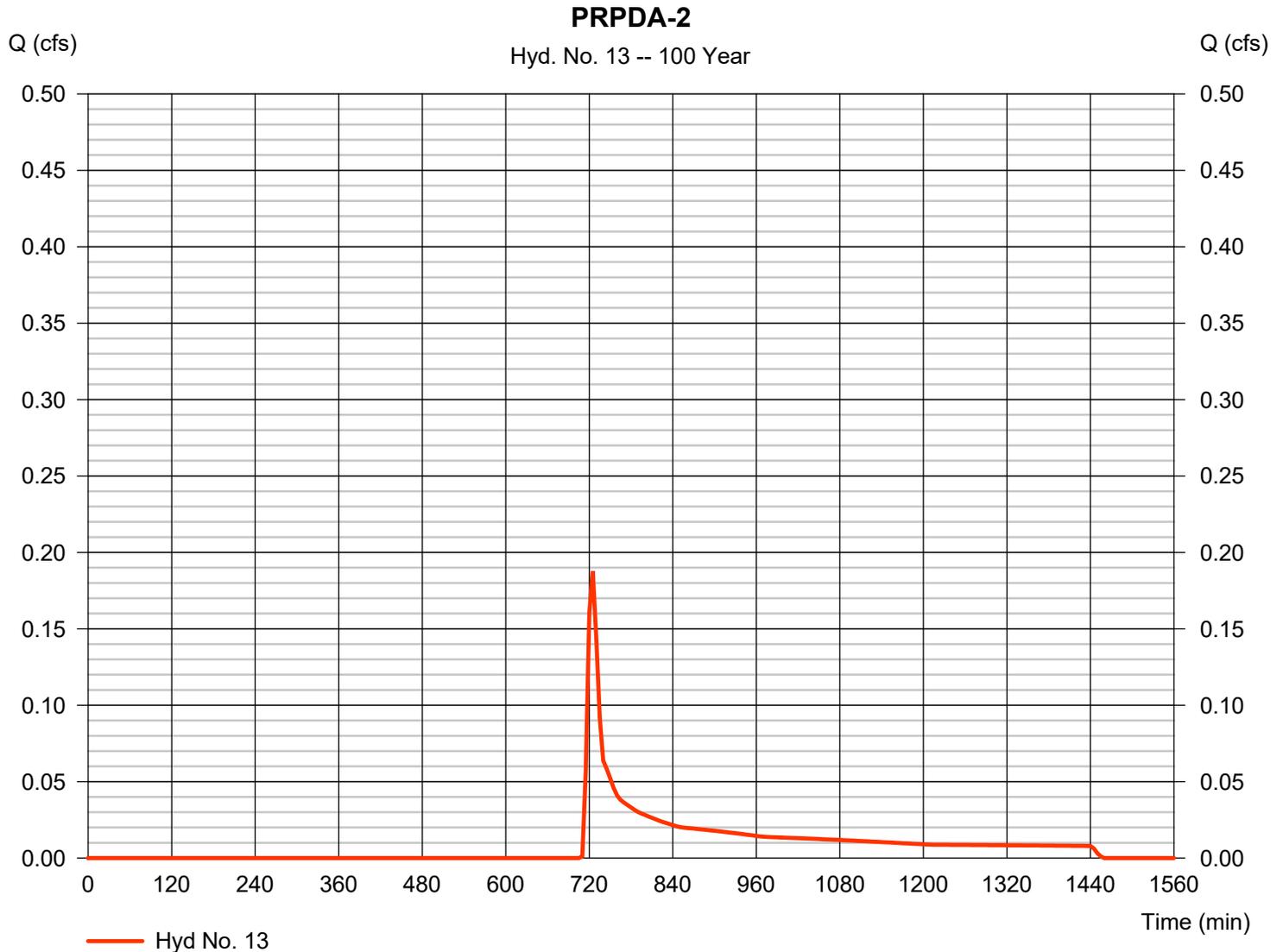


# Hydrograph Report

## Hyd. No. 13

PRPDA-2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.188 cfs
Storm frequency	= 100 yrs	Time to peak	= 725 min
Time interval	= 5 min	Hyd. volume	= 0.019 acft
Drainage area	= 0.360 ac	Curve number	= 46
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

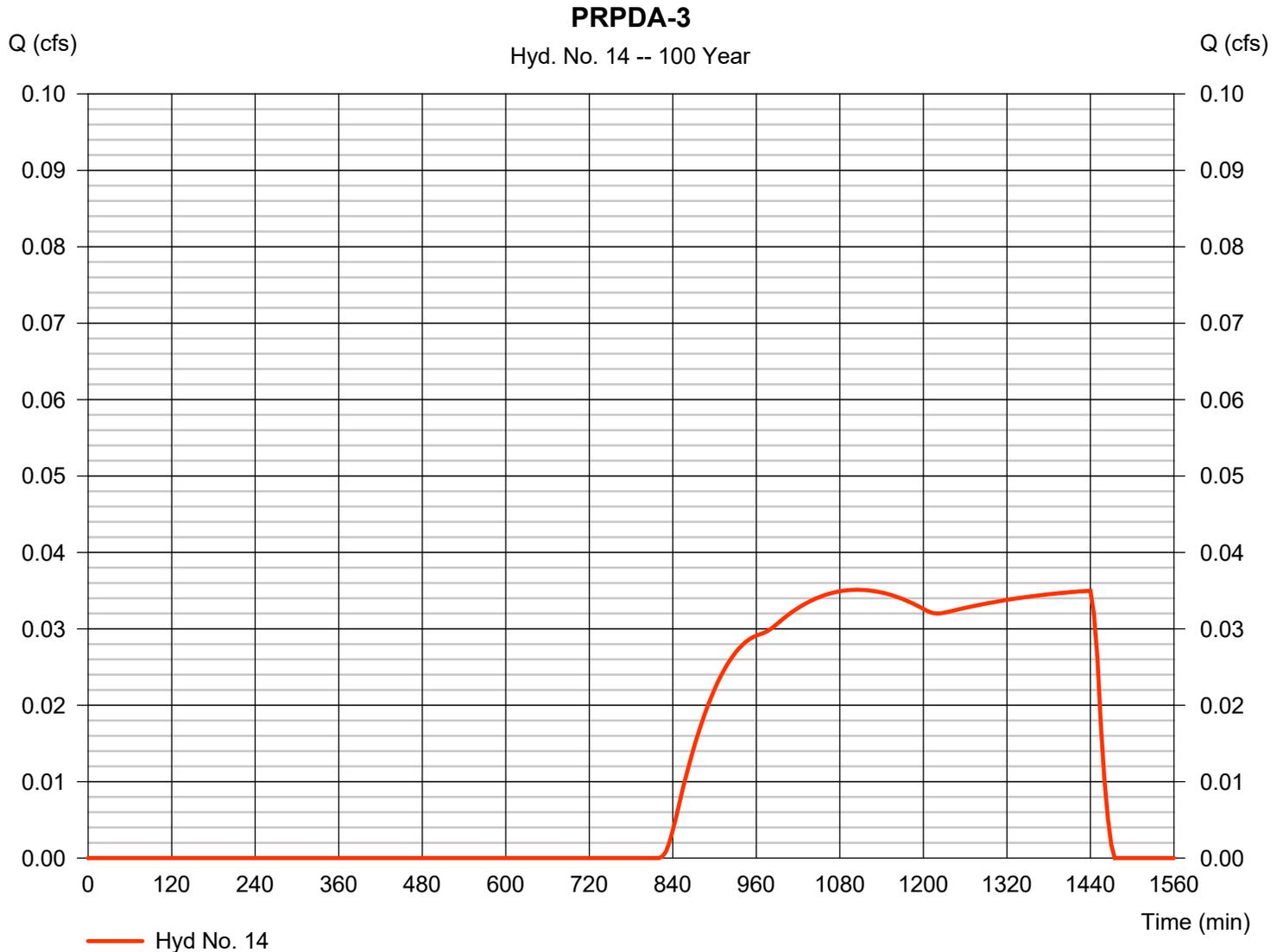


# Hydrograph Report

## Hyd. No. 14

PRPDA-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.035 cfs
Storm frequency	= 100 yrs	Time to peak	= 1105 min
Time interval	= 5 min	Hyd. volume	= 0.026 acft
Drainage area	= 6.330 ac	Curve number	= 31
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 18.10 min
Total precip.	= 5.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

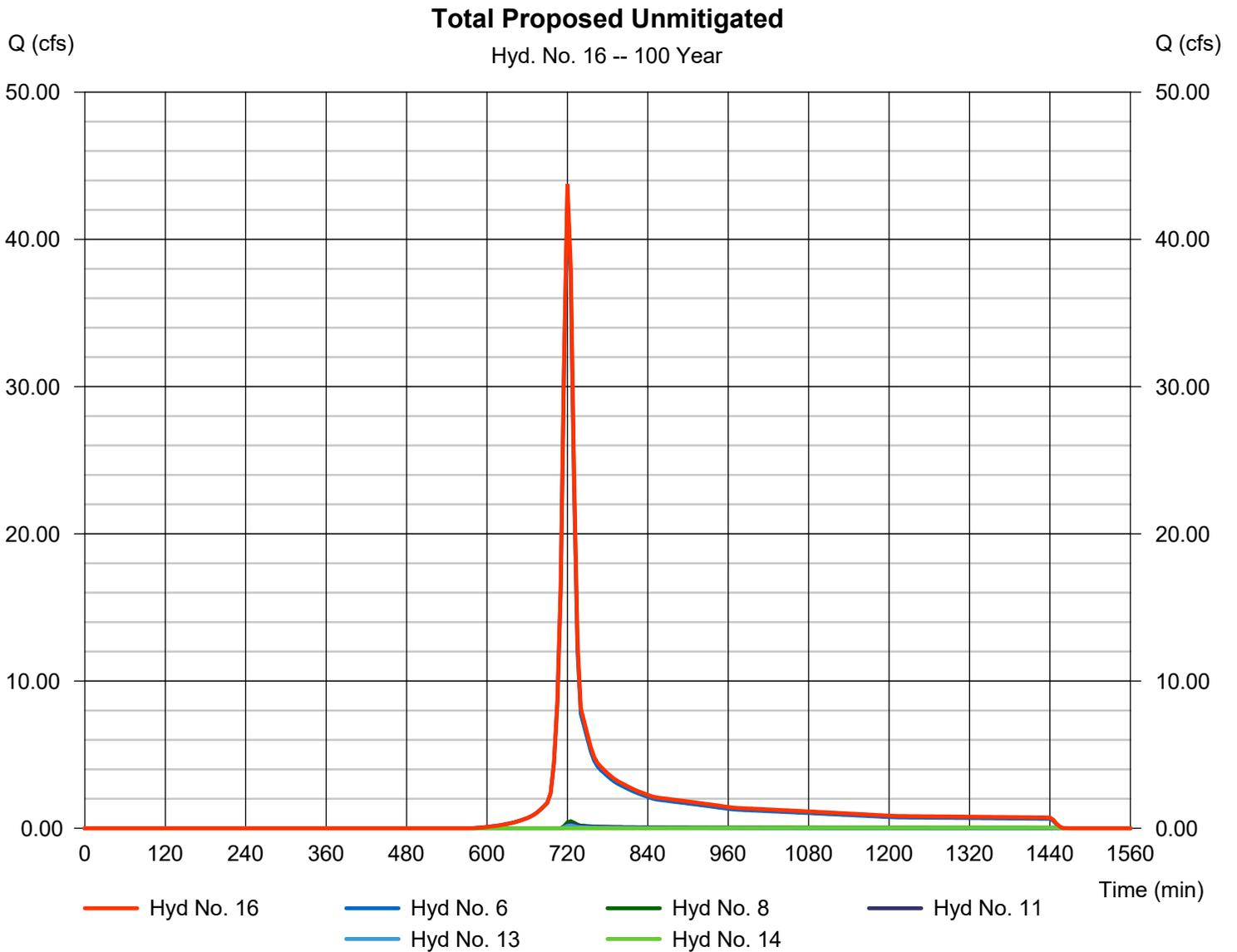


# Hydrograph Report

## Hyd. No. 16

Total Proposed Unmitigated

Hydrograph type	= Combine	Peak discharge	= 43.75 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 5 min	Hyd. volume	= 2.836 acft
Inflow hyds.	= 6, 8, 11, 13, 14	Contrib. drain. area	= 23.640 ac

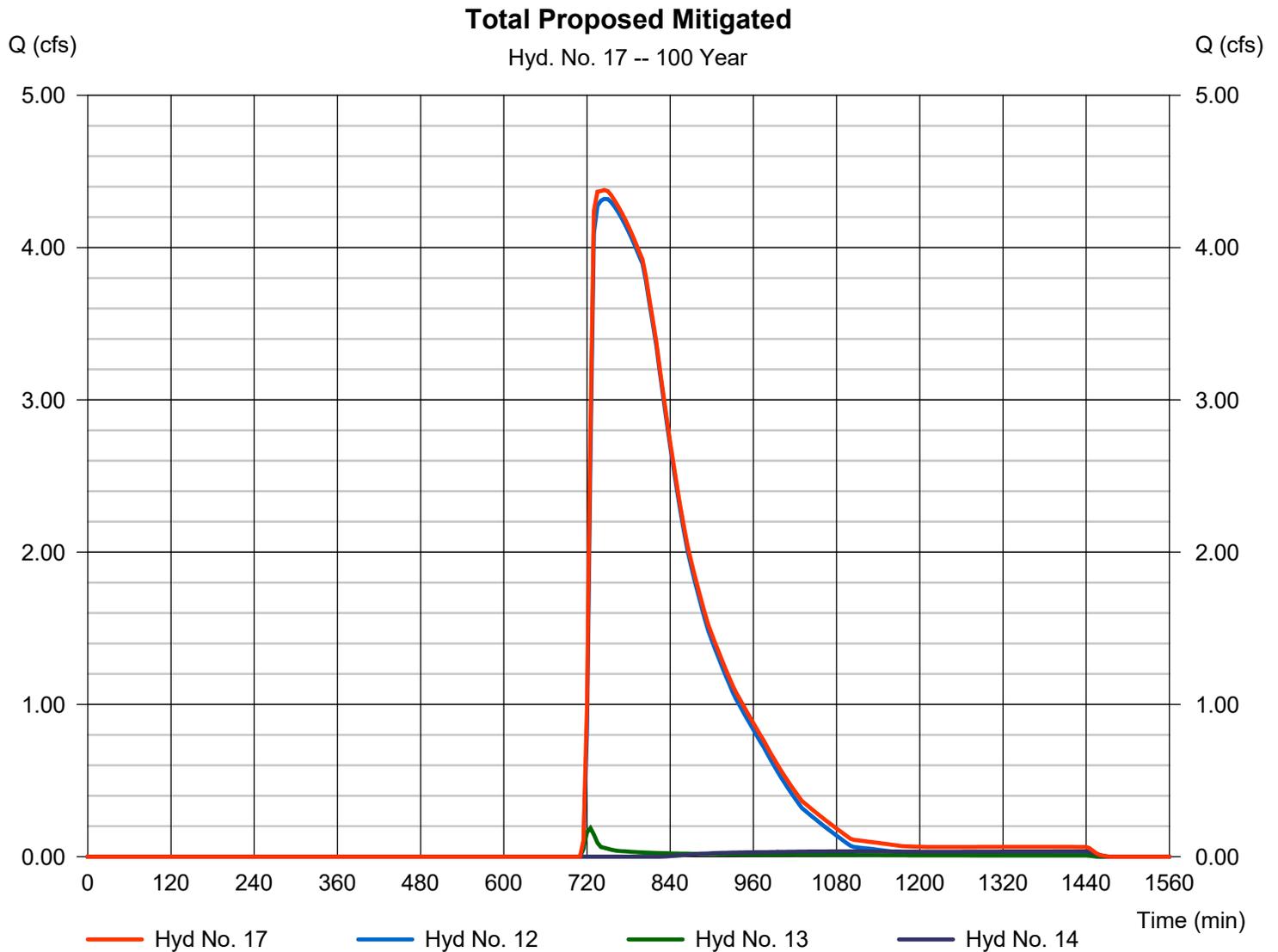


# Hydrograph Report

## Hyd. No. 17

Total Proposed Mitigated

Hydrograph type	= Combine	Peak discharge	= 4.378 cfs
Storm frequency	= 100 yrs	Time to peak	= 745 min
Time interval	= 5 min	Hyd. volume	= 1.009 acft
Inflow hyds.	= 12, 13, 14	Contrib. drain. area	= 6.690 ac



# Pond Report

## Pond No. 2 - Forebay

### Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 692.50 ft

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	692.50	1,539	0.000	0.000
1.50	694.00	2,443	0.069	0.069
2.50	696.00	3,927	0.073	0.142
3.50	697.00	4,917	0.102	0.243
4.50	698.00	5,854	0.124	0.367

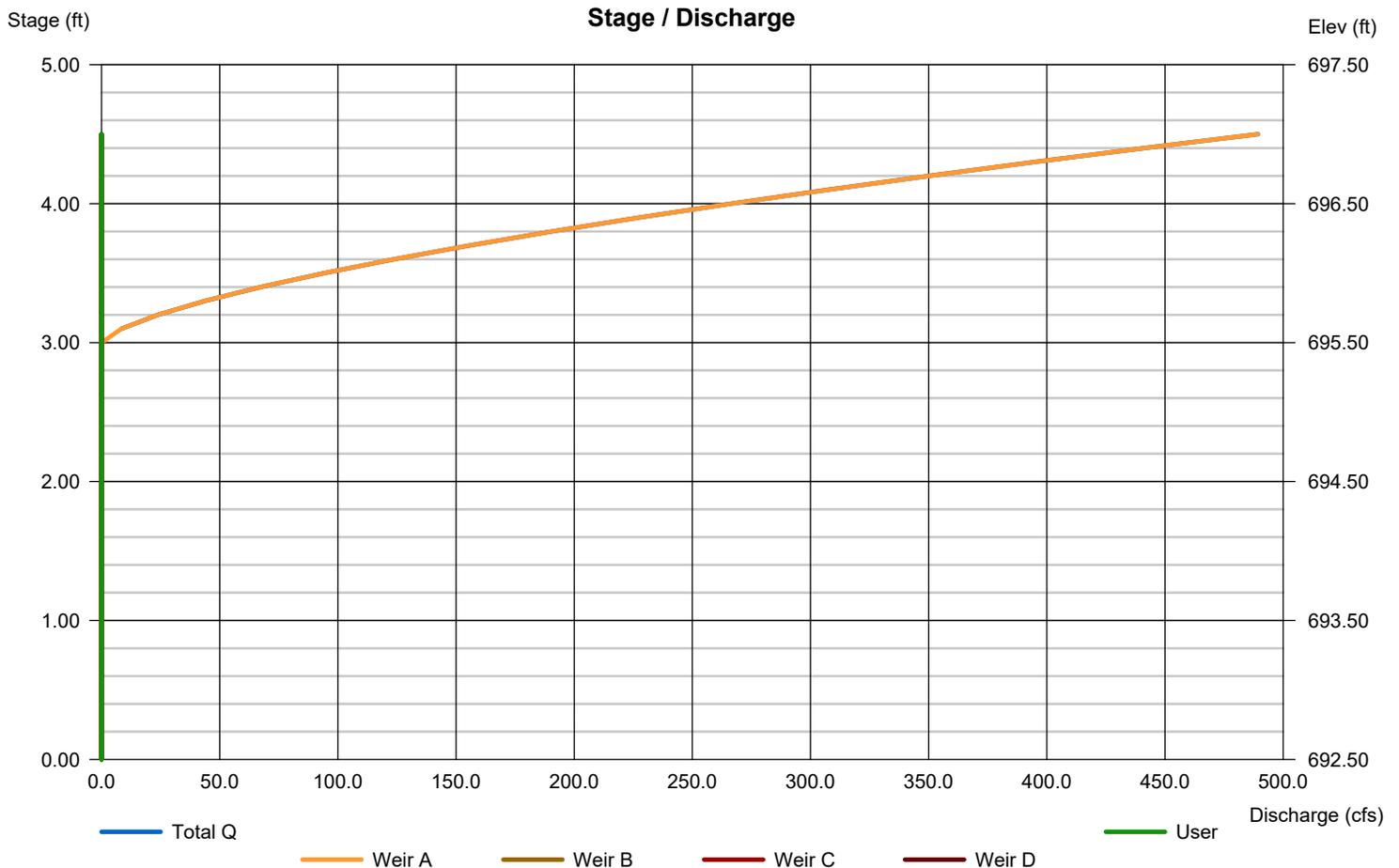
### Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

### Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 80.00	0.00	0.00	0.00
Crest El. (ft)	= 696.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



# Pond Report

## Pond No. 1 - Infiltration Basin

### Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 689.50 ft

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	689.50	12,321	0.000	0.000
0.50	690.00	13,250	0.147	0.147
2.50	692.00	17,353	0.703	0.849
4.50	694.00	21,820	0.899	1.749

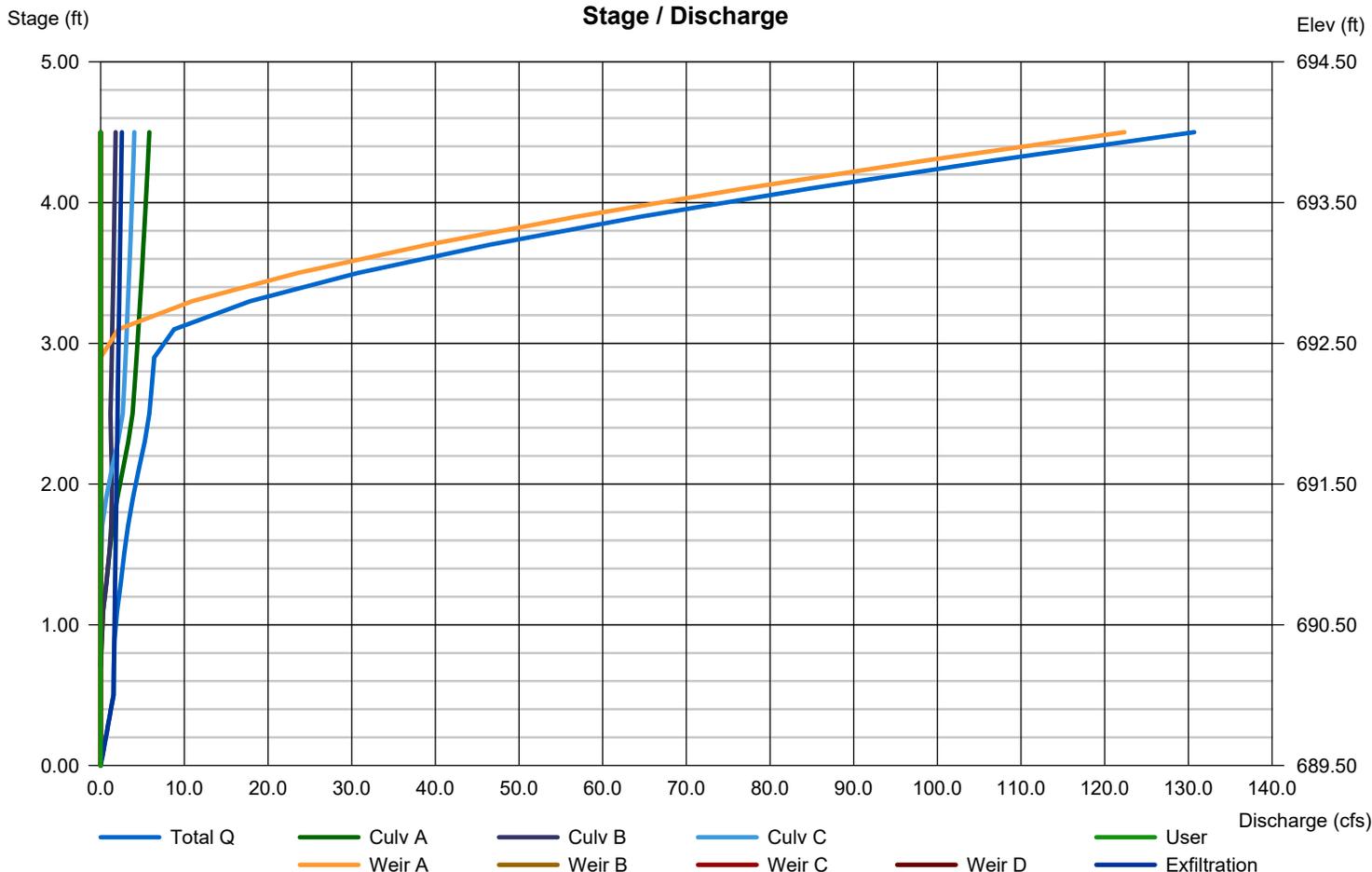
### Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	8.00	12.00	0.00
Span (in)	= 12.00	8.00	12.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 690.00	690.30	691.00	0.00
Length (ft)	= 27.00	0.00	0.00	0.00
Slope (%)	= 7.40	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

### Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 20.00	0.00	0.00	0.00
Crest El. (ft)	= 692.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 5.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



***WATER QUALITY TREATMENT UNIT INFORMATION***

# First Defense<sup>®</sup> High Capacity

## A Simple Solution for your Trickiest Sites

### Product Profile

The First Defense<sup>®</sup> High Capacity is an enhanced vortex separator that combines an effective stormwater treatment chamber with an integral peak flow bypass. It efficiently removes sediment total suspended solids (TSS), trash and hydrocarbons from stormwater runoff without washing out previously captured pollutants. The First Defense<sup>®</sup> High Capacity is available in several model configurations to accommodate a wide range of pipe sizes, peak flows and depth constraints (**Table 1**, next page).

### Applications

- Stormwater treatment at the point of entry into the drainage line
- Sites constrained by space, topography or drainage profiles with limited slope and depth of cover
- Retrofit installations where stormwater treatment is placed on or tied into an existing storm drain line
- Pretreatment for filters, infiltration and storage

### Advantages

- Inlet options include surface grate or multiple inlet pipes
- Integral high capacity bypass conveys large peak flows without the need for “offline” arrangements using separate junction manholes
- Proven to prevent pollutant washout at up to 450% of its treatment flow
- Long flow path through the device ensures a long residence time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

### How it Works

The First Defense<sup>®</sup> High Capacity has internal components designed to remove and retain gross debris, total suspended solids (TSS) and hydrocarbons (**Fig.1**).

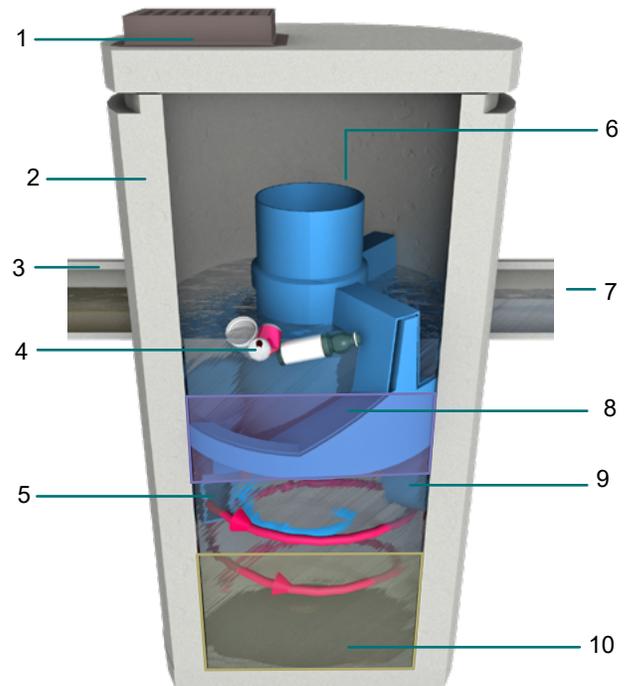
Contaminated stormwater runoff enters the inlet chute from a surface grate and/or inlet pipe. The inlet chute introduces flow into the chamber tangentially to create a low energy vortex flow regime (**magenta arrow**) that directs sediment into the sump while oils, floating trash and debris rise to the surface.

Treated stormwater exits through a submerged outlet chute located opposite to the direction of the rotating flow (**blue arrow**). Enhanced vortex separation is provided by forcing the rotating flow within the vessel to follow the longest path possible rather than directly from inlet to outlet.

Higher flows bypass the treatment chamber to prevent turbulence and washout of captured pollutants. An internal bypass conveys infrequent peak flows directly to the outlet eliminating the need for, and expense of, external bypass control structures. A floatables draw off slot functions to convey floatables into the treatment chamber prior to bypass.

### Verified by NJCAT and NJDEP

**Fig.1** The First Defense<sup>®</sup> High Capacity has internal components designed to efficiently capture pollutants and prevent washout at peak flows.



### Components

- |   |                               |
|---|-------------------------------|
| 1. Inlet Grate (optional)                     | 6. Internal Bypass            |
| 2. Precast chamber                            | 7. Outlet pipe                |
| 3. Inlet Pipe (optional)                      | 8. Oil and Floatables Storage |
| 4. Floatables Draw Off Slot<br>(not pictured) | 9. Outlet chute               |
| 5. Inlet Chute                                | 10. Sediment Storage Sump     |

# First Defense® High Capacity

## Sizing & Design

This adaptable online treatment system works easily with large pipes, multiple inlet pipes, inlet grates and now, contains a high capacity bypass for the conveyance of large peak flows. Designed with site flexibility in mind, the First Defense® High Capacity allows engineers to maximize available site space without compromising treatment level.

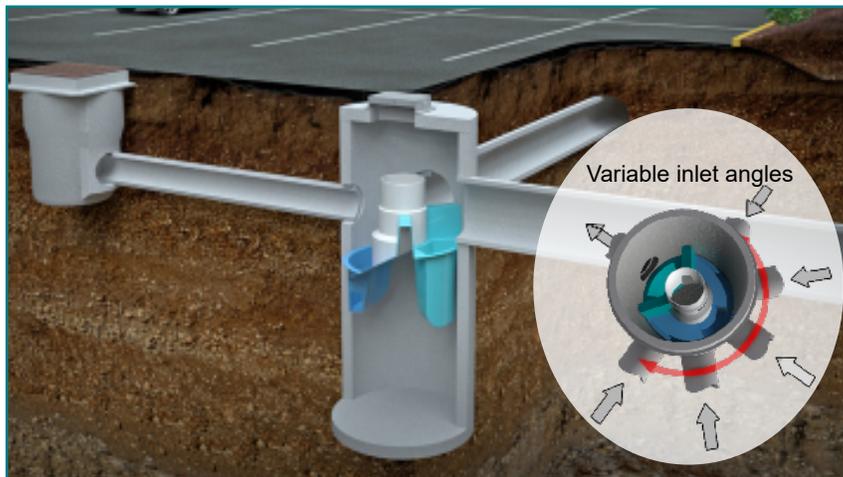


Fig 2. Works with multiple inlet pipes and grates

## Inspection and Maintenance

Nobody maintains our systems better than we do. To ensure optimal, ongoing device performance, be sure to recommend Hydro International as a preferred service and maintenance provider to your clients.

Call **1 (800) 848-2706** to schedule an inspection and cleanout or learn more at [hydro-int.com/service](http://hydro-int.com/service)

## SIZING CALCULATOR FOR ENGINEERS



This simple online tool will recommend the best separator, model size and online/offline arrangement based on site-specific data entered by the user.

Go to [hydro-int.com/sizing](http://hydro-int.com/sizing) to access the tool.



Fig 3. Maintenance is done with a vector truck

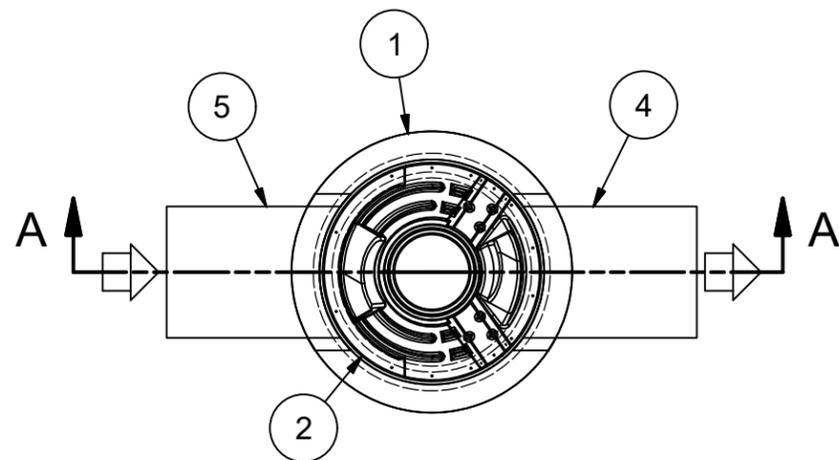
Table 1. First Defense® High Capacity Design Criteria.

First Defense® High Capacity Model Number	Diameter	Typical TSS Treatment Flow Rates		Peak Online Flow Rate	Maximum Pipe Diameter <sup>1</sup>	Oil Storage Capacity	Typical Sediment Storage Capacity <sup>2</sup>	Minimum Distance from Outlet Invert to Top of Rim <sup>3</sup>	Standard Distance from Outlet Invert to Sump Floor
		NJDEP Certified	110µm						
	(ft / m)	(cfs / L/s)	(cfs / L/s)	(cfs / L/s)	(in / mm)	(gal / L)	(yd <sup>3</sup> / m <sup>3</sup> )	(ft / m)	(ft / m)
<b>FD-3HC</b>	3 / 0.9	<b>0.84</b> / 23.7	1.06 / 30.0	<b>15</b> / 424	18 / 457	125 / 473	0.4 / 0.3	2.0 - 3.5 / 0.6 - 1.0	3.71 / 1.13
FD-4HC	4 / 1.2	1.50 / 42.4	1.88 / 53.2	18 / 510	24 / 600	191 / 723	0.7 / 0.5	2.3 - 3.9 / 0.7 - 1.2	4.97 / 1.5
FD-5HC	5 / 1.5	2.35 / 66.2	2.94 / 83.2	20 / 566	24 / 600	300 / 1135	1.1 / .84	2.5 - 4.5 / 0.7 - 1.3	5.19 / 1.5
FD-6HC	6 / 1.8	3.38 / 95.7	4.23 / 119.8	32 / 906	30 / 750	496 / 1,878	1.6 / 1.2	3.0 - 5.1 / 0.9 - 1.6	5.97 / 1.8
FD-8HC	8 / 2.4	6.00 / 169.9	7.52 / 212.9	50 / 1,415	48 / 1219	1120 / 4239	2.8 / 2.1	3.0 - 6.0 / 0.9 - 1.8	7.40 / 2.2

<sup>1</sup>Contact Hydro International when larger pipe sizes are required.

<sup>2</sup>Contact Hydro International when custom sediment storage capacity is required.

<sup>3</sup>Minimum distance for models depends on pipe diameter.

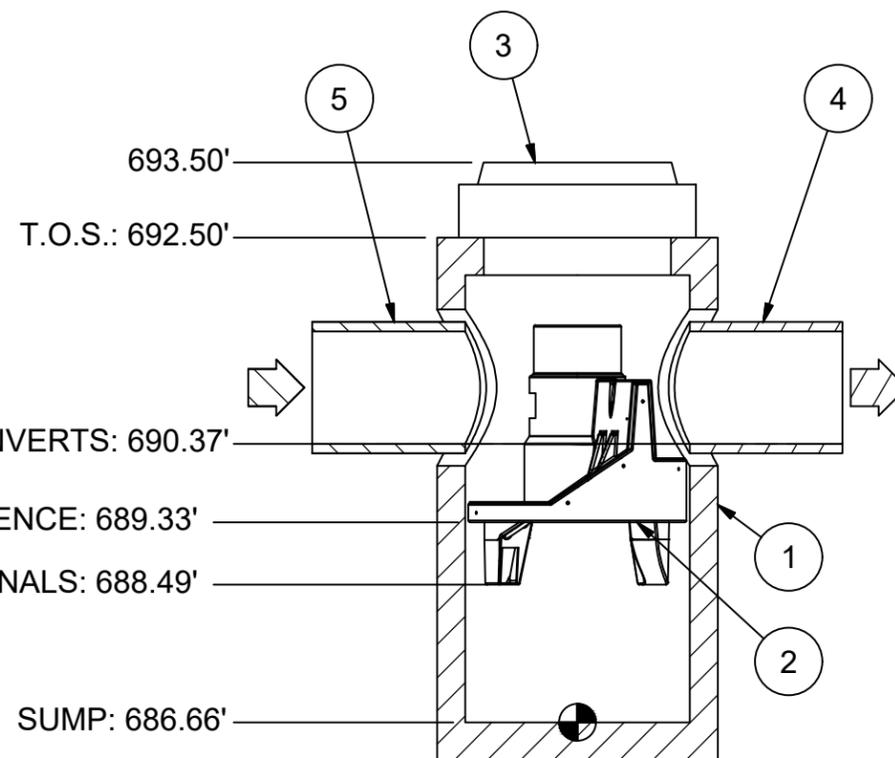


**PLAN VIEW**



**HYDRO FRAME AND COVER (INCLUDED)**

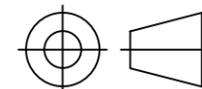
GRADE RINGS BY OTHERS  
AS REQUIRED



**SECTION A-A**

693.50'  
T.O.S.: 692.50'  
PIPE INVERTS: 690.37'  
PREASSEMBLY REFERENCE: 689.33'  
BOTTOM OF INTERNALS: 688.49'  
SUMP: 686.66'

PROJECTION



**IF IN DOUBT ASK**

COMMENTS:

1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING FIRST DEFENSE MANHOLE.
3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

DATE:  
11/8/2019

SCALE:  
1:30

DRAWN BY:  
JLL3

CHECKED BY:  
-

APPROVED BY

Title  
3-ft DIAMETER

FIRST DEFENSE HIGH CAPACITY

GENERAL ARRANGEMENT



hydro-int.com

HYDRO INTERNATIONAL

**DO NOT SCALE DRAWING**  
**STEEL FABRICATION TOLERANCES**  
UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES.

LINEAR 000 - 012in = ±0.04in 012 - 024in = ±0.06in 024 - 048in = ±0.08in 048 - 120in = ±0.12in 120in >>>> = ±0.20in	ANGULAR 000 - 120in = ±1° 120 - 240in = ±0.5° 240in >>>> = ±0.25°
--	--

WEIGHT:

N/A

MATERIAL:

STOCK NUMBER:

DRAWING NO.:  
3FDHC\_FDHC GA

SHEET SIZE:  
B

SHEET:  
1 OF 1

Rev:  
-

**PRODUCT SPECIFICATION:**

1. PEAK HYDRAULIC FLOW: 15.0 cfs (424 l/s)
2. MIN SEDIMENT STORAGE CAPACITY: 0.4 cu. yd. (0.3 cu. m.)
3. OIL STORAGE CAPACITY: 125 gal. (473 liters)
4. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 18 in. (450 mm)
5. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.
6. FOR MORE PRODUCT INFORMATION INCLUDING REGULATORY ACCEPTANCES, PLEASE VISIT <https://hydro-int.com/en/products/first-defense>

**GENERAL NOTES:**

1. General Arrangement drawings only. Contact Hydro International for site specific drawings.
2. The diameter of the inlet and outlet pipes may be no more than 18".
3. Multiple inlet pipes possible (refer to project plan).
4. Inlet/outlet pipe angle can vary to align with drainage network (refer to project plan.s)
5. Peak flow rate and minimum height limited by available cover and pipe diameter.
6. Larger sediment storage capacity may be provided with a deeper sump depth.

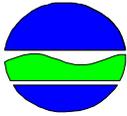
PARTS LIST				
ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	36	900	I.D. PRECAST MANHOLE
2	1			INTERNAL COMPONENTS (PRE-INSTALLED)
3	1	30	750	FRAME AND COVER (ROUND)
4	1	18 (MAX)	450 (MAX)	OUTLET PIPE (BY OTHERS)
5	1	18 (MAX)	450 (MAX)	INLET PIPE (BY OTHERS)

ANY WARRANTY GIVEN BY HYDRO INTERNATIONAL WILL APPLY ONLY TO THOSE ITEMS SUPPLIED BY IT. ACCORDINGLY HYDRO INTERNATIONAL CANNOT ACCEPT ANY RESPONSIBILITY FOR ANY STRUCTURE, PLANT, OR EQUIPMENT, (OR THE PERFORMANCE THERE OF) DESIGNED, BUILT, MANUFACTURED, OR SUPPLIED BY ANY THIRD PARTY. HYDRO INTERNATIONAL HAVE A POLICY OF CONTINUOUS DEVELOPMENT AND RESERVE THE RIGHT TO AMEND THE SPECIFICATION. HYDRO INTERNATIONAL CANNOT ACCEPT LIABILITY FOR PERFORMANCE OF ITS EQUIPMENT, (OR ANY PART THEREOF), IF THE EQUIPMENT IS SUBJECT TO CONDITIONS OUTSIDE ANY DESIGN SPECIFICATION. HYDRO INTERNATIONAL OWNS THE COPYRIGHT OF THIS DRAWING, WHICH IS SUPPLIED IN CONFIDENCE. IT MUST NOT BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SUPPLIED AND MUST NOT BE REPRODUCED, IN WHOLE OR IN PART, WITHOUT PRIOR PERMISSION IN WRITING FROM HYDRO INTERNATIONAL.

***APPENDIX D***

*Notice of Intent & SWPPP Acceptance Form*

# NOTICE OF INTENT



**New York State Department of Environmental Conservation**  
**Division of Water**  
**625 Broadway, 4th Floor**  
**Albany, New York 12233-3505**

**NYR**   
(for DEC use only)

**Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002**  
All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

**- IMPORTANT -**  
**RETURN THIS FORM TO THE ADDRESS ABOVE**  
OWNER/OPERATOR MUST SIGN FORM

### Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State  Zip  -

Phone (Owner/Operator)  -  -  Fax (Owner/Operator)  -  -

Email (Owner/Operator)

FED TAX ID  -  (not required for individuals)



3. Select the predominant land use for both pre and post development conditions.  
**SELECT ONLY ONE CHOICE FOR EACH**

**Pre-Development  
Existing Land Use**

- FOREST
- PASTURE/OPEN LAND
- CULTIVATED LAND
- SINGLE FAMILY HOME
- SINGLE FAMILY SUBDIVISION
- TOWN HOME RESIDENTIAL
- MULTIFAMILY RESIDENTIAL
- INSTITUTIONAL/SCHOOL
- INDUSTRIAL
- COMMERCIAL
- ROAD/HIGHWAY
- RECREATIONAL/SPORTS FIELD
- BIKE PATH/TRAIL
- LINEAR UTILITY
- PARKING LOT
- OTHER

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Post-Development  
Future Land Use**

- SINGLE FAMILY HOME
- SINGLE FAMILY SUBDIVISION
- TOWN HOME RESIDENTIAL
- MULTIFAMILY RESIDENTIAL
- INSTITUTIONAL/SCHOOL
- INDUSTRIAL
- COMMERCIAL
- MUNICIPAL
- ROAD/HIGHWAY
- RECREATIONAL/SPORTS FIELD
- BIKE PATH/TRAIL
- LINEAR UTILITY (water, sewer, gas, etc.)
- PARKING LOT
- CLEARING/GRADING ONLY
- DEMOLITION, NO REDEVELOPMENT
- WELL DRILLING ACTIVITY \*(Oil, Gas, etc.)
- OTHER

Number of Lots

--	--	--

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**\*Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area																				
<table border="1" style="display: inline-table; width: 60px; height: 25px;"> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> </table>						<table border="1" style="display: inline-table; width: 60px; height: 25px;"> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> </table>						<table border="1" style="display: inline-table; width: 60px; height: 25px;"> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> </table>						<table border="1" style="display: inline-table; width: 60px; height: 25px;"> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> </table>					

5. Do you plan to disturb more than 5 acres of soil at any one time?       Yes     No

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

<table border="1" style="display: inline-table; width: 40px; height: 25px;"> <tr> <td style="text-align: center;">A</td> </tr> </table>	A	<table border="1" style="display: inline-table; width: 40px; height: 25px;"> <tr> <td style="text-align: center;">B</td> </tr> </table>	B	<table border="1" style="display: inline-table; width: 40px; height: 25px;"> <tr> <td style="text-align: center;">C</td> </tr> </table>	C	<table border="1" style="display: inline-table; width: 40px; height: 25px;"> <tr> <td style="text-align: center;">D</td> </tr> </table>	D
A							
B							
C							
D							
%	%	%	%				

7. Is this a phased project?       Yes     No

8. Enter the planned start and end dates of the disturbance activities.

<b>Start Date</b>		<b>End Date</b>									
<table border="1" style="display: inline-table; width: 40px; height: 25px;"> <tr> <td></td><td></td> </tr> </table>			<table border="1" style="display: inline-table; width: 40px; height: 25px;"> <tr> <td></td><td></td> </tr> </table>			<table border="1" style="display: inline-table; width: 40px; height: 25px;"> <tr> <td></td><td></td> </tr> </table>			<table border="1" style="display: inline-table; width: 40px; height: 25px;"> <tr> <td></td><td></td> </tr> </table>		
/		/									
		-									
/		/									









Post-construction Stormwater Management Practice (SMP) Requirements

**Important: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- Preservation of Undisturbed Areas
- Preservation of Buffers
- Reduction of Clearing and Grading
- Locating Development in Less Sensitive Areas
- Roadway Reduction
- Sidewalk Reduction
- Driveway Reduction
- Cul-de-sac Reduction
- Building Footprint Reduction
- Parking Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

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

**Total WQv Required**

.  acre-feet

29. Identify the RR techniques (Area Reduction), RR techniques (Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required (#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

**Note:** Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

<u>RR Techniques (Area Reduction)</u>	<u>Total Contributing Area (acres)</u>		<u>Total Contributing Impervious Area(acres)</u>	
<input type="radio"/> Conservation of Natural Areas (RR-1) ...	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<input type="radio"/> Sheetflow to Riparian Buffers/Filters Strips (RR-2) .....	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<input type="radio"/> Tree Planting/Tree Pit (RR-3) .....	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<input type="radio"/> Disconnection of Rooftop Runoff (RR-4) ..	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<u>RR Techniques (Volume Reduction)</u>				
<input type="radio"/> Vegetated Swale (RR-5) .....				
<input type="radio"/> Rain Garden (RR-6) .....				
<input type="radio"/> Stormwater Planter (RR-7) .....				
<input type="radio"/> Rain Barrel/Cistern (RR-8) .....				
<input type="radio"/> Porous Pavement (RR-9) .....				
<input type="radio"/> Green Roof (RR-10) .....				
<u>Standard SMPs with RRv Capacity</u>				
<input type="radio"/> Infiltration Trench (I-1) .....				
<input type="radio"/> Infiltration Basin (I-2) .....				
<input type="radio"/> Dry Well (I-3) .....				
<input type="radio"/> Underground Infiltration System (I-4) .....				
<input type="radio"/> Bioretention (F-5) .....				
<input type="radio"/> Dry Swale (O-1) .....				
<u>Standard SMPs</u>				
<input type="radio"/> Micropool Extended Detention (P-1) .....				
<input type="radio"/> Wet Pond (P-2) .....				
<input type="radio"/> Wet Extended Detention (P-3) .....				
<input type="radio"/> Multiple Pond System (P-4) .....				
<input type="radio"/> Pocket Pond (P-5) .....				
<input type="radio"/> Surface Sand Filter (F-1) .....				
<input type="radio"/> Underground Sand Filter (F-2) .....				
<input type="radio"/> Perimeter Sand Filter (F-3) .....				
<input type="radio"/> Organic Filter (F-4) .....				
<input type="radio"/> Shallow Wetland (W-1) .....				
<input type="radio"/> Extended Detention Wetland (W-2) .....				
<input type="radio"/> Pond/Wetland System (W-3) .....				
<input type="radio"/> Pocket Wetland (W-4) .....				
<input type="radio"/> Wet Swale (O-2) .....				



33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

**Note:** Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

**WQv Provided**

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# Owner/Operator Certification Form

## SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: Baltimore Ridge Subdivision

eNOI Submission Number: HP8-MYDP-6RSKJ

eNOI Submitted by:  Owner/Operator  SWPPP Preparer  Other

### Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Paul Cappuccilli  
Owner/Operator First Name M.I. Last Name

  
Signature

5/12/2021  
Date



# SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

### Project Site Information

Project/Site Name

Baltimore Ridge Subdivision

### Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

Camex Realty, LLC

### Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Kristy

First name

M

MI

Harris

Last Name

Signature

05/12/2021

Date



Department of  
Environmental  
Conservation

NYS Department of Environmental Conservation  
Division of Water  
625 Broadway, 4th Floor  
Albany, New York 12233-3505

## MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

**Construction Activities Seeking Authorization Under SPDES General Permit**

\*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

### I. Project Owner/Operator Information

1. Owner/Operator Name:

2. Contact Person:

3. Street Address:

4. City/State/Zip:

### II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/State/Zip:

### III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information

8. SWPPP Reviewed by:

9. Title/Position:

10. Date Final SWPPP Reviewed and Accepted:

### IV. Regulated MS4 Information

11. Name of MS4:

12. MS4 SPDES Permit Identification Number: NYR20A \_\_\_\_\_

13. Contact Person:

14. Street Address:

15. City/State/Zip:

16. Telephone Number:

**MS4 SWPPP Acceptance Form - continued**

**V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative**

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s).  
Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

**VI. Additional Information**

***APPENDIX E***

*SPDES General Permit 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

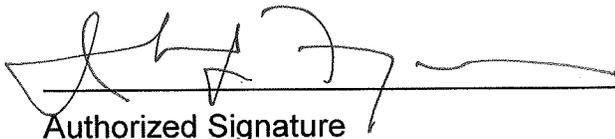
Issued Pursuant to Article 17, Titles 7, 8 and Article 70  
of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator



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**

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## Part 1. PERMIT COVERAGE AND LIMITATIONS

### A. Permit Application

This permit authorizes stormwater *discharges to surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants to surface waters of the State*.
3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

### B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharges* authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize the discharge of pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

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:

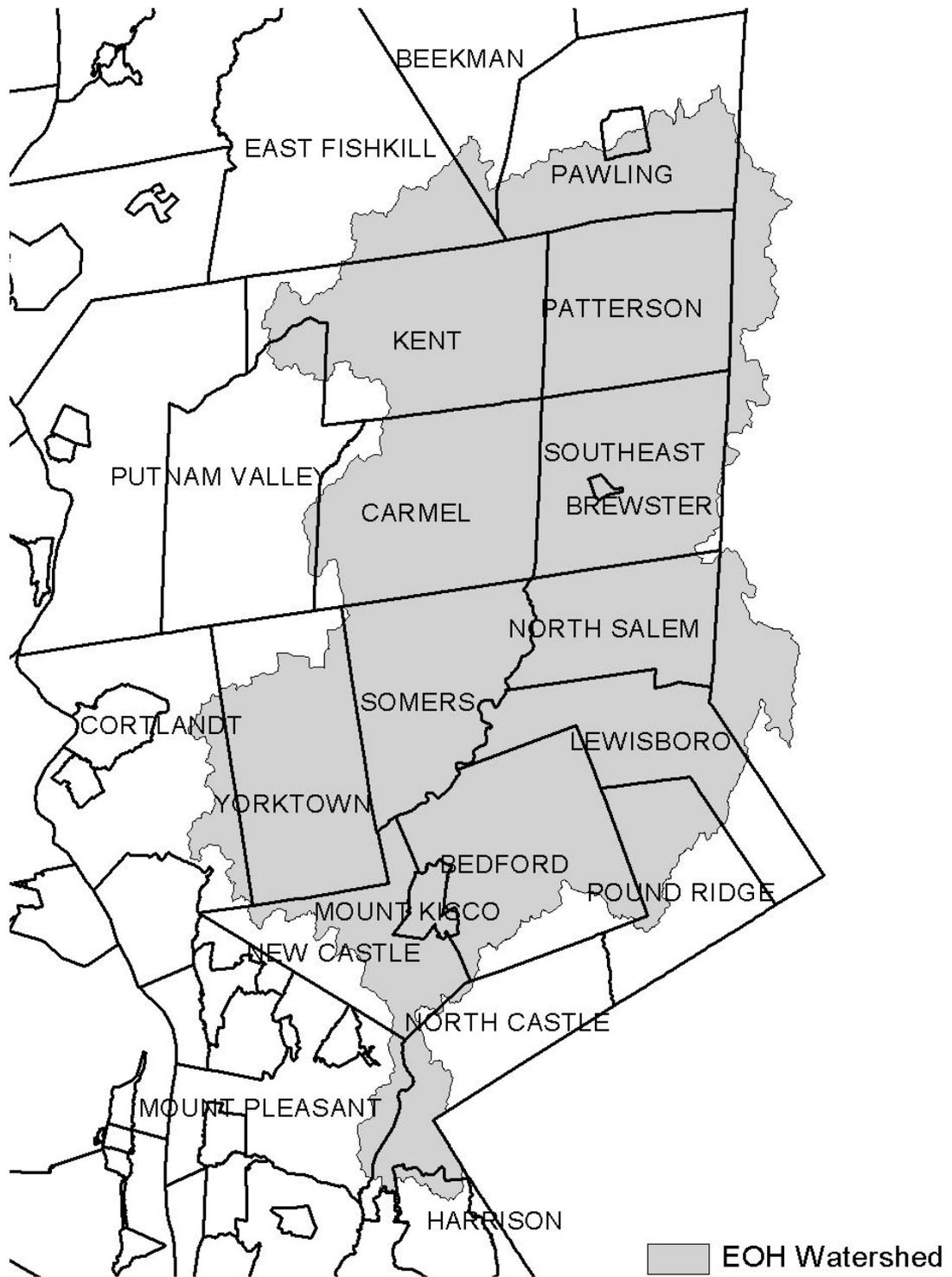
- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post 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**



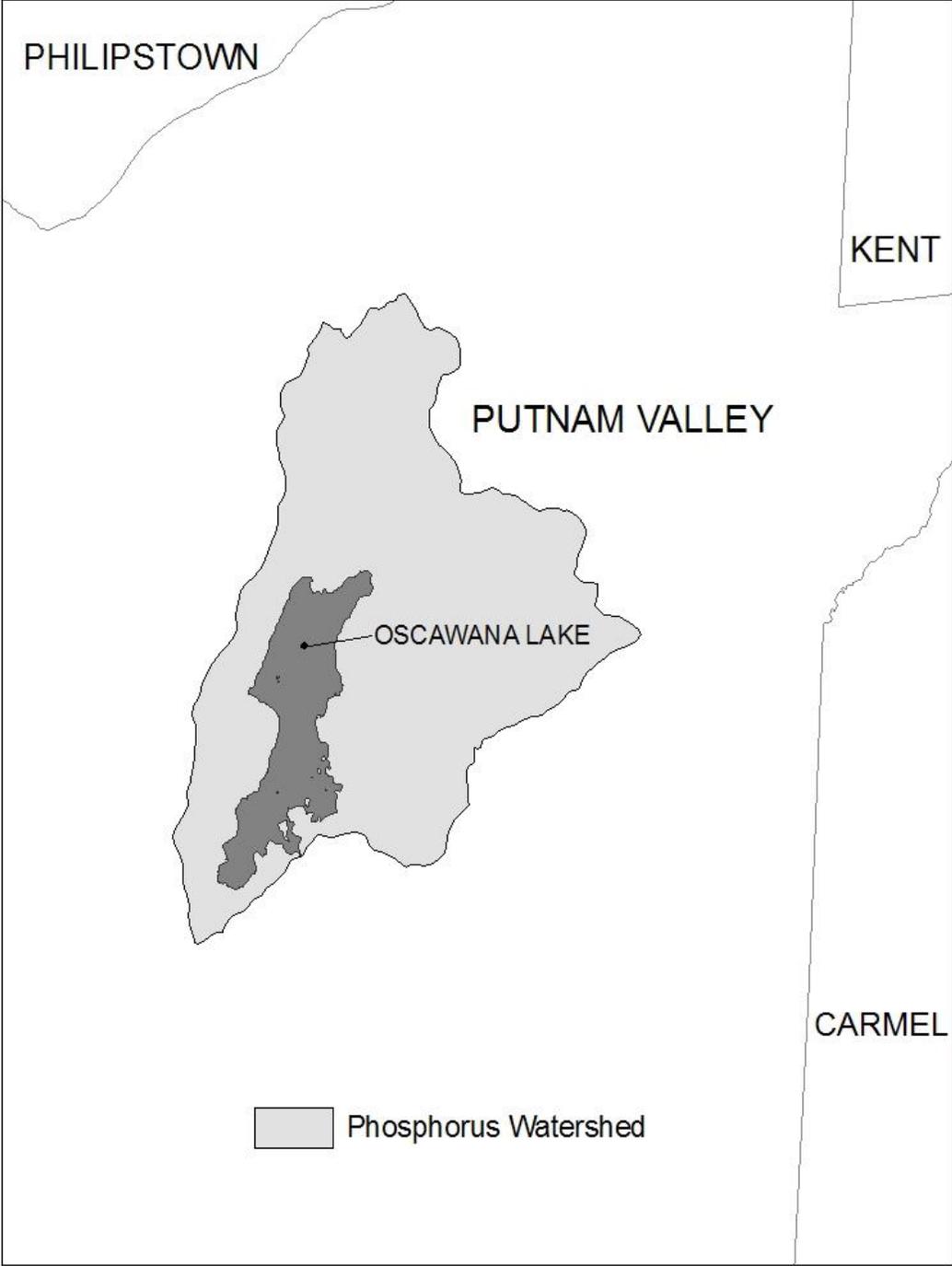
**Figure 2 - Onondaga Lake Watershed**



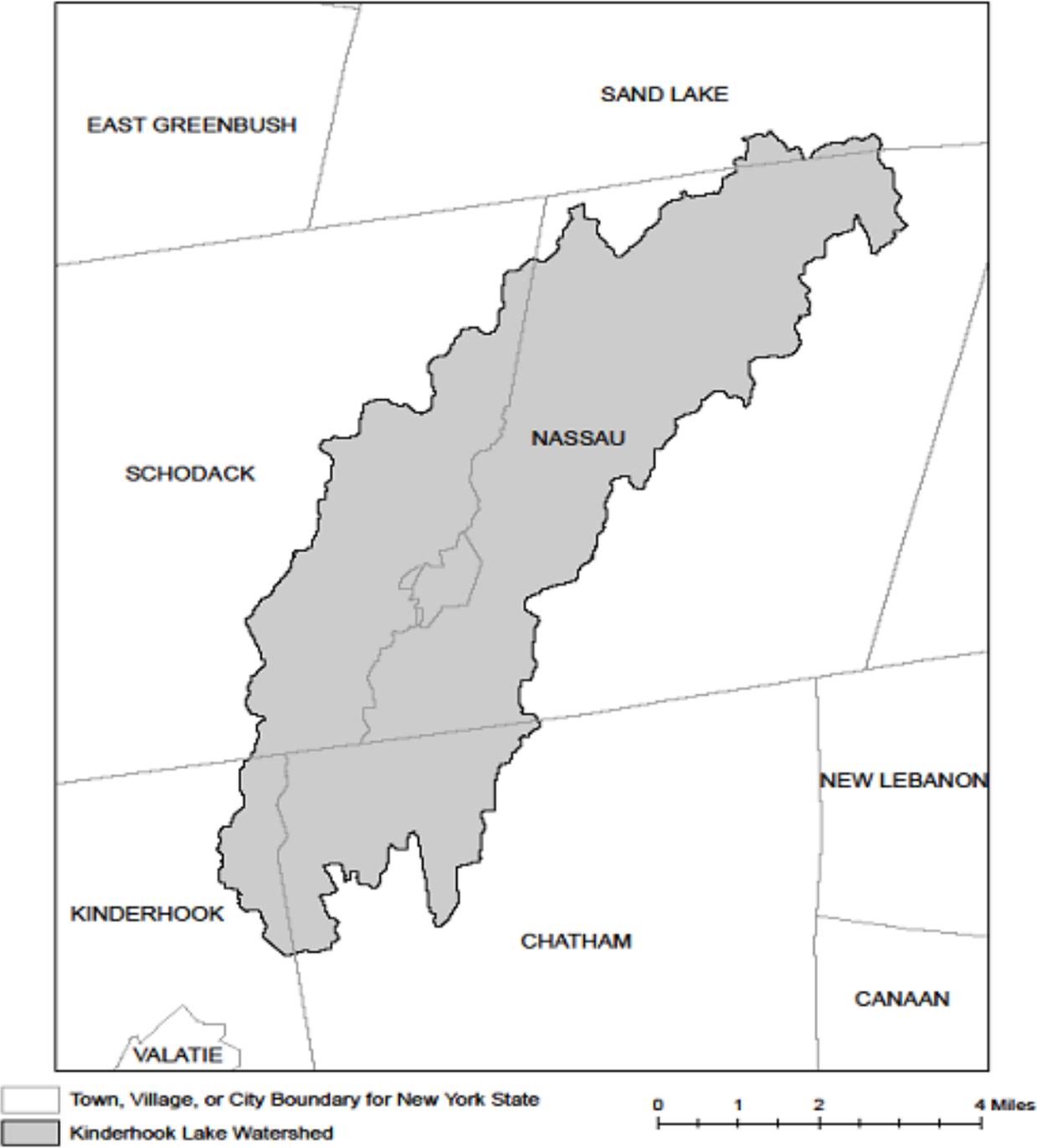
**Figure 3 - Greenwood Lake Watershed**



**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	Tribs 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

## ***APPENDIX F***

### *Inspection Forms and Maintenance Requirements*

**PERMIT NUMBER: NYR-**

**PRE-CONSTRUCTION MEETING DOCUMENTS**

**Project Name** \_\_\_\_\_

**GP-0-20-001 Permit No.** \_\_\_\_\_ **Date of Authorization** \_\_\_\_\_

**Name of Owner/Operator** \_\_\_\_\_

**General Contractor** \_\_\_\_\_

**The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:**

**Site Assessment and Inspections -**

- a. The Owner or Operator agrees to have a Qualified Inspector<sup>1</sup> conduct an assessment of the site prior to the commencement of construction. The Qualified Inspector shall certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.
- b. 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 owner or operator can stop conducting inspections. The owner or operator shall resume inspections as soon as soil disturbance activities are reinitiated.
- c. For construction sites where soil disturbance activities have been shut down with partial project completion, the owner or operator 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.
- d. Following the commencement of construction, site inspections shall be conducted by the Qualified Inspector to ensure that erosion and sediment controls are being maintained in effective operating condition at all times. Inspections shall occur at least: (i) once every 7 calendar days for construction sites where soil disturbance activities are occurring; (ii) twice every 7 calendar days for construction sites where soil disturbance activities are occurring and the Owner/Operator has received authorization to disturb greater than five (5) acres of soil at any one time, the site is located within a TMDL watershed, or the site directly discharges to a 303(d) listed water; (iii) once every thirty (30) calendar days for construction sites where soil disturbance activities have been temporarily suspended and temporary stabilization measures have been applied to all disturbed areas; and (iv) 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 for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

- e. The owner or operator shall notify the Regional Office and/or the MS4 stormwater contact person in writing prior to reducing the frequency of any inspections.
- f. The Owner/Operator shall maintain a record of all inspection reports in the site log book. The site log book shall be maintained on site and be made available to the permitting authorities upon request. Prior to the commencement of construction,<sup>2</sup> the Owner/Operator shall certify in the site log book that the SWPPP is prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.
- g. Prior to filing of the Notice of Termination or the end of permit term, the Owner/Operator shall have the Qualified Inspector perform a final site inspection. The Qualified Inspector shall certify that the site has undergone final stabilization<sup>3</sup> using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

<sup>1</sup>"Qualified Inspector" means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed Professional Engineer (PE), licensed Landscape Architect, or other Department endorsed individual(s). It may also mean someone working under the direct supervision of a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), or soil scientist provided that person has training in the principles and practices of erosion and sediment control. Training means that person has received four (4) hours of training endorsed by the Department and shall receive four (4) hours of training every three (3) years after the initial training session.

<sup>2</sup>"Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

<sup>3</sup>"Final stabilization" means that all soil disturbance activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established, or equivalent stabilization measures (such as the use of mulches or geotextiles, rock rip-rap or washed/crushed stone) have been employed on all disturbed areas that are not covered by permanent structures, concrete or pavement.

**PRE-CONSTRUCTION SITE ASSESSMENT FORM**

Inspector Name and Title

Date and Time of Inspection

**Qualified Inspector****Qualified Inspector Signature**

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

**a. Notice of Intent, SWPPP, and Contractors' Certification:**

- | Yes                      | No                       | NA                       |   |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Has a Notice of Intent been filed with the NYS Department of Conservation?  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the SWPPP on-site? Where? _____  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the Plan current? What is the latest revision date? _____  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Have all contractors involved with implementing the erosion and sediment control portions of the SWPPP signed the contractor's certification? |

**b. Resource Protection**

- | Yes                      | No                       | NA                       |   |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are construction limits clearly flagged or fenced?  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, etc. have been flagged for protection. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Creek crossings installed prior to land-disturbing activity, including clearing and blasting.   |

**c. Surface Water Protection**

- | Yes                      | No                       | NA                       |   |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Clean stormwater runoff has been diverted away from areas to be disturbed.                                |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Bodies of water located either on site or in the vicinity of the site have been identified and protected. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Appropriate practices to protect on-site or downstream surface waters are installed.                      |

**d. Stabilized Construction Entrance**

- | Yes                      | No                       | NA                       |   |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.         |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sediment tracked onto public streets is removed or cleaned on a regular basis.  |

**e. Perimeter Sediment Controls**

- | Yes                      | No                       | NA                       |   |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Silt fence material and installation comply with the standard drawing and specifications. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Silt fences are installed at appropriate spacing intervals                                |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sediment/detention basin was installed  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sediment traps and barriers are installed.  |

Project Name: \_\_\_\_\_



**PERMIT NUMBER: NYR**

**INSPECTION REPORT # \_\_:**

\_\_\_\_\_  
**Location**

\_\_\_\_\_  
**Date and Time of Inspection**

\_\_\_\_\_  
**Qualified Inspector (name and title)**

\_\_\_\_\_  
**Qualified Inspector Signature**

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

- Weekly Inspection**
- 2x/Week Inspection (TMDL or +5 ac)**
- Monthly Inspection**

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

**Estimated Current Total Disturbed Area:**

**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.**

**Per the GP-0-20-001, Digital photographs with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions shall be included with each inspection report. 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. Paper color copies of these digital photographs shall be attached to the inspection report, documenting the completion of the corrective action work within seven (7) calendar days of that inspection.**

### 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. 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:

### 3. 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:

#### 4. 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:

#### 5. 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:

#### 6. 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:

### 7. 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:

### 8. 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:

### 9. 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:

**10. SILTSACK® INLET PROTECTION**

*Includes inspection ensuring that protection is installed per manufacturers specifications and is maintained per manufacturers recommendations.*

**Yes**      **No**

      Is there immediate action required regarding the Inlet Protection?

**Notes:**

**11. 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:**

**12. CONCRETE WASHOUT**

*Includes inspection ensuring that the concrete washout is constructed and maintained per the approved plan or drawing.*

**Yes**      **No**

      Is there immediate action required regarding Concrete Washouts?

**Notes:**

**13. 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:**

**14. 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**

## Infiltration Trench Operation, Maintenance, and Management Inspection Checklist

Project:  
 Location:  
 Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
<b>1. Debris Cleanout (Monthly)</b>		
Trench surface clear of debris		
Inflow pipes clear of debris		
Overflow spillway clear of debris		
Inlet area clear of debris		
<b>2. Sediment Traps or Forebays (Annual)</b>		
Obviously trapping sediment		
Greater than 50% of storage volume remaining		
<b>3. Dewatering (Monthly)</b>		
Trench dewaterers between storms		
<b>4. Sediment Cleanout of Trench (Annual)</b>		
No evidence of sedimentation in trench		
Sediment accumulation doesn't yet require cleanout		
<b>5. Inlets (Annual)</b>		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Good condition		
No evidence of erosion		
<b>6. Outlet/Overflow Spillway (Annual)</b>		
Good condition, no need for repair		
No evidence of erosion		
<b>7. Aggregate Repairs (Annual)</b>		
Surface of aggregate clean		
Top layer of stone does not need replacement		
Trench does not need rehabilitation		

**Comments:**

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**Actions to be Taken:**

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## Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:  
 Location:  
 Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
<b>1. Debris Cleanout (Monthly)</b>		
Contributing areas clean of debris		
<b>2. Check Dams or Energy Dissipators (Annual, After Major Storms)</b>		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
<b>3. Vegetation (Monthly)</b>		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
<b>4. Dewatering (Monthly)</b>		
Dewaterers between storms		

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
<b>5. Sediment deposition (Annual)</b>		
Clean of sediment		
<b>6. Outlet/Overflow Spillway (Annual)</b>		
Good condition, no need for repairs		
No evidence of erosion		

**Comments:**

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**Actions to be Taken:**

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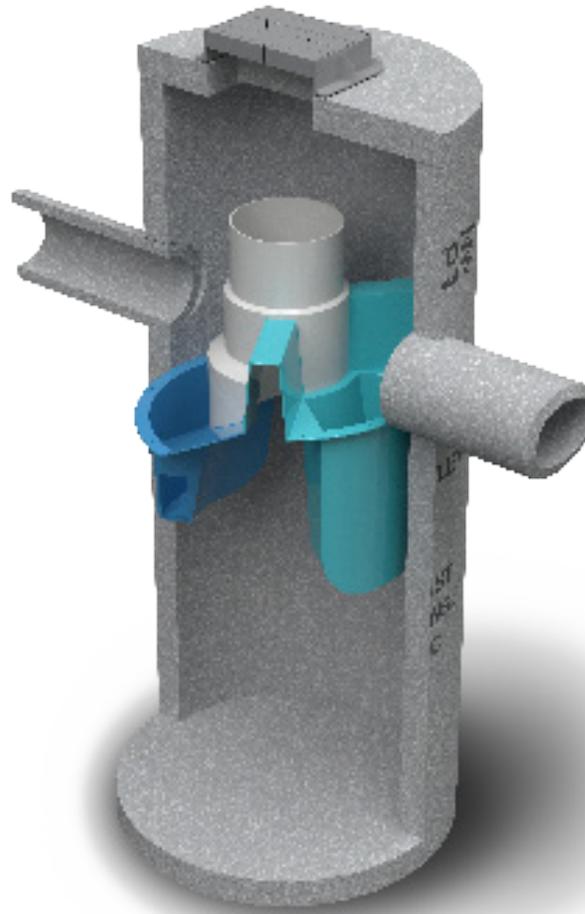
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## Operation and Maintenance Manual

**First Defense<sup>®</sup> High Capacity and First Defense<sup>®</sup> Optimum**

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Vortex Separator for Stormwater Treatment

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**DISCLAIMER:** Information and data contained in this manual is exclusively for the purpose of assisting in the operation and maintenance of Hydro International plc's First Defense®. No warranty is given nor can liability be accepted for use of this information for any other purpose. Hydro International plc has a policy of continuous product development and reserves the right to amend specifications without notice.

## I. First Defense® by Hydro International

### Introduction

The First Defense® is an enhanced vortex separator that combines an effective and economical stormwater treatment chamber with an integral peak flow bypass. It efficiently removes total suspended solids (TSS), trash and hydrocarbons from stormwater runoff without washing out previously captured pollutants. The First Defense® is available in several model configurations to accommodate a wide range of pipe sizes, peak flows and depth constraints.

The two product models described in this guide are the First Defense® High Capacity and the First Defense® Optimum; they are inspected and maintained identically.

### Operation

The First Defense® operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirement and is fabricated with durable non-corrosive components. No manual procedures are required to operate the unit and maintenance is limited to monitoring accumulations of stored pollutants and periodic clean-outs. The First Defense® has been designed to allow for easy and safe access for inspection, monitoring and clean-out procedures. Neither entry into the unit nor removal of the internal components is necessary for maintenance, thus safety concerns related to confined-space-entry are avoided.

### Pollutant Capture and Retention

The internal components of the First Defense® have been designed to optimize pollutant capture. Sediment is captured and retained in the base of the unit, while oil and floatables are stored on the water surface in the inner volume (Fig.1).

The pollutant storage volumes are isolated from the built-in bypass chamber to prevent washout during high-flow storm events. The sump of the First Defense® retains a standing water level between storm events. This ensures a quiescent flow regime at the onset of a storm, preventing resuspension and washout of pollutants captured during previous events.

Accessories such as oil absorbent pads are available for enhanced oil removal and storage. Due to the separation of the oil and floatable storage volume from the outlet, the potential for washout of stored pollutants between clean-outs is minimized.

### Applications

- Stormwater treatment at the point of entry into the drainage line
- Sites constrained by space, topography or drainage profiles with limited slope and depth of cover
- Retrofit installations where stormwater treatment is placed on or tied into an existing storm drain line
- Pretreatment for filters, infiltration and storage

### Advantages

- Inlet options include surface grate or multiple inlet pipes
- Integral high capacity bypass conveys large peak flows without the need for “offline” arrangements using separate junction manholes
- Long flow path through the device ensures a long residence time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

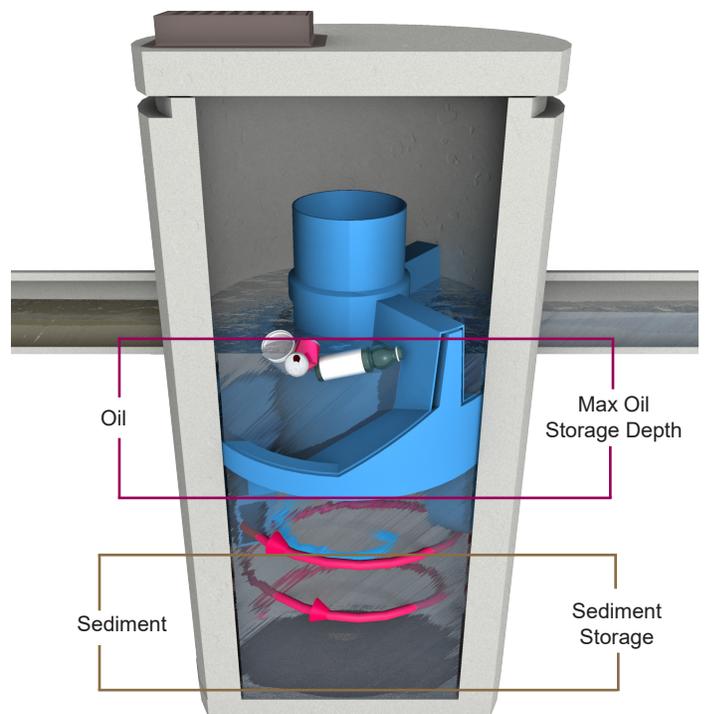


Fig.1 Pollutant storage volumes in the First Defense®.

## II. Model Sizes & Configurations

The First Defense® inlet and internal bypass arrangements are available in several model sizes and configurations. The components have modified geometries allowing greater design flexibility to accommodate various site constraints.

All First Defense® models include the internal components that are designed to remove and retain total suspended solids (TSS), gross solids, floatable trash and hydrocarbons (Fig.2). First Defense® model sizes (diameter) are shown in Table 1.

## III. Maintenance

### First Defense® Components

- |                    |                             |                         |
|--------------------|-----------------------------|-------------------------|
| 1. Built-In Bypass | 4. Floatables Draw-off Port | 7. Sediment Storage     |
| 2. Inlet Pipe      | 5. Outlet Pipe              | 8. Inlet Grate or Cover |
| 3. Inlet Chute     | 6. Floatables Storage       |                         |

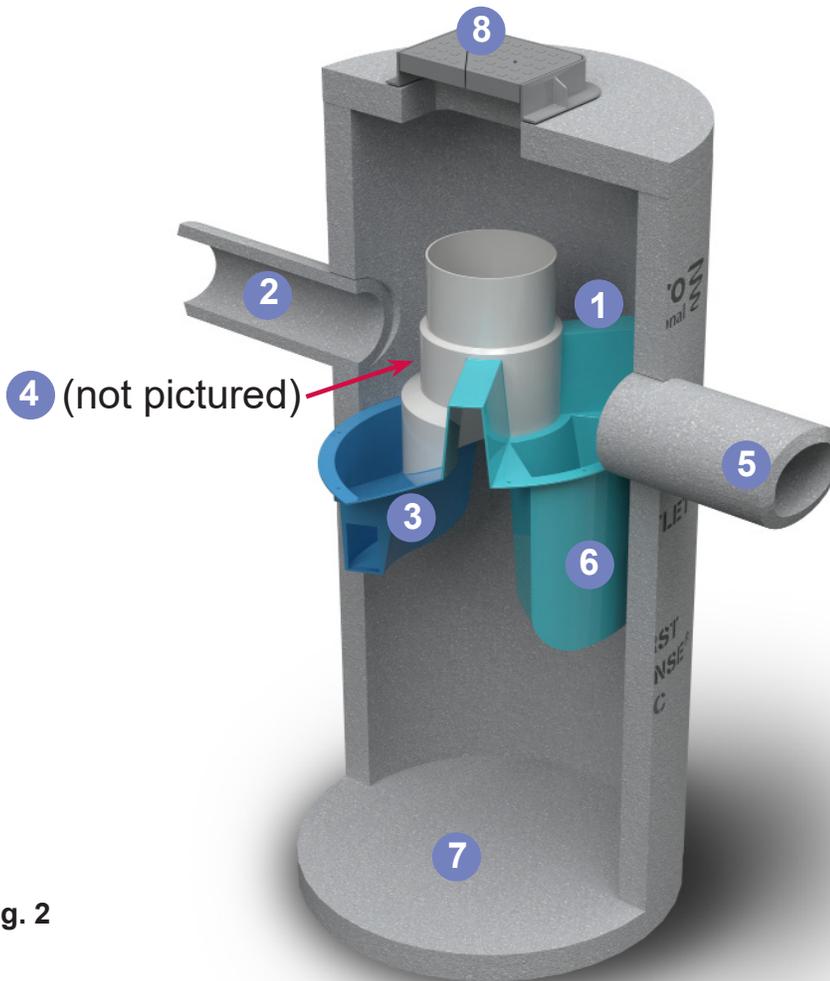


Fig. 2

Table 1

First Defense® Model Sizes
(ft / m) diameter
3 / 0.9
4 / 1.2
5 / 1.5
6 / 1.8
8 / 2.4
10 / 3.0

## Overview

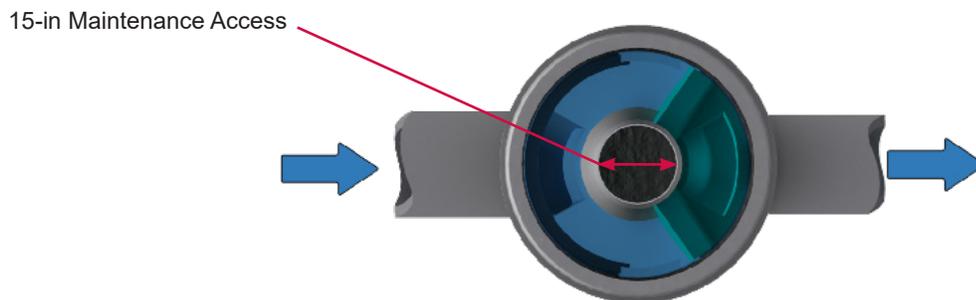
The First Defense® protects the environment by removing a wide range of pollutants from stormwater runoff. Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the First Defense®. The First Defense® will capture and retain sediment and oil until the sediment and oil storage volumes are full to capacity. When sediment and oil storage capacities are reached, the First Defense® will no longer be able to store removed sediment and oil.

The First Defense® allows for easy and safe inspection, monitoring and clean-out procedures. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables. Access ports are located in the top of the manhole.

Maintenance events may include Inspection, Oil & Floatables Removal, and Sediment Removal. Maintenance events do not require entry into the First Defense®, nor do they require the internal components of the First Defense® to be removed. In the case of inspection and floatables removal, a vactor truck is not required. However, a vactor truck is required if the maintenance event is to include oil removal and/or sediment removal.

## Maintenance Equipment Considerations

The internal components of the First Defense® have a centrally located circular shaft through which the sediment storage sump can be accessed with a sump vac hose. The open diameter of this access shaft is 15 inches in diameter (Fig.3). Therefore, the nozzle fitting of any vactor hose used for maintenance should be less than 15 inches in diameter.



*Fig.3 The central opening to the sump of the First Defense® is 15 inches in diameter.*

## Determining Your Maintenance Schedule

The frequency of clean out is determined in the field after installation. During the first year of operation, the unit should be inspected every six months to determine the rate of sediment and floatables accumulation. A simple probe such as a Sludge-Judge® can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance log (see page 9) to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil / floatables removal, for First Defense® typically takes less than 30 minutes and removes a combined water/oil volume of about 765 gallons.

### Inspection Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities. Fig.4 shows the standing water level that should be observed.
4. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the components and water surface.
5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel.
6. On the Maintenance Log (see page 9), record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.
7. Securely replace the grate or lid.
8. Take down safety equipment.
9. Notify Hydro International of any irregularities noted during inspection.

### Floatables and Sediment Clean Out

Floatables clean out is typically done in conjunction with sediment removal. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables (Fig.4).

Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose to be lowered to the base of the sump.

### Scheduling

- Floatables and sump clean out are typically conducted once a year during any season.
- Floatables and sump clean out should occur as soon as possible following a spill in the contributing drainage area.



Fig.4 Floatables are removed with a vactor hose

### Recommended Equipment

- Safety Equipment (traffic cones, etc)
- Crow bar or other tool to remove grate or lid
- Pole with skimmer or net (if only floatables are being removed)
- Sediment probe (such as a Sludge Judge®)
- Vactor truck (flexible hose recommended)
- First Defense® Maintenance Log

### *Floatables and Sediment Clean Out Procedures*

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.
4. Remove oil and floatables stored on the surface of the water with the vacator hose or with the skimmer or net
5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log (page 9).
6. Once all floatables have been removed, drop the vacator hose to the base of the sump. Vacator out the sediment and gross debris off the sump floor
7. Retract the vacator hose from the vessel.
8. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components, blockages, or irregularly high or low water levels.
9. Securely replace the grate or lid.

## Maintenance at a Glance

Inspection	<ul style="list-style-type: none"> <li>- Regularly during first year of installation</li> <li>- Every 6 months after the first year of installation</li> </ul>
Oil and Floatables Removal	<ul style="list-style-type: none"> <li>- Once per year, with sediment removal</li> <li>- Following a spill in the drainage area</li> </ul>
Sediment Removal	<ul style="list-style-type: none"> <li>- Once per year or as needed</li> <li>- Following a spill in the drainage area</li> </ul>

NOTE: For most clean outs the entire volume of liquid does not need to be removed from the manhole. Only remove the first few inches of oils and floatables from the water surface to reduce the total volume of liquid removed during a clean out.



## First Defense® Installation Log

HYDRO INTERNATIONAL REFERENCE NUMBER:	
SITE NAME:	
SITE LOCATION:	
OWNER:	CONTRACTOR:
CONTACT NAME:	CONTACT NAME:
COMPANY NAME:	COMPANY NAME:
ADDRESS:	ADDRESS:
TELEPHONE:	TELEPHONE:
FAX:	FAX:

INSTALLATION DATE:    /    /

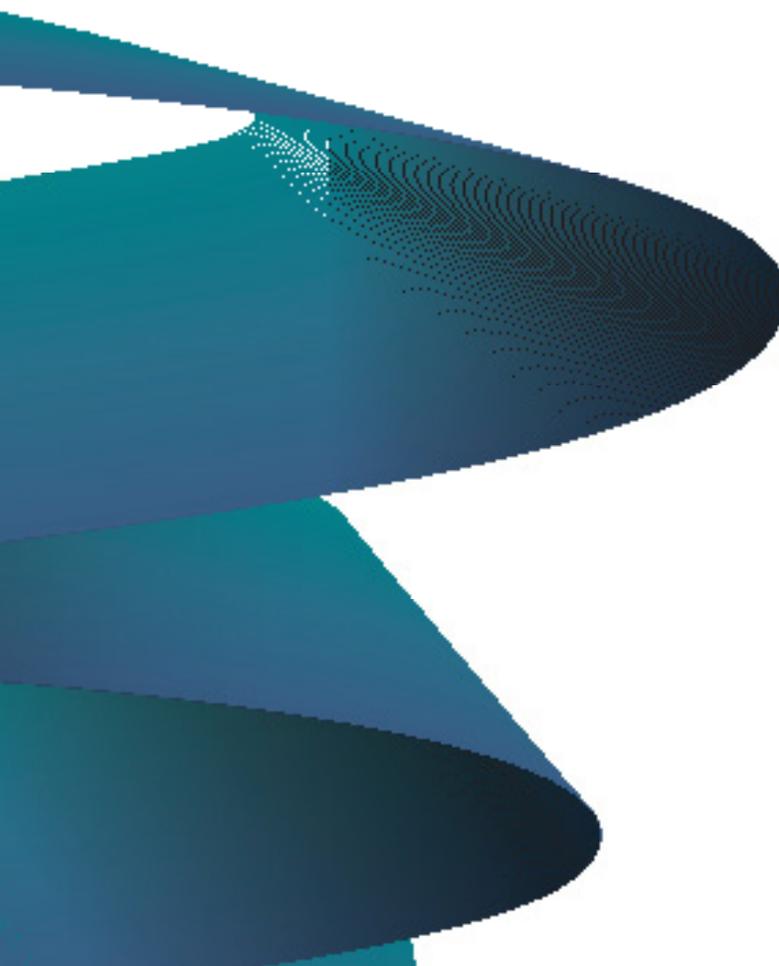
MODEL SIZE (CIRCLE ONE):    [3-FT]    [4-FT]    [5-FT]    [6-FT]    [8-FT]    [10-FT]

INLET (CIRCLE ALL THAT APPLY):    GRATED INLET (CATCH BASIN)    INLET PIPE (FLOW THROUGH)









## Stormwater Solutions

94 Hutchins Drive  
Portland, ME 04102

Tel: (207) 756-6200

Fax: (207) 756-6212

[stormwaterinquiry@hydro-int.com](mailto:stormwaterinquiry@hydro-int.com)

[www.hydro-int.com](http://www.hydro-int.com)

Turning Water Around...<sup>®</sup>

FD\_O+M\_J\_2009(2)

## Post-Construction Stormwater BMP Operation and Maintenance Plan

Baltimore Ridge Subdivision  
Baker Road & Dunlap Avenue  
Village of Marcellus, New York

\*Attach all applicable Maintenance Agreements for this facility

Complete the following schedule:

<b>Structural BMPs (Responsible Party)</b>	<b>(1) Description of the Practice</b>	<b>(2) Performance and Management Requirements</b>	<b>(3) Inspection Frequency</b>	<b>(4) Inspection Personnel Qualification Requirement</b>	<b>(5) Inspection/Maintenance Action Required</b>	<b>(6) Submittal Requirements and Records Retention</b>
<i>Infiltration Basin</i>  (Village of Marcellus)	Stormwater basin that captures and temporarily stores runoff before allowing it to either infiltrate into the soil or be released by a controlled outlet.  The infiltration basin is located in the southeasterly corner of the property as shown in the construction documents.	Provides groundwater recharge through infiltration. Also mitigates peak flows per NYSDEC guidelines. Inspection required by qualified professional.	Rain Event Semi-Annual Annual 5-Year Cycle 20-Year Cycle	A person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).	<ul style="list-style-type: none"> <li>• Clean, remove debris after major storm events</li> <li>• Repair and stabilize side slopes and other eroded areas (semi-annual/as needed)</li> <li>• If dead or dying grass on the bottom is observed, check to ensure water percolates 2-3 days following storms (semi-annual/as needed)</li> <li>• Disc or otherwise aerate bottom (annual)</li> <li>• Dethatch basin bottom (annual)</li> <li>• Scrape bottom and remove sediment. Restore original cross-section and infiltration rate. Seed or sod to restore ground cover (5 Yr)</li> </ul>	The Operator shall submit records to local jurisdiction upon request. The Operator shall retain copies of SWPPP and any reports submitted in conjunction with this permit, and records of all data used to complete the NOI to be covered by this permit, for a period of at least five years from the date that the site is finally stabilized. This period may be extended by the Department, in its sole discretion, at any time upon written notification.
<i>Outlet Protection</i>  (Village of Marcellus)	Rip rap used for stabilization and to prevent scour or channelization at storm sewer outfalls.	Adequately protects downstream area.	Annually and after storm events.	See Infiltration Basin	Outlets shall be inspected after high flows for evidence of scour beneath the rip rap or for dislodged stones. Repairs shall be made immediately.	See Infiltration Basin

<b>Structural BMPs (Responsible Party)</b>	<b>(1) Description of the Practice</b>	<b>(2) Performance and Management Requirements</b>	<b>(3) Inspection Frequency</b>	<b>(4) Inspection Personnel Qualification Requirement</b>	<b>(5) Inspection/Maintenance Action Required</b>	<b>(6) Submittal Requirements and Records Retention</b>
<i>Storm Sewer System</i>  (Village of Marcellus)	Storm water conveyance system comprised of drainage inlets and piping to transport runoff to stormwater basins.	Adequately conveys stormwater to basins.	Annually and after storm events.	See Infiltration Basin	<ul style="list-style-type: none"> <li>• Clean, remove debris after large storm events from catch basin grates as well as within storm sewer pipes.</li> <li>• Remove debris from catch basin sumps when accumulation reaches 12”</li> </ul>	See Infiltration Basin
<i>Water Quality Treatment Unit</i>  (Village of Marcellus)	<p>A hydrodynamic separator using swirl concentration and continuous deflective separation to screen, separate and trap trash, debris, sediment and hydrocarbons from stormwater runoff.</p> <p>The separator is located on the south side of the proposed roadway and identified as CB#6 on the associated construction documents.</p>	Provides treatment of stormwater through the removal of sediment, trash, debris and hydrocarbons,	See manufacturer’s recommendations	See Infiltration Basin	See manufacturer’s recommendations	See Infiltration Basin

## ***APPENDIX G***

*Erosion and Sediment Control Plan and Details*

**CAMEX REALTY, LLC**  
 605 W GENESEE ST #100  
 SYRACUSE, NY 13204



IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER OR MODIFY ANY PART OF THE SEAL OR STAMP OF A LICENSED PROFESSIONAL AS ALTERED. THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE WORDING "ALTERED BY FOLLOWING BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION."

**BALTIMORE RIDGE SUBDIVISION**  
 BAKER RD & DUNLAP AVE  
 MARCELLUS, NY 13108

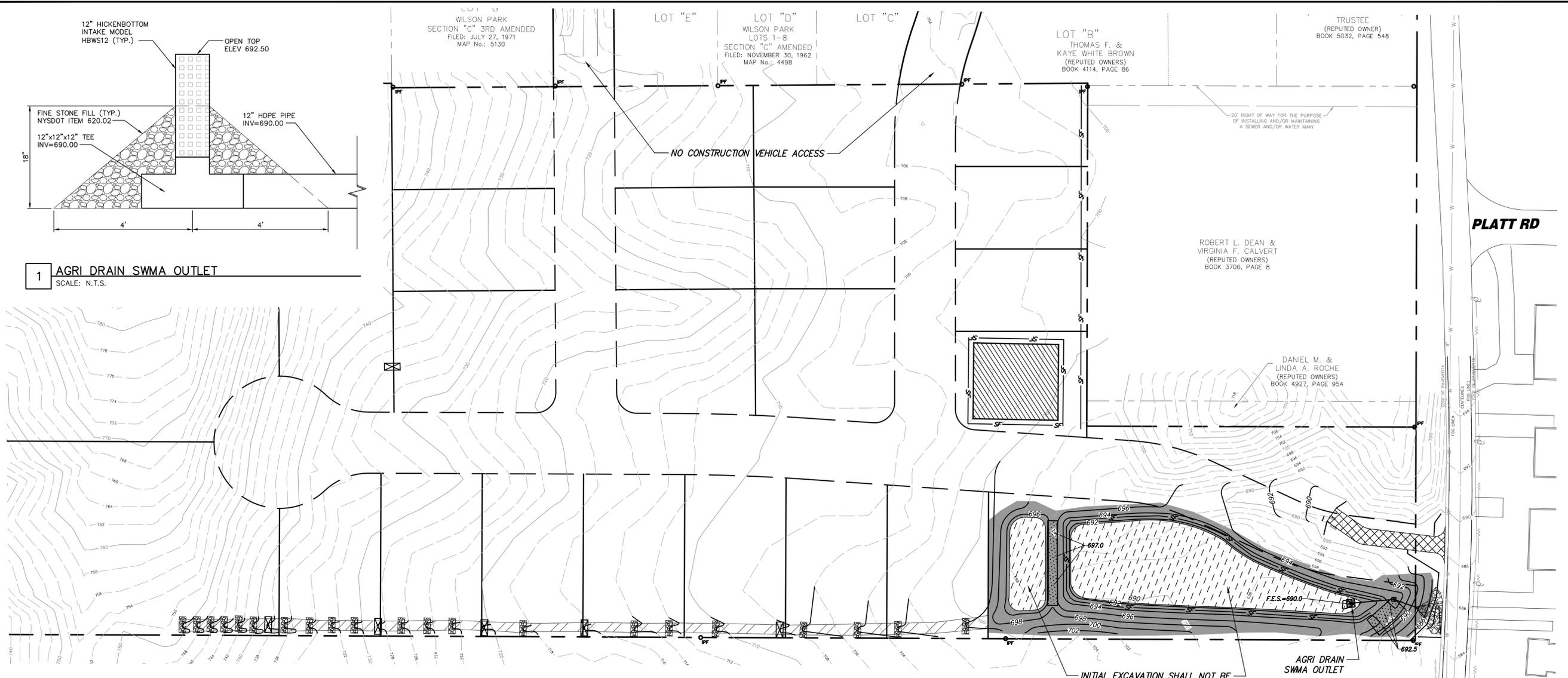
No.	Submittal / Revision	App'd.	By	Date
1	RESPONSE TO COMMENTS	JFT	AMV	05/12/21
2	RESPONSE TO COMMENTS	JFT	BGH	04/16/21
3	RESPONSE TO COMMENTS	JFT	AMV	03/30/21
4	RESPONSE TO COMMENTS	JFT	AMV	03/11/21
5	RESPONSE TO COMMENTS	JFT	AMV	03/03/21
6	PRELIMINARY PLAT SUBMITTAL	JFT	AMV	02/09/21

**EROSION & SEDIMENT CONTROL PLAN PHASE 1**

Designed By: AMV/RPM  
 Drawn By: AMV/RPM  
 Checked By: BFB

Issue Date: 12/15/20  
 Project No: 67298  
 Scale: AS SHOWN

Drawing No.: **C-004**



**EROSION & SEDIMENT CONTROL SPECIFICATION**

ONE WEEK PRIOR TO BEGINNING EARTHWORK OPERATIONS, A PRE-CONSTRUCTION MEETING WILL BE HELD TO DISCUSS THE EROSION AND SEDIMENT CONTROL PLAN, AND TO FINALIZE THE PAPER WORK FOR THE STORM WATER POLLUTION PREVENTION PLAN AS SPECIFIED IN THE STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) GENERAL PERMIT FOR STORM WATER DISCHARGE FROM CONSTRUCTION ACTIVITIES (GP-0-20-001).

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO BEGINNING ANY LAND DISTURBANCE ACTIVITIES. THE DEVICES PROVIDING PROTECTION TO A GIVEN AREA SHALL NOT BE REMOVED UNTIL THE LANDS IN THAT AREA ARE STABILIZED.

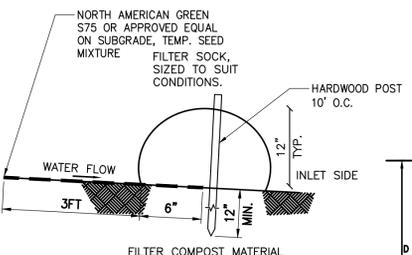
NO DISTURBED AREA SHALL REMAIN EXPOSED FOR MORE THAN 7 CALENDAR DAYS, EXCEPT FOR PORTIONS OF THE SITE IN WHICH WORK WILL BE CONTINUOUS BEYOND 7 DAYS (I.E. THE BUILDING FOOTPRINT).

**CONSTRUCTION SEQUENCE:**

- GENERAL NOTES:**
- SILT FENCE SHALL BE INSTALLED AT THE TOE OF SLOPES WITH BUFFER AREAS PER BLUE BOOK GUIDELINES. ADDITIONAL SILT FENCE SHALL BE INSTALLED AS NECESSARY.
  - BACKFILL SHALL BE PLACED ON THE UPSTREAM SIDE OF ALL TRENCHES DURING UTILITY CONSTRUCTION. TRENCHES SHALL BE BACKFILLED/COMPACTED AND STABILIZED IMMEDIATELY AFTER BACKFILL OPERATION.
  - WATER ENCOUNTERED FROM EXCAVATIONS SHALL NOT BE DISCHARGED DIRECTLY TO STORM DRAIN SYSTEMS. WATER SHALL BE PUMPED TO DESIGNATED SEDIMENTATION BASINS PRIOR TO DISCHARGE. FILTER BAGS MAY BE USED AS NECESSARY.
  - DUST SHALL BE CONTROLLED ON ACCESS POINTS AND OTHER DISTURBED AREAS SUBJECT TO SURFACE DUST MOVEMENT AND BLOWING.
  - PROVIDE SILT FENCING AROUND PERIMETER OF STAGED/STOCKPILED TOP SOIL AND/OR TEMPORARY STAGED PILE OR FILL.
  - SWALES/DIKES SHALL BE CONSTRUCTED AS NEEDED TO PROVIDE POSITIVE DRAINAGE AND TO PROTECT OFF-SITE PROPERTY FROM SEDIMENT TRANSPORT/INCREASED RUNOFF.
  - CONCRETE WASHOUTS SHALL BE INSTALLED PER EPA GUIDELINES. CONCRETE TRUCKS MUST USE DESIGNATED CONTAINED WASHOUT AREAS WHEN RINSING CHUTES. NO CONCRETE SHALL BE DUMPED UNCONTAINED.

- CONSTRUCTION SEQUENCE - PHASE 1:**
- CLEAR AND REMOVE TREES NECESSARY FOR SITE ACCESS.
  - INSTALL STABILIZED CONSTRUCTION ENTRANCE AS SHOWN. NO CONSTRUCTION VEHICLE ACCESS SHALL BE PROVIDED ON DUNLAP AVENUE OR BAKER ROAD.
  - INSTALL SILT SOCK AS SHOWN.
  - CLEAR AND REMOVE TREES NECESSARY FOR INFILTRATION BASIN INSTALLATION AND SOIL STOCKPILE AREA.
  - INSTALL SILT FENCE ALONG EASTERLY PROPERTY LINE ADJACENT TO SOIL STOCKPILE AREA LOCATION.
  - PARTIALLY INSTALL INFILTRATION BASIN. BASIN SHALL BE USED AS TEMPORARY SEDIMENT BASIN. THEREFORE, EXCAVATE FOREBAY TO ELEVATION 694.5 FEET AND MAIN POOL TO ELEVATION 691.5 FEET ONLY. LEAVING THE REMAINING EXCAVATION TO BE PERFORMED ONCE ALL UPSTREAM AREAS ARE COMPLETELY STABILIZED.
  - INSTALL OUTLET CONTROL STRUCTURE WITH AGRI DRAIN INLET PROTECTION (THIS AREA WILL REQUIRE EXCAVATION TO ELEVATION 690.0 FEET PER PRELIMINARY GRADING SHOWN). INSTALL RIP RAP AT END SECTION AT ROADSIDE DITCH.
  - INSTALL SILT FENCE AND EROSION CONTROL BLANKET ON BASIN SLOPES AS SHOWN. INSTALL TURF REINFORCEMENT MATTING WITHIN SPILLWAYS PER DETAIL.
  - CLEAR AND REMOVE TREES NECESSARY FOR SWALE CONSTRUCTION ALONG SOUTHERLY SUBDIVISION PROPERTY LINE. INSTALL SWALE. INSTALL PERMANENT EROSION CONTROL MATTING AND CHECK DAMS.

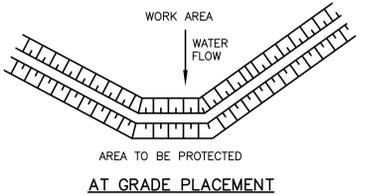
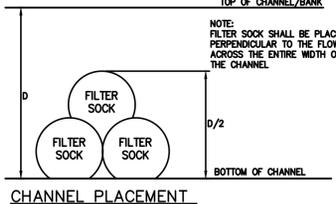
INITIAL EXCAVATION SHALL NOT BE DEEPER THAN ELEVATION 695.0 IN FOREBAY AND 691.5 IN MAIN POOL. ONCE SITE IS STABILIZED, CONTINUE EXCAVATION TO DESIGN GRADES AND IMMEDIATELY STABILIZE. DO NOT COMPACT FLOOR OF BASIN AND LIMIT HEAVY CONSTRUCTION VEHICLES.



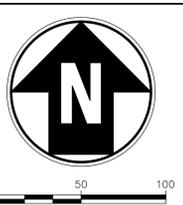
- NOTES:**
- ALL MATERIAL TO MEET MANUFACTURER SPECIFICATIONS.
  - ALL FILTER SOCKS SHALL BE 12" DIAMETER UNLESS INDICATED OTHERWISE.
  - THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTER BERM IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE ROUTINELY INSPECTED.
  - WHERE THE BERM REQUIRES REPAIR, IT WILL BE ROUTINELY REPAIRED.
  - THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE BERM WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE BERM, OR AS DIRECTED BY THE REPRESENTATIVE.
  - THE COMPOST FILTER BERM WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE REPRESENTATIVE.
  - INSTALL PERPENDICULAR TO FLOW.

**2 COMPOST FILTER SOCK DETAIL**  
 SCALE: N.T.S.

- MAINTENANCE NOTES:**
- TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
  - ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED OF IN ACCORDANCE WITH THE PLAN.
  - SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED IN THE MANNER REQUIRED BY THE MANUFACTURER OR REPLACED WITHIN 24 HOURS OF INSPECTION NOTIFICATION.
  - BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS. PHOTO-DEGRADABLE FILTER SOCKS AFTER 1 YEAR. POLY-PROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
  - UPON STABILIZATION OF THE AREA CONTRIBUTORY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK SHALL BE REMOVED. FOR REMOVAL THE MESH CAN BE CUT AND COMPOST SPREAD AS AN ADDITIONAL MULCH TO ACT AS A SOIL SUPPLEMENT.



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 Saved: 5/11/2021 11:43:48 PM Plotted: 5/12/2021 11:07:49 AM Current User: Horris, Kristy.LantSove@ch.com



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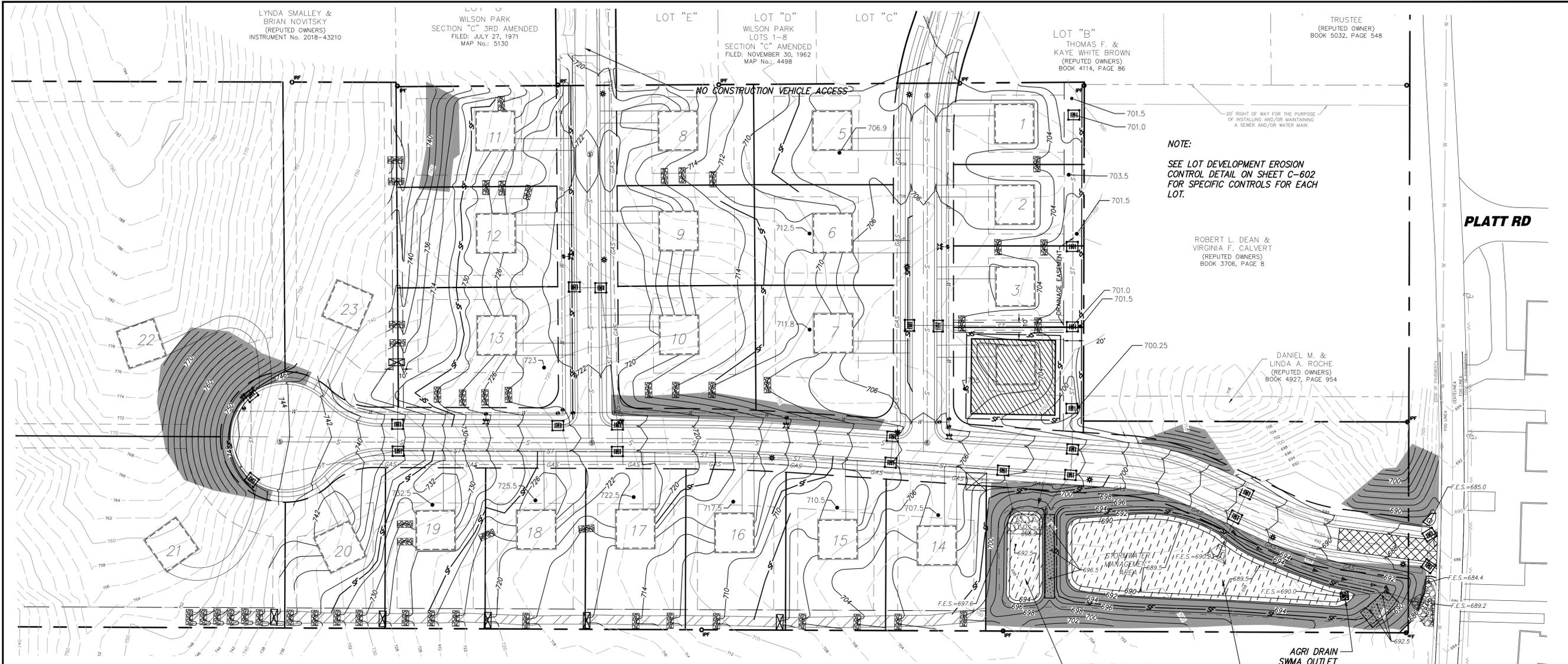
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5	RESPONSE TO COMMENTS	JFT AMV	03/03/21
6	PRELIMINARY PLAT SUBMITTAL	JFT AMV	02/09/21

**EROSION & SEDIMENT CONTROL PLAN PHASE 2**

Designed By: AMV/RPM	Drawn By: AMV/RPM	Checked By: BFB
Issue Date: 12/15/20	Project No: 67298	Scale: AS SHOWN

Drawing No.:  
**C-005**



**NOTE:**  
 SEE LOT DEVELOPMENT EROSION CONTROL DETAIL ON SHEET C-602 FOR SPECIFIC CONTROLS FOR EACH LOT.

ROBERT L. DEAN & VIRGINIA F. CALVERT  
 (REPUTED OWNERS)  
 BOOK 3706, PAGE 8

DANIEL M. & LINDA A. ROCHE  
 (REPUTED OWNERS)  
 BOOK 4927, PAGE 954

INITIAL EXCAVATION SHALL NOT BE DEEPER THAN ELEVATION 694.5 IN FOREBAY AND 691.5 IN MAIN POOL. ONCE SITE IS STABILIZED, CONTINUE EXCAVATION TO DESIGN GRADES AND IMMEDIATELY STABILIZE. DO NOT COMPACT FLOOR OF BASIN AND LIMIT HEAVY CONSTRUCTION VEHICLES.

SMH  
 R.I.M.=681.67  
 E.I.N.V.=673.34  
 S.I.N.V.=673.66  
 W.I.N.V.=673.67

INV=678.44

INV=680.55

**CONSTRUCTION SEQUENCE:**

- GENERAL NOTES:**
- SILT FENCE SHALL BE INSTALLED AT THE TOE OF SLOPES WITH BUFFER AREAS PER BLUE BOOK GUIDELINES. ADDITIONAL SILT FENCE SHALL BE INSTALLED AS NECESSARY. MOVE SILT FENCE AS NECESSARY AS CONSTRUCTION PROGRESSES.
  - BACKFILL SHALL BE PLACED ON THE UPSTREAM SIDE OF ALL TRENCHES DURING UTILITY CONSTRUCTION. TRENCHES SHALL BE BACKFILLED/COMPACTED AND STABILIZED IMMEDIATELY AFTER BACKFILL OPERATION.
  - WATER ENCOUNTERED FROM EXCAVATIONS SHALL NOT BE DISCHARGED DIRECTLY TO STORM DRAIN SYSTEMS. WATER SHALL BE PUMPED TO DESIGNATED SEDIMENTATION BASINS PRIOR TO DISCHARGE. FILTER BAGS MAY BE USED AS NECESSARY.
  - DUST SHALL BE CONTROLLED ON ACCESS POINTS AND OTHER DISTURBED AREAS SUBJECT TO SURFACE DUST MOVEMENT AND BLOWING.
  - PROVIDE SILT FENCING AROUND PERIMETER OF STAGED/STOCKPILED TOP SOIL AND/OR TEMPORARY STAGED PILE OR FILL.
  - SWALES/DIKES SHALL BE CONSTRUCTED AS NEEDED TO PROVIDE POSITIVE DRAINAGE AND TO PROTECT OFF-SITE PROPERTY FROM SEDIMENT TRANSPORT/INCREASED RUNOFF.
  - CONCRETE WASHOUTS SHALL BE INSTALLED PER EPA GUIDELINES. CONCRETE TRUCKS MUST USE DESIGNATED CONTAINED WASHOUT AREAS WHEN RINSING CHUTES. NO CONCRETE SHALL BE DUMPED UNCONTAINED.

**CONSTRUCTION SEQUENCE - PHASE 2:**

- RE-LOCATE STABILIZED CONSTRUCTION ENTRANCE AS SHOWN. PROTECT EXISTING ROADWAY FROM SEDIMENT TRANSPORT. NO CONSTRUCTION VEHICLE ACCESS SHALL BE PROVIDED ON DUNLAP AVENUE OR BAKER ROAD.
- BEGIN PROPOSED ROAD EARTHWORK. PROCEED FROM CONSTRUCTION ENTRANCE. CONSTRUCTION INCLUDES ROUGH GRADING OF SUBGRADE. DO NOT DISTURB GREATER THAN 5 ACRES OF LAND AT ONE TIME WITHOUT VILLAGE APPROVAL.
- INSTALL SILT FENCE OR COMPOST FILTER SOCK ALONG ROADWAY AS ROAD CUTS AND FILLS ARE COMPLETED. SILT FENCE/FILTER SOCK MUST BE PLACED ALONG THE CONTOUR.
- MAINTAIN INFILTRATION BASIN/SEDIMENT TRAP PRELIMINARY GRADES THROUGHOUT CONSTRUCTION. BASIN MAY NEED INTERMITTENT EXCAVATION SHOULD SEDIMENT ACCUMULATE GREATER THAN 1' DEEP.
- INSTALL SANITARY SEWER, SEWER LATERALS, AND STORM SEWER.
- INSTALL INLET PROTECTION IMMEDIATELY AFTER CATCH BASINS ARE INSTALLED.
- INSTALL WATER LINES, WATER SERVICES AND ROAD STONE BASE.
- INSTALL BITUMINOUS ROAD BASE COURSE.
- FINE GRADE AND PERMANENTLY STABILIZE ALL DISTURBED AREAS WITH SEED AND MULCH. INSTALL EROSION CONTROL BLANKET ON ALL AREAS WITH 3:1 SLOPES OR GREATER.
- COMPLETE INDIVIDUAL LOT DEVELOPMENT, DWELLING CONSTRUCTION. FINAL GRADING AND SEED/MULCH FOR LOT DEVELOPMENT. INSTALL ON-LOT EROSION CONTROL DEVICES FOR EACH LOT PRIOR TO EARTHWORK. SEE DETAILS (C-602) FOR LOT DEVELOPMENT.
- REMOVE ON-LOT EROSION CONTROL DEVICES ONCE 90% VEGETATION COVERAGE HAS BEEN ESTABLISHED.
- COMPLETE INSTALLATION OF INFILTRATION BASIN AND REMOVE AGRI DRAIN. STABILIZE WITH EROSION CONTROL BLANKET AND REMOVE TEMPORARY CHECK DAMS.
- REMOVE TEMPORARY EROSION CONTROL DEVICES ONCE 90% VEGETATION COVERAGE HAS BEEN ESTABLISHED AND RESEED ANY AREAS DISTURBED BY THEIR REMOVAL.

**INSPECTION PROCEDURES & MAINTENANCE:**

- DURING CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE PERMANENT AND TEMPORARY EROSION CONTROL FACILITIES. ALSO, AREAS THAT HAVE BEEN SEEDED WILL BE INSPECTED REGULARLY AFTER SEED GERMINATION TO ENSURE COMPLETE COVERAGE OF EXPOSED AREAS.
- INSPECTIONS OF ALL DEVICES SHALL BE COMPLETED TWICE PER WEEK. REPAIRS SHOULD BE COMPLETED IMMEDIATELY UPON DISCOVERY OF DEFICIENCIES.
- THE OWNER WILL DESIGNATE A QUALIFIED PERSON(S) TO PERFORM THE FOLLOWING INSPECTIONS:
  - STABILIZATION MEASURES: DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION WILL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. AFTER A PORTION OF THE SITE IS FINALLY STABILIZED, INSPECTIONS WILL BE CONDUCTED AT LEAST ONCE EVERY MONTH THROUGHOUT THE LIFE OF THE PROJECT.
  - STRUCTURAL CONTROLS: FILTER FABRIC FENCES, ROCK CHECK DAMS, AND ALL OTHER EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN WILL BE INSPECTED REGULARLY FOR PROPER POSITIONING, ANCHORING, AND EFFECTIVENESS IN TRAPPING SEDIMENTS. SEDIMENT WILL BE REMOVED FROM THE UPSTREAM OR UP-SLOPE SIDE OF THE FILTER FABRIC AND CHECK DAMS.
  - DISCHARGE POINTS: DISCHARGE POINTS OR LOCATIONS WILL BE INSPECTED TO DETERMINE WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT AMOUNTS OF POLLUTANTS FROM ENTERING RECEIVING WATERS.
  - CONSTRUCTION ENTRANCE: LOCATION WHERE VEHICLES ENTER OR EXIT THE SITE WILL BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. ADJACENT ROADWAYS SHALL BE SWEEP AS NECESSARY.
- ALL SEEDED AREAS SHALL BE MAINTAINED AS FOLLOWS:
  - IDENTIFY SEEDED AREAS WITH STAKES, STRING AND BRIGHTLY COLORED FLAGGING. PROTECT SEEDED AREAS UNTIL VEGETATION HAS BEEN ESTABLISHED.
  - IMMEDIATELY RESEED AREAS WHICH DO NOT ESTABLISH VEGETATION.

**PERMANENT EROSION CONTROL MEASURES NOTES**

PERMANENT STABILIZATION NOTES: DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASE SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY.

TOPSOIL SHALL HAVE AT LEAST TWO (2) PERCENT BY WEIGHT OF FINE TEXTURED STABLE ORGANIC MATERIAL, AND NO GREATER THAN SIX (6) PERCENT. MUCK SOIL SHALL NOT BE CONSIDERED TOPSOIL. TOPSOIL SHALL NOT HAVE LESS THAN 20 PERCENT FINE TEXTURED MATERIAL (PASSING THE No. 200 SIEVE) AND NOT MORE THAN 15 PERCENT CLAY. TOPSOIL SHALL BE FREE OF STONES OVER 1.5 INCHES IN DIAMETER, TRASH, NOxious WEEDS SUCH AS NUT SEDGE AND QUACKGRASS, AND WILL HAVE LESS THAN 10 PERCENT GRAVEL BY VOLUME. REFER TO THE NYSSMDM FOR INFORMATION ON TOPSOIL APPLICATION AND GRADING.

THE PERMANENT SEED MIX SHALL BE AS FOLLOWS:

SPECIES	RATE PER ACRE (LBS.)	RATE PER 1,000 SQ. FT. (LBS.)
KENTUCKY BLUEGRASS	115	2.6
PERENNIAL RYE	35	0.8
FINE FESCUE	25	0.6

FERTILIZER SHALL BE COMMERCIAL FERTILIZER (5-0-5) INORGANIC, OR ORGANIC, CONTAINING NOT LESS THAN FIVE (5) PERCENT NITROGEN AND FIVE (5) PERCENT WATER SOLUBLE POTASH.

PROVIDE AND INSTALL A MULCH ADEQUATE TO PROTECT THE SEEDING DURING ITS GROWING PERIOD. REFER TO THE NYSSMDM TO DETERMINE THE APPROPRIATE MULCHING TECHNIQUES FOR THE PARTICULAR SITE CONDITIONS.

**LEGEND**

- SILT FENCE
- COMPOST FILTER SOCK
- INLET PROTECTION
- TEMPORARY CHECK DAM
- PERMANENT CHECK DAM
- RIP RAP OUTLET PROTECTION
- TURF REINFORCEMENT FABRIC
- EROSION CONTROL BLANKET
- PERMANENT EROSION CONTROL MATTING
- STABILIZED CONSTRUCTION ENTRANCE
- EQUIPMENT STORAGE/STAGING/STOCKPILE AREAS
- CONCRETE WASHOUT
- POND MAINTENANCE ACCESS

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CAMEX REALTY, LLC  
605 W GENESEE ST #100  
SYRACUSE, NY 13204



IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER AN AS-BUILT OR ANY OTHER DOCUMENT OR STAMP OF A LICENSED PROFESSIONAL AS ALTERED. THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE WORDING "ALTERED BY FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION."

BALTIMORE RIDGE  
SUBDIVISION  
BAKER RD & DUNLAP AVE  
MARCELLUS, NY 13108

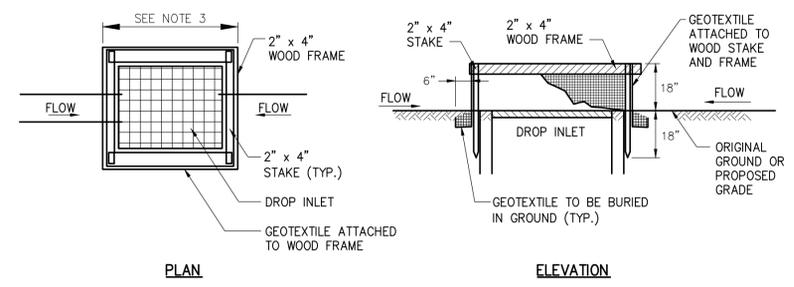
No.	Submittal / Revision	App'd.	By	Date
△	RESPONSE TO COMMENTS	JFT	AMV	05/12/21
△	RESPONSE TO COMMENTS	JFT	BGH	04/16/21
△	RESPONSE TO COMMENTS	JFT	AMV	03/30/21
△	RESPONSE TO COMMENTS	JFT	AMV	03/11/21
△	RESPONSE TO COMMENTS	JFT	AMV	03/03/21
△	PRELIMINARY PLAT SUBMITTAL	JFT	AMV	02/09/21

DETAILS

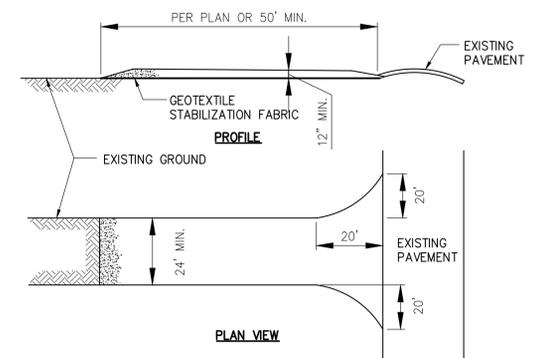
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Issue Date: 12/15/20	Project No: 67298	Scale: AS SHOWN

Drawing No.:

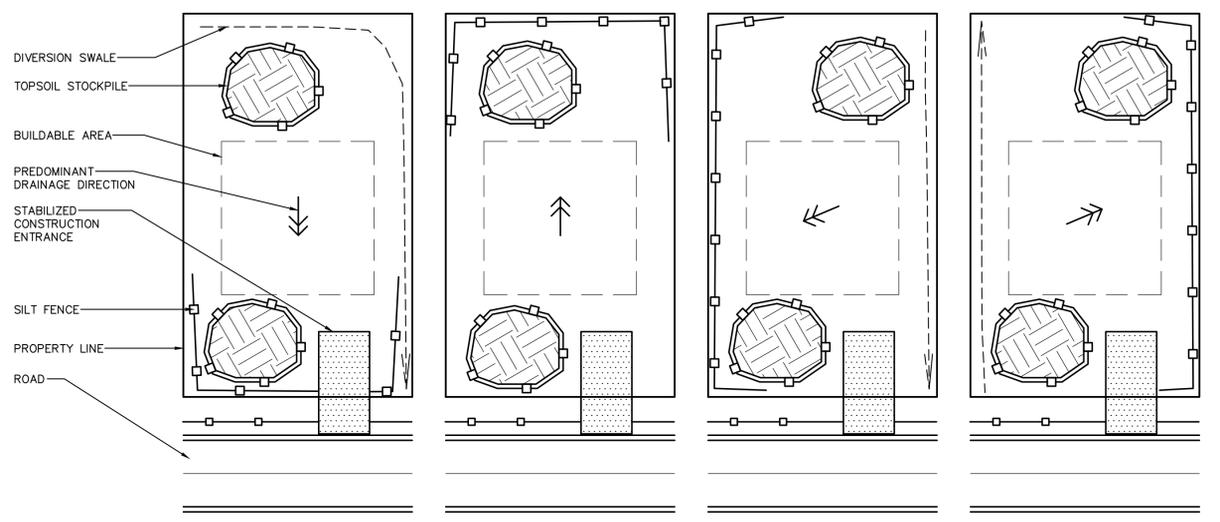
C-602



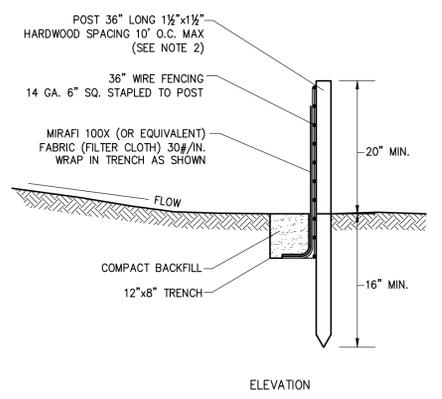
- 1 FILTER FABRIC DROP INLET PROTECTION**  
N.T.S.
- NOTES:**
1. GEOTEXTILE SHALL BE CUT FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NECESSARY THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
  2. STAKE MATERIAL WILL BE STANDARD 2"x4" WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3 FEET.
  3. SPACE STAKES EVENLY AROUND INLET WITH A MAXIMUM SPACING OF 3 FEET DRIVE STAKES 18" MINIMUM INTO GROUND. WIRE MESH MAY BE REQUIRED BEHIND GEOTEXTILE TO PROVIDE SUPPORT.
  4. GEOTEXTILE SHALL BE EMBEDDED 12" BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO STAKES AND FRAME.
  5. GEOTEXTILE FABRIC SHALL HAVE EOS OF 40-85.
  6. A 2"x4" WOOD FRAME SHALL BE FORMED AROUND THE CREST OF FABRIC FOR OVERFLOW STABILITY.
  7. INLET PROTECTION TO REMAIN IN-PLACE UNTIL AREA IS STABILIZED.



- 2 STABILIZED CONSTRUCTION ENTRANCE**  
N.T.S.
1. STONE SIZE--USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
  2. THICKNESS--NOT LESS THAN 12".
  3. WOVEN GEOTEXTILE FABRIC WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
  4. EXISTING ROAD SIDE DRAINAGE SHALL BE MAINTAINED.
  5. MAINTENANCE--THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT OR STONE SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
  6. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

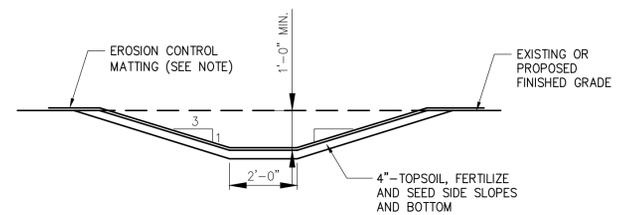


**3 LOT DEVELOPMENT EROSION CONTROL**  
N.T.S.



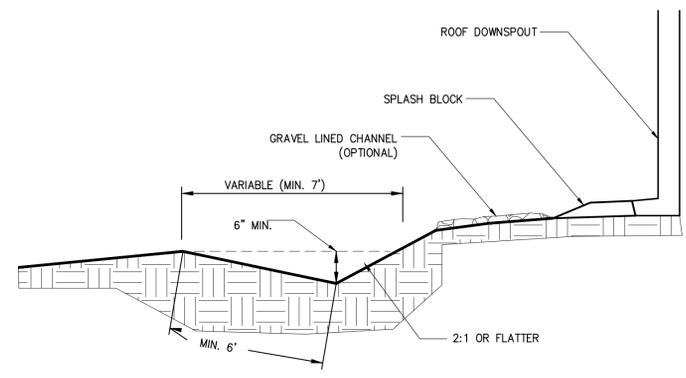
**4 SILT FENCE**  
N.T.S.

- NOTES:**
1. TIE FABRIC TO WIRE FENCE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
  2. IF EXTRA STRENGTH FABRIC (GREATER THAN 50#/INCH) IS USED, WIRE CAN BE DELETED IF POST SPACING IS REDUCED TO 6" O.C.
  3. AT THE ENDS OF THE FENCING THE FIRST 20' SHALL BE TURNED UP THE SLOPE 2'.
  4. POSTS SHOULD BE INCLINED TOWARD THE DIRECTION FLOW CAME FROM.
  5. OVERLAP FABRIC A MINIMUM OF 6" AND FOLDED AT JOINTS. ATTACH FILTER FABRIS TO STAKES ALLOWING EXTENSION INTO TRENCH AS SHOWN; SECURE TO STAKES AS NOTED.
  6. THE MAXIMUM AREA OF RUNOFF PER 100LF. OF FENCE SHALL NOT EXCEED 0.25 ACRES.
  7. MAINTENANCE SHALL BE PERFORMED AS NECESSARY. THE FENCING SHALL BE CHECKED AFTER EVERY STORM TO ENSURE THEIR PROPER FUNCTIONING.
  8. WHEN FENCE IS NO LONGER NEEDED, THE ACCUMULATED SILT, THE POSTS AND FABRIC SHALL BE REMOVED AND TRENCH BACK FILLED WITH TOPSOIL AND SEEDED.
  9. FENCING SHOULD BE PLACED AS SHOWN ON THE DRAWING OR IF NOT SHOWN, 10' BEYOND THE TOE OF THE SLOPE.
  10. EXCAVATE TRENCH AS PER DETAIL AND SET POSTS AT 10' O.C.
  11. BACKFILL WITH COMPACTED, EXCAVATED SOIL FROM TRENCH.



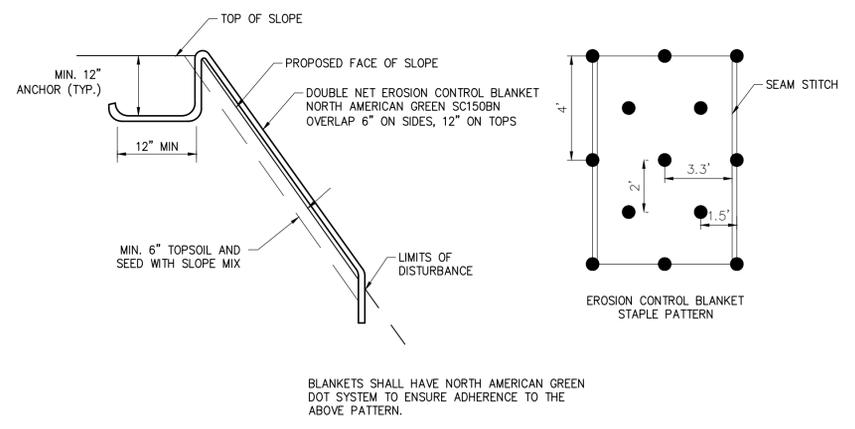
- NOTE:**  
INSTALL PERMANENT EROSION CONTROL MATTING WITHIN SWALE ALONG SOUTHERLY SUBDIVISION PROPERTY LINE PER LIMITS SHOWN ON SHEET C-004. MATTING SHALL BE NORTH AMERICAN GREEN ERONET P300 OR APPROVED EQUIVALENT.

**5 TYPICAL GRASS DRAINAGE SWALE**  
N.T.S.



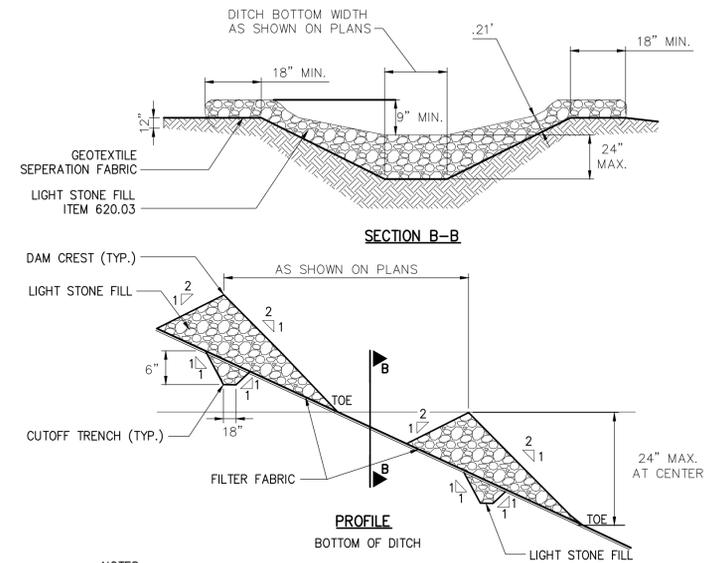
- NOTE:**  
APPLIES TO ALL DOWNSPOUTS ON ALL BUILDINGS

**6 DOWNSPOUT LEVEL SPREADER**  
N.T.S.



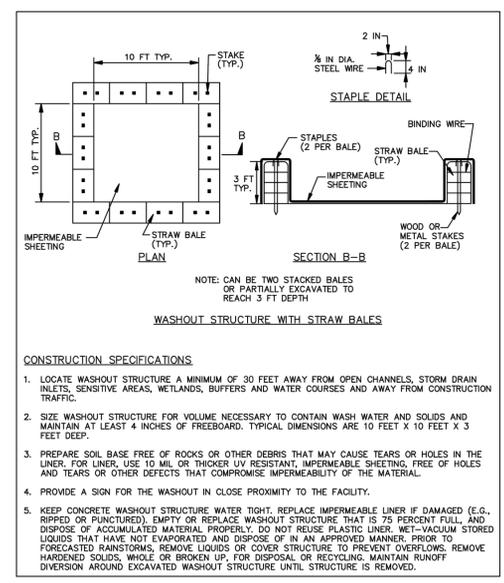
BLANKETS SHALL HAVE NORTH AMERICAN GREEN DOT SYSTEM TO ENSURE ADHERENCE TO THE ABOVE PATTERN.

**7 EROSION CONTROL BLANKET**  
N.T.S.



- NOTES:**
1. SET SPACING OF CHECK DAMS SUCH THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
  2. EXTEND THE STONE A MINIMUM OF 18" BEYOND THE DITCH BANKS.

**8 STONE CHECK DAM**  
N.T.S.



- CONSTRUCTION SPECIFICATIONS:**
1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 30 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
  2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
  3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
  4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
  5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G. RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

**9 CONCRETE WASHOUT**  
N.T.S.

## ***APPENDIX H***

### *NYSDEC Erosion and Sediment Control Specifications*

*(referenced from NYS Standards and Specifications for Erosion and Sediment Control)*

# STANDARD AND SPECIFICATIONS FOR CONSTRUCTION ROAD STABILIZATION



## **Definition & Scope**

The stabilization of temporary construction access routes, on-site vehicle transportation routes, and construction parking areas to control erosion on temporary construction routes and parking areas.

## **Conditions Where Practice Applies**

All traffic routes and parking areas for temporary use by construction traffic.

## **Design Criteria**

Construction roads should be located to reduce erosion potential, minimize impact on existing site resources, and maintain operations in a safe manner. Highly erosive soils, wet or rocky areas, and steep slopes should be avoided. Roads should be routed where seasonal water tables are deeper than 18 inches. Surface runoff and control should be in accordance with other standards.

**Road Grade** – A maximum grade of 12% is recommended, although grades up to 15% are possible for short distances.

**Road Width** – 12 foot minimum for one-way traffic or 24 foot minimum for two-way traffic.

**Side Slope of Road Embankment** – 2:1 or flatter.

**Ditch Capacity** – On-site roadside ditch and culvert capacities shall be the 10 yr. peak runoff.

**Composition** – Use a 6-inch layer of NYS DOT sub-base Types 1,2,3, 4 or equivalent as specified in NYSDOT Standard Specifications.

## **Construction Specifications**

1. Clear and strip roadbed and parking areas of all vegetation, roots, and other objectionable material.
2. Locate parking areas on naturally flat areas as available. Keep grades sufficient for drainage, but not more than 2 to 3 percent.
3. Provide surface drainage and divert excess runoff to stabilized areas.
4. Maintain cut and fill slopes to 2:1 or flatter and stabilized with vegetation as soon as grading is accomplished.
5. Spread 6-inch layer of sub-base material evenly over the full width of the road and smooth to avoid depressions.
6. Provide appropriate sediment control measures to prevent offsite sedimentation.

## **Maintenance**

Inspect construction roads and parking areas periodically for condition of surface. Top dress with new gravel as needed. Check ditches for erosion and sedimentation after rainfall events. Maintain vegetation in a healthy, vigorous condition. Areas producing sediment should be treated immediately.

# 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>	Moutain 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



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 Meth- od
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	-

## 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

<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.

# STANDARD AND SPECIFICATIONS FOR WINTER STABILIZATION



## **Definition & Scope**

A temporary site specific, enhanced erosion and sediment control plan to manage runoff and sediment at the site during construction activities in the winter months to protect off-site water resources.

## **Conditions Where Practice Applies**

This standard applies to all construction activities involved with ongoing land disturbance and exposure between November 15<sup>th</sup> to the following April 1<sup>st</sup>.

## **Design Criteria**

1. Prepare a snow management plan with adequate storage for snow and control of melt water, requiring cleared snow to be stored in a manner not affecting ongoing construction activities.
2. Enlarge and stabilize access points to provide for snow management and stockpiling. Snow management activities must not destroy or degrade installed erosion and sediment control practices.
3. A minimum 25 foot buffer shall be maintained from all perimeter controls such as silt fence. Mark silt fence with tall stakes that are visible above the snow pack.
4. Edges of disturbed areas that drain to a waterbody within 100 feet will have 2 rows of silt fence, 5 feet apart, installed on the contour.
5. Drainage structures must be kept open and free of snow and ice dams. All debris, ice dams, or debris from plowing operations, that restrict the flow of runoff and meltwater, shall be removed.
6. Sediment barriers must be installed at all appropriate

perimeter and sensitive locations. Silt fence and other practices requiring earth disturbance must be installed before the ground freezes.

7. Soil stockpiles must be protected by the use of established vegetation, anchored straw mulch, rolled stabilization matting, or other durable covering. A barrier must be installed at least 15 feet from the toe of the stockpile to prevent soil migration and to capture loose soil.
8. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures should be initiated by the end of the next business day and completed within three (3) days. Rolled erosion control blankets must be used on all slopes 3 horizontal to 1 vertical or steeper.
9. If straw mulch alone is used for temporary stabilization, it shall be applied at double the standard rate of 2 tons per acre, making the application rate 4 tons per acre. Other manufactured mulches should be applied at double the manufacturer's recommended rate.
10. To ensure adequate stabilization of disturbed soil in advance of a melt event, areas of disturbed soil should be stabilized at the end of each work day unless:
  - a. work will resume within 24 hours in the same area and no precipitation is forecast or;
  - b. the work is in disturbed areas that collect and retain runoff, such as open utility trenches, foundation excavations, or water management areas.
11. Use stone paths to stabilize access perimeters of buildings under construction and areas where construction vehicle traffic is anticipated. Stone paths should be a minimum 10 feet in width but wider as necessary to accommodate equipment.

## **Maintenance**

The site shall be inspected frequently to ensure that the erosion and sediment control plan is performing its winter stabilization function. If the site will not have earth disturbing activities ongoing during the "winter season", **all** bare exposed soil must be stabilized by established vegetation, straw or other acceptable mulch, matting, rock, or other approved material such as rolled erosion control products. Seeding of areas with mulch cover is preferred but seeding alone is not acceptable for proper stabilization.

Compliance inspections must be performed and reports filed properly in accordance with the SWPPP for all sites under a winter shutdown.

# STANDARD AND SPECIFICATIONS FOR CHECK DAM



## Definition & Scope

Small barriers or dams constructed of stone, bagged sand or gravel, or other durable materials across a drainageway to reduce erosion in a drainage channel by reducing the velocity of flow in the channel.

## Conditions Where Practice Applies

This practice is used as a **temporary** and, in some cases, a **permanent** measure to limit erosion by reducing velocities in open channels that are degrading or subject to erosion or where permanent stabilization is impractical due to short period of usefulness and time constraints of construction.

## Design Criteria

**Drainage Area:** Maximum drainage area above the check dam shall not exceed two (2) acres.

**Height:** Not greater than 2 feet. Center shall be maintained 9 inches lower than abutments at natural ground elevation.

**Side Slopes:** Shall be 2:1 or flatter.

**Spacing:** The check dams shall be spaced as necessary in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Therefore: 
$$S = \frac{h}{s}$$

Where: S = spacing interval (ft.)  
h = height of check dam (ft.)  
s = channel slope (ft./ft.)

Example:

For a channel with and 2 ft. high stone they are spaced as 
$$S = \frac{2 \text{ ft}}{0.04 \frac{\text{ft}}{\text{ft}}} = 50 \text{ ft}$$
 a 4% slope check dams, follows:

**For stone check dams:** Use a well graded stone matrix 2 to 9 inches in size (NYS – DOT Light Stone Fill meets these requirements).

The overflow of the check dams will be stabilized to resist erosion that might be caused by the check dam. See Figure 3.1 on page 3.3 for details.

Check dams should be anchored in the channel by a cutoff trench 1.5 ft. wide and 0.5 ft. deep and lined with filter fabric to prevent soil migration.

**For filter sock or fiber roll check dams:** The check dams will be anchored by staking the dam to the earth contact surface. The dam will extend to the top of the bank. The check dam will have a splash apron of NYS DOT #2 crushed stone extending a minimum 3 feet downstream from the dam and 1 foot up the sides of the channel. The compost and materials for a filter sock check dam shall meet the requirements shown in the standard for Compost Filter Sock on page 5.7.

## Maintenance

The check dams should be inspected after each runoff event. Correct all damage immediately. If significant erosion has occurred between structures, a liner of stone or other suitable material should be installed in that portion of the channel or additional check dams added.

Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam.

# 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> (inches)</b>	<b>d<sub>max</sub> (inches)</b>	<b>Minimum Blanket Thick- 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.

# STANDARD AND SPECIFICATIONS FOR ANCHORED STABILIZATION MATTING



## Definition and Scope

A **temporary** or **permanent** protective covering placed on a prepared, seeded planting area that is anchored in place by staples or other means to aid in controlling erosion by absorbing rain splash energy and withstand overland flow as well as provide a microclimate to protect and promote seed establishment.

## Conditions Where Practice Applies

Anchored stabilization mats are required for seeded earthen slopes steeper than 3 horizontal to 1 vertical; in vegetated channels where the velocity of the design flow exceeds the allowable velocity for vegetation alone (usually greater than 5 feet per second); on streambanks and shorelines where moving water is likely to erode newly seeded or planted areas; and in areas where wind prevents standard mulching with straw. This standard does not apply to slopes stabilized with sod, rock riprap or hard armor material.

## Design Criteria

Slope Applications - Anchored stabilization mats for use on slopes are primarily used as mulch blankets where the mesh material is within the blanket or as a netting over previously placed mulch. These stabilization mats are NOT effective in preventing slope failures.

1. Required on all slopes steeper than 3:1
2. Matting will be designed for proper longevity need and strength based on intended use.
3. All installation details and directions will be included on the site erosion and sediment control plan and will follow manufactures specifications.

Channel Applications - Anchored stabilization mats, for use in supporting vegetation in flow channels, are generally a non-degradable, three dimensional plastic structure which can be filled with soil prior to planting. This structure provides a medium for root growth where the matting and roots become intertwined forming a continuous anchor for the vegetated lining.

1. Channel stabilization shall be based on the tractive force method.
2. For maximum design shear stresses less than 2 pounds per square foot, a temporary or bio-degradable mat may be used.
3. The design of the final matting shall be based on the mats ability to resist the tractive shear stress at bank full flow.
4. The installation details and procedures shall be included on the site erosion and sediment control plan and will follow manufacturers specifications.



## Construction Specifications

1. Prepare soil before installing matting by smoothing the surface, removing debris and large stone, and applying lime, fertilizer and seed. Refer to manufacturers installation details.
2. Begin at the top of the slope by anchoring the mat in a 6" deep x 6" wide trench. Backfill and compact the trench after stapling.
3. In channels or swales, begin at the downslope end, anchoring the mat at the bottom and top ends of the blanket. When another roll is needed, the upslope roll

should overlay the lower layer, shingle style, so that channel flows do not peel back the material.

4. Roll the mats down a slope with a minimum 4" overlap. Roll center mat in a channel in direction of water flow on bottom of the channel. Do not stretch blankets. Blankets shall have good continuous contact with the underlying soil throughout its entire length.
5. Place mats end over end (shingle style) with a 6" overlap, use a double row of staggered staples 4" apart to secure mats.
6. Full length edge of mats at top of side slopes must be anchored in 6" deep x 6" wide trench; backfill and compact the trench after stapling.
7. Mats on side slopes of a channel must be overlapped 4" over the center mat and stapled.
8. In high flow channel applications, a staple check slot is recommended at 30 to 40 foot intervals. Use a row of staples 4" apart over entire width of the channel. Place a second row 4" below the first row in a staggered pattern.
9. The terminal end of the mats must be anchored in a 6"x6" wide trench. Backfill and compact the trench after stapling.
10. Stapling and anchoring of blanket shall be done in accordance with the manufactures recommendations.

### **Maintenance**

Blanketed areas shall be inspected weekly and after each runoff event until perennial vegetation is established to a minimum uniform 80% coverage throughout the blanketed area. Damaged or displaced blankets shall be restored or replaced within 2 calendar days.

# STANDARD AND SPECIFICATIONS FOR LANDGRADING



## **Definition & Scope**

**Permanent** reshaping of the existing land surface by grading in accordance with an engineering topographic plan and specification to provide for erosion control and vegetative establishment on disturbed, reshaped areas.

## **Design Criteria**

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surrounding to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measures for drainage and water removal, and vegetative treatment, etc.

Many municipalities and counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they shall be followed.

The plan must show existing and proposed contours of the area(s) to be graded. The plan shall also include practices for erosion control, slope stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slope benches (include grade and cross section), grade stabilization structures, retaining walls, and surface and subsurface drains. The plan shall also include phasing of these practices. The following shall be incorporated into the plan:

1. Provisions shall be made to safely convey surface runoff to storm drains, protected outlets, or to stable water courses to ensure that surface runoff will not

damage slopes or other graded areas; see standards and specifications for Grassed Waterway, Diversion, or Grade Stabilization Structure.

2. Cut and fill slopes that are to be stabilized with grasses shall not be steeper than 2:1. When slopes exceed 2:1, special design and stabilization consideration are required and shall be adequately shown on the plans. (Note: Where the slope is to be mowed, the slope should be no steeper than 3:1, although 4:1 is preferred because of safety factors related to mowing steep slopes.)
3. Reverse slope benches or diversion shall be provided whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slope it shall be increased to 30 feet and for 4:1 to 40 feet. Benches shall be located to divide the slope face as equally as possible and shall convey the water to a stable outlet. Soils, seeps, rock outcrops, etc., shall also be taken into consideration when designing benches.
  - A. Benches shall be a minimum of six feet wide to provide for ease of maintenance.
  - B. Benches shall be designed with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Bench gradient to the outlet shall be between 2 percent and 3 percent, unless accompanied by appropriate design and computations.
  - C. The flow length within a bench shall not exceed 800 feet unless accompanied by appropriate design and computations; see Standard and Specifications for Diversion on page 3.9
4. Surface water shall be diverted from the face of all cut and/or fill slopes by the use of diversions, ditches and swales or conveyed downslope by the use of a designed structure, except where:
  - A. The face of the slope is or shall be stabilized and the face of all graded slopes shall be protected from surface runoff until they are stabilized.
  - B. The face of the slope shall not be subject to any concentrated flows of surface water such as from natural drainage ways, graded ditches, downspouts, etc.
  - C. The face of the slope will be protected by anchored stabilization matting, sod, gravel, riprap, or other stabilization method.

5. Cut slopes occurring in ripable rock shall be serrated as shown in Figure 4.9 on page 4.26. The serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps cut at nominal two-foot intervals with nominal three-foot horizontal shelves. These steps will vary depending on the slope ratio or the cut slope. The nominal slope line is 1 ½: 1. These steps will weather and act to hold moisture, lime, fertilizer, and seed thus producing a much quicker and longer-lived vegetative cover and better slope stabilization. Overland flow shall be diverted from the top of all serrated cut slopes and carried to a suitable outlet.
6. Subsurface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.
7. Slopes shall not be created so close to property lines as to endanger adjoining properties without adequately protecting such properties against sedimentation, erosion, slippage, settlement, subsidence, or other related damages.
8. Fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tampers or over eight (8) inches in diameter where compacted by rollers or other equipment. Frozen material shall not be placed in the fill nor shall the fill material be placed on a frozen foundation.
9. Stockpiles, borrow areas, and spoil shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.
10. All disturbed areas shall be stabilized structurally or vegetatively in compliance with the Permanent Construction Area Planting Standard on page 4.42.
4. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, or other objectionable material.
5. Areas that are to be topsoiled shall be scarified to a minimum depth of four inches prior to placement of topsoil.
6. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence, or other related problems. Fill intended to support buildings, structures, and conduits, etc., shall be compacted in accordance with local requirements or codes.
7. All fill shall be placed and compacted in layers not to exceed 9 inches in thickness.
8. Except for approved landfills or nonstructural fills, fill material shall be free of frozen particles, brush, roots, sod, or other foreign objectionable materials that would interfere with, or prevent, construction of satisfactory fills.
9. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills.
10. Fill shall not be placed on saturated or frozen surfaces.
11. All benches shall be kept free of sediment during all phases of development.
12. Seeps or springs encountered during construction shall be handled in accordance with the Standard and Specification for Subsurface Drain on page 3.48 or other approved methods.
13. All graded areas shall be permanently stabilized immediately following finished grading.
14. Stockpiles, borrow areas, and spoil areas shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.

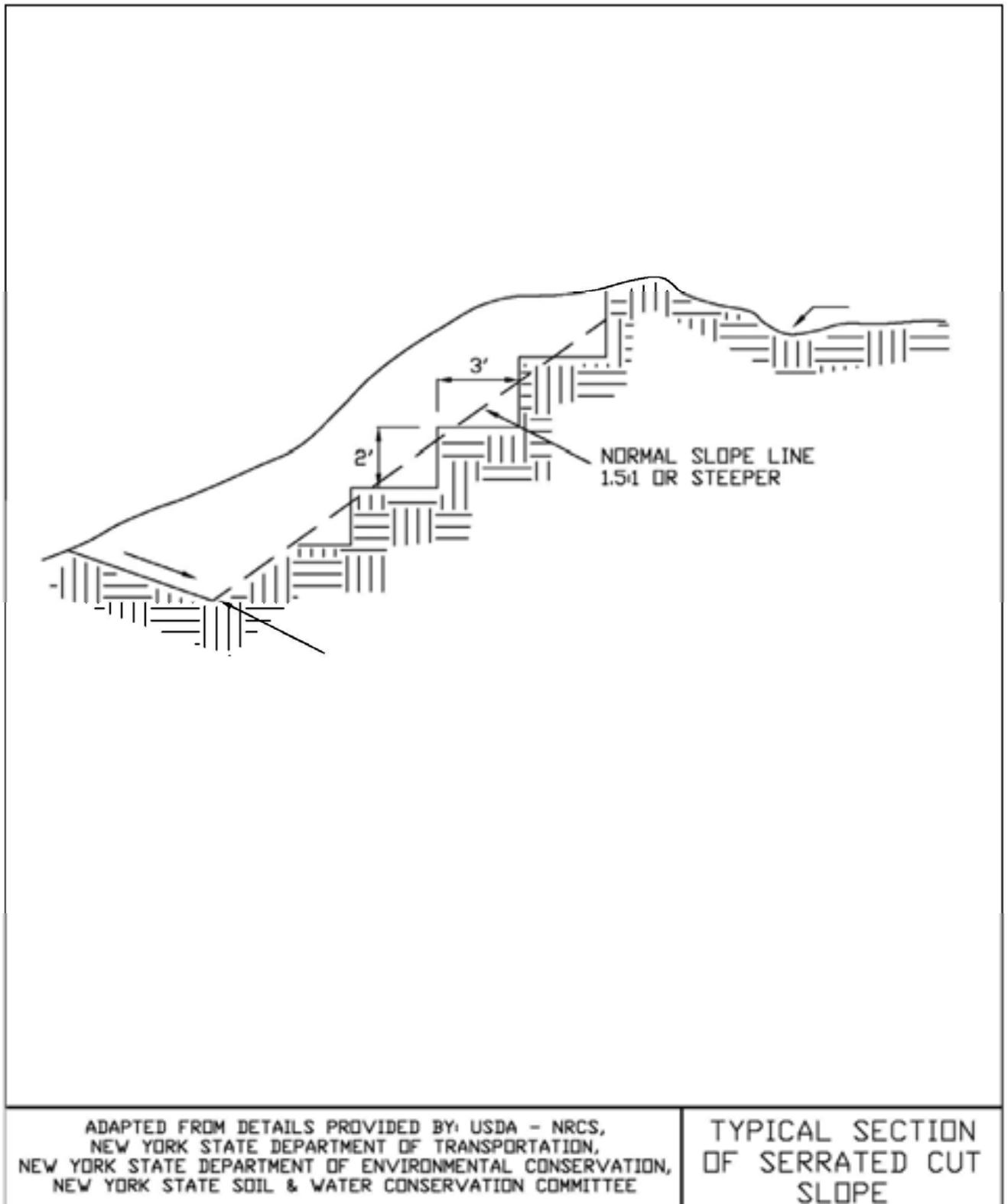
### **Construction Specifications**

See Figures 4.9 and 4.10 for details.

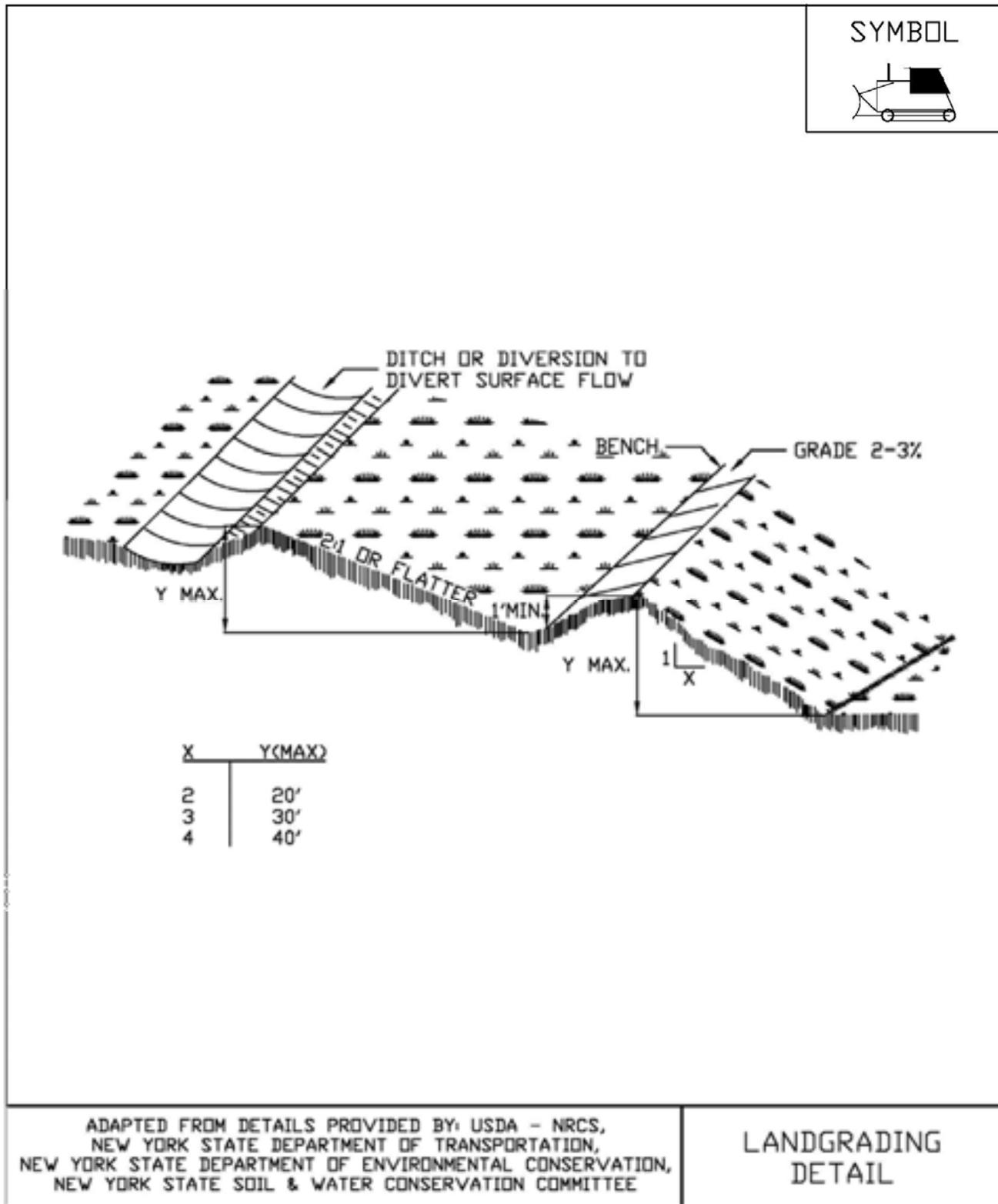
1. All graded or disturbed areas, including slopes, shall be protected during clearing and construction in accordance with the erosion and sediment control plan until they are adequately stabilized.
2. All erosion and sediment control practices and measures shall be constructed, applied and maintained in accordance with the erosion and sediment control plan and these standards.
3. Topsoil required for the establishment of vegetation shall be stockpiled in amount necessary to complete finished grading of all exposed areas.



**Figure 4.9**  
**Typical Section of Serrated Cut Slope**



**Figure 4.10  
Landgrading**



**Figure 4.11**  
**Landgrading - Construction Specifications**

<u>CONSTRUCTION SPECIFICATIONS</u>	
<ol style="list-style-type: none"> <li>1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.</li> <li>2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.</li> <li>3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.</li> <li>4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.</li> <li>5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.</li> <li>6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.</li> <li>7. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.</li> <li>8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.</li> <li>9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.</li> <li>10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.</li> <li>11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.</li> <li>12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.</li> <li>13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.</li> <li>14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.</li> </ol>	<div style="text-align: center;"> <p>ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL &amp; WATER CONSERVATION COMMITTEE</p> </div> <div style="text-align: center; font-weight: bold; font-size: 1.2em; margin-top: 20px;">             LANDGRADING SPECIFICATIONS           </div>

# STANDARD AND SPECIFICATIONS FOR MULCHING



## **Definition and Scope**

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch can also be used alone for temporary stabilization in non-growing months. Use of stone as a mulch could be more permanent and should not be limited to non-growing months.

## **Conditions Where Practice Applies**

On soils subject to erosion and on new seedlings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

## **Criteria**

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Hay mulch shall not be used in wetlands or in areas of permanent seeding. Clean straw mulch is preferred alternative in wetland application. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.



**Table 4.2**  
**Guide to Mulch Materials, Rates, and Uses**

<b>Mulch Material</b>	<b>Quality Standards</b>	<b>per 1000 Sq. Ft.</b>	<b>per Acre</b>	<b>Depth of Application</b>	<b>Remarks</b>
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2"	9 cu. yds.	405 cu. yds.	3"	Excellent mulch for short slopes and around plants and ornaments. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/yd. 60-90 lbs./roll	48" x 50 yds. or 48" x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	4' x 112.5' or 8' x 112.5'.	—	—	Use without additional mulch. Excellent for seeding establishment. Anchor as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

**Table 4.3**  
**Mulch Anchoring Guide**

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45 <sup>o</sup> Fahrenheit are required.

# STANDARD AND SPECIFICATIONS FOR PERMANENT CONSTRUCTION AREA PLANTING



## Definition & Scope

Establishing **permanent** grasses with other forbs and/or shrubs to provide a minimum 80% perennial vegetative cover on areas disturbed by construction and critical areas to reduce erosion and sediment transport. Critical areas may include but are not limited to steep excavated cut or fill slopes as well as eroding or denuded natural slopes and areas subject to erosion.

## Conditions Where Practice Applies

This practice applies to all disturbed areas void of, or having insufficient, cover to prevent erosion and sediment transport. See additional standards for special situations such as sand dunes and sand and gravel pits.

## Criteria

All water control measures will be installed as needed prior to final grading and seedbed preparation. Any severely compacted sections will require chiseling or disking to provide an adequate rooting zone, to a minimum depth of 12", see Soil Restoration Standard. The seedbed must be prepared to allow good soil to seed contact, with the soil not too soft and not too compact. Adequate soil moisture must be present to accomplish this. If surface is powder dry or sticky wet, postpone operations until moisture changes to a favorable condition. If seeding is accomplished within 24 hours of final grading, additional scarification is generally not needed, especially on ditch or stream banks. Remove all stones and other debris from the surface that are greater than 4 inches, or that will interfere with future mowing or maintenance.

Soil amendments should be incorporated into the upper 2 inches of soil when feasible. **The soil should be tested to determine the amounts of amendments needed.** Apply

ground agricultural limestone to attain a pH of 6.0 in the upper 2 inches of soil. If soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 600 lbs. per acre of 5-5-10 or equivalent. If manure is used, apply a quantity to meet the nutrients of the above fertilizer. This requires an appropriate manure analysis prior to applying to the site. Do not use manure on sites to be planted with birdsfoot trefoil or in the path of concentrated water flow.

Seed mixtures may vary depending on location within the state and time of seeding. Generally, warm season grasses should only be seeded during early spring, April to May. These grasses are primarily used for vegetating excessively drained sands and gravels. See Standard and Specification for Sand and Gravel Mine Reclamation. Other grasses may be seeded any time of the year when the soil is not frozen and is workable. When legumes such as birdsfoot trefoil are included, spring seeding is preferred. See Table 4.4, "Permanent Construction Area Planting Mixture Recommendations" for additional seed mixtures.

<u>General Seed Mix:</u>	<b>Variety</b>	<b>lbs./ acre</b>	<b>lbs/1000 sq. ft.</b>
Red Clover <sup>1</sup> <u>OR</u>	Acclaim, Rally, Red Head II, Renegade	8 <sup>2</sup>	0.20
Common white clover <sup>1</sup>	Common	8	0.20
<u>PLUS</u>			
Creeping Red Fescue	Common	20	0.45
<u>PLUS</u>			
Smooth Bromegrass <u>OR</u>	Common	2	0.05
Ryegrass (perennial)	Pennfine/Linn	5	0.10
<sup>1</sup> add inoculant immediately prior to seeding <sup>2</sup> Mix 4 lbs each of Empire and Pardee OR 4 lbs of Birdsfoot and 4 lbs white clover per acre. All seeding rates are given for Pure Live Seed (PLS)			

Pure Live Seed, or (PLS) refers to the amount of live seed in a lot of bulk seed. Information on the seed bag label includes the type of seed, supplier, test date, source of seed, purity, and germination. Purity is the percentage of pure seed. Germination is the percentage of pure seed that will produce normal plants when planted under favorable conditions.

To compute Pure Live Seed multiply the “germination percent” times the “purity” and divide that by 100 to get Pure Live Seed.

$$\text{Pure Live Seed (PLS)} = \frac{\% \text{ Germination} \times \% \text{ Purity}}{100}$$

For example, the PLS for a lot of Kentucky Blue grass with 75% purity and 96% germination would be calculated as follows:

$$\frac{(96) \times (75)}{100} = 72\% \text{ Pure Live Seed}$$

For 10lbs of PLS from this lot =

$$\frac{10}{0.72} = 13.9 \text{ lbs}$$

Therefore, 13.9 lbs of seed is the actual weight needed to meet 10lbs PSL from this specific seed lot.

Time of Seeding: The optimum timing for the general seed mixture is early spring. Permanent seedings may be made any time of year if properly mulched and adequate moisture is provided. Late June through early August is not a good time to seed, but may facilitate covering the land without additional disturbance if construction is completed. Portions of the seeding may fail due to drought and heat. These areas may need reseeding in late summer/fall or the following spring.

Method of seeding: Broadcasting, drilling, cultipack type seeding, or hydroseeding are acceptable methods. Proper soil to seed contact is key to successful seedings.

Mulching: Mulching is essential to obtain a uniform stand of seeded plants. Optimum benefits of mulching new seedings are obtained with the use of small grain straw applied at a rate of 2 tons per acre, and anchored with a netting or tackifier. See the Standard and Specifications for Mulching for choices and requirements.

Irrigation: Watering may be essential to establish a new seeding when a drought condition occurs shortly after a new seeding emerges. Irrigation is a specialized practice and care must be taken not to exceed the application rate for the soil or subsoil. When disconnecting irrigation pipe, be sure pipes are drained in a safe manor, not creating an erosion concern.



80% Perennial Vegetative Cover



50% Perennial Vegetative Cover

**Table 4.4  
Permanent Construction Area Planting Mixture Recommendations**

Seed Mixture	Variety	Rate in lbs./acre (PLS)	Rate in lbs./1,000 ft <sup>2</sup>
<b>Mix #1</b>			
Creeping red fescue	Ensylva, Pennlawn, Boreal	10	.25
Perennial ryegrass	Pennfine, Linn	10	.25
*This mix is used extensively for shaded areas.			
<b>Mix #2</b>			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	20	.50
*This rate is in pure live seed, this would be an excellent choice along the upland edge of a wetland to filter runoff and provide wildlife benefits. In areas where erosion may be a problem, a companion seeding of sand lovegrass should be added to provide quick cover at a rate of 2 lbs. per acre (0.05 lbs. per 1000 sq. ft.).			
<b>Mix #3</b>			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	4	.10
Big bluestem	Niagara	4	.10
Little bluestem	Aldous or Camper	2	.05
Indiangrass	Rumsey	4	.10
Coastal panicgrass	Atlantic	2	.05
Sideoats grama	El Reno or Trailway	2	.05
Wildflower mix		.50	.01
*This mix has been successful on sand and gravel plantings. It is very difficult to seed without a warm season grass seeder such as a Truax seed drill. Broadcasting this seed is very difficult due to the fluffy nature of some of the seed, such as bluestems and indiangrass.			
<b>Mix #4</b>			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	10	.25
Coastal panicgrass	Atlantic	10	.25
*This mix is salt tolerant, a good choice along the upland edge of tidal areas and roadsides.			
<b>Mix #5</b>			
Saltmeadow cordgrass ( <i>Spartina patens</i> )—This grass is used for tidal shoreline protection and tidal marsh restoration. It is planted by vegetative stem divisions.			
'Cape' American beachgrass can be planted for sand dune stabilization above the saltmeadow cordgrass zone.			
<b>Mix #6</b>			
Creeping red fescue	Ensylva, Pennlawn, Boreal	20	.45
Chewings Fescue	Common	20	.45
Perennial ryegrass	Pennfine, Linn	5	.10
Red Clover	Common	10	.45
*General purpose erosion control mix. Not to be used for a turf planting or play grounds.			

# STANDARD AND SPECIFICATIONS FOR SOIL RESTORATION



## Definition & Scope

The decompaction of areas of a development site or construction project where soils have been disturbed to recover the original properties and porosity of the soil; thus providing a sustainable growth medium for vegetation, reduction of runoff and filtering of pollutants from stormwater runoff.

## Conditions Where Practice Applies

Soil restoration is to be applied to areas whose heavy construction traffic is done and final stabilization is to begin. This is generally applied in the cleanup, site restoration, and landscaping phase of construction followed by the permanent establishment of an appropriate ground cover to maintain the soil structure. Soil restoration measures should be applied over and adjacent to any runoff reduction practices to achieve design performance.



## Design Criteria

1. Soil restoration areas will be designated on the plan views of areas to be disturbed.

2. Soil restoration will be completed in accordance with Table 4.6 on page 4.53.

## Specification for Full Soil Restoration

During periods of relatively low to moderate subsoil moisture, the disturbed subsoils are returned to rough grade and the following Soil Restoration steps applied:

1. Apply 3 inches of compost over subsoil. The compost shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table, except for "Particle Size" 100% will pass the 1/2" sieve. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content.**



2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor mounted disc, or tiller, to mix and circulate air and compost into the subsoil.
3. Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site.
4. Apply topsoil to a depth of 6 inches.
5. Vegetate as required by the seeding plan. Use appropriate ground cover with deep roots to maintain the soil structure.
6. Topsoil may be manufactured as a mixture or a mineral component and organic material such as compost.

At the end of the project an inspector should be able to push a 3/8” metal bar 12 inches into the soil just with body weight. This should not be performed within the drip line of any existing trees or over utility installations that are within 24 inches of the surface.

### **Maintenance**

Keep the site free of vehicular and foot traffic or other weight loads. Consider pedestrian footpaths.

**Table 4.6  
Soil Restoration Requirements**

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only - no change in grade	HSG A&B	HSG C&D	Protect area from any ongoing construction activities.
	Apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A&B	HSG C&D	
	Aerate* and apply 6 inches of topsoil	Apply full Soil Restoration**	
Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls)	Apply full Soil Restoration (decompaction and compost enhancement)		
Areas where Runoff Reduction and/or Infiltration practices are applied	Restoration not required, but may be applied to enhance the reduction specified for appropriate practices.		Keep construction equipment from crossing these areas. To protect newly installed practice from any ongoing construction activities construct a single phase operation fence area
Redevelopment projects	Soil Restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.		
* Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler. ** Per “Deep Ripping and De-compaction, DEC 2008”.			

# 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 TOPSOILING



## **Definition & Scope**

Spreading a specified quality and quantity of topsoil materials on graded or constructed subsoil areas to provide acceptable plant cover growing conditions, thereby reducing erosion; to reduce irrigation water needs; and to reduce the need for nitrogen fertilizer application.

## **Conditions Where Practice Applies**

Topsoil is applied to subsoils that are droughty (low available moisture for plants), stony, slowly permeable, salty or extremely acid. It is also used to backfill around shrub and tree transplants. This standard does not apply to wetland soils.

## **Design Criteria**

1. Preserve existing topsoil in place where possible, thereby reducing the need for added topsoil.
2. Conserve by stockpiling topsoil and friable fine textured subsoils that must be stripped from the excavated site and applied after final grading where vegetation will be established. Topsoil stockpiles must be stabilized. Stockpile surfaces can be stabilized by vegetation, geotextile or plastic covers. This can be aided by orientating the stockpile lengthwise into prevailing winds.
3. Refer to USDA Natural Resource Conservation Service soil surveys or soil interpretation record sheets for further soil texture information for selecting appropriate design topsoil depths.

## **Site Preparation**

1. As needed, install erosion and sediment control practices such as diversions, channels, sediment traps, and stabilizing measures, or maintain if already installed.
2. Complete rough grading and final grade, allowing for depth of topsoil to be added.
3. Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent. Areas that have been overly compacted shall be decompact in accordance with the Soil Restoration Standard.
4. Remove refuse, woody plant parts, stones over 3 inches in diameter, and other litter.

## **Topsoil Materials**

1. Topsoil shall have at least 6 percent by weight of fine textured stable organic material, and no greater than 20 percent. Muck soil shall not be considered topsoil.
2. Topsoil shall have not less than 20 percent fine textured material (passing the NO. 200 sieve) and not more than 15 percent clay.
3. Topsoil treated with soil sterilants or herbicides shall be so identified to the purchaser.
4. Topsoil shall be relatively free of stones over 1 1/2 inches in diameter, trash, noxious weeds such as nut sedge and quackgrass, and will have less than 10 percent gravel.
5. Topsoil containing soluble salts greater than 500 parts per million shall not be used.
6. Topsoil may be manufactured as a mixture of a mineral component and organic material such as compost.

## **Application and Grading**

1. Topsoil shall be distributed to a uniform depth over the area. It shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water puddles.
2. Topsoil placed and graded on slopes steeper than 5 percent shall be promptly fertilized, seeded, mulched, and stabilized by “tracking” with suitable equipment.
3. Apply topsoil in the amounts shown in Table 4.7 below:

<b>Table 4.7 - Topsoil Application Depth</b>		
<b>Site Conditions</b>	<b>Intended Use</b>	<b>Minimum Topsoil Depth</b>
1. Deep sand or loamy sand	Mowed lawn	6 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	1 in.
2. Deep sandy loam	Mowed lawn	5 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	none
3. Six inches or more: silt loam, clay loam, loam, or silt	Mowed lawn	4 in.
	Tall legumes, unmowed	1 in.
	Tall grass, unmowed	1 in.

# STANDARD AND SPECIFICATIONS FOR VEGETATING WATERWAYS



## Definition & Scope

Waterways are a **permanently** constructed conveyance channel, shaped or graded. They are vegetated for the safe transport of excess surface water from construction sites and urban areas without damage from erosion.

## Conditions Where Practice Applies

This standard applies to vegetating waterways and similar water carrying structures.

Supplemental measures may be required with this practice. These may include: subsurface drainage to permit the growth of suitable vegetation and to eliminate wet spots; a section stabilized with asphalt, stone, or other suitable means; or additional storm drains to handle snowmelt or storm runoff.

Retardance factors for determining waterway dimensions are shown in Table 3.1 on page 3.10 and “Maximum Permissible Velocities for Selected Grass and Legume Mixtures” (See Table 4.10 on page 4.79).

## Design Criteria

Waterways or outlets shall be protected against erosion by vegetative means as soon after construction as practical. Vegetation must be well established before diversions or other channels are outletted into them. Consideration should be given to the use of turf reinforcement mats, excelsior matting, other rolled erosion control products, or sodding of channels to provide erosion protection as soon after construction as possible. It is strongly recommended that the center line of the waterway be protected with one of the above materials to avoid center gullies and to protect seedlings from erosion before establishment.

1. Liming, fertilizing, and seedbed preparation.

- A. Lime to pH 6.5.
  - B. **The soil should be tested to determine the amounts of amendments needed.** If the soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 1.0 lbs/1,000 sq. ft. of N, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O.
  - C. Lime and fertilizer shall be mixed thoroughly into the seedbed during preparation.
  - D. Channels, except for paved section, shall have at least 4 inches of topsoil.
  - E. Remove stones and other obstructions that will hinder maintenance.
2. Timing of Seeding.
    - A. Early spring and late August are best.
    - B. Temporary cover to protect from erosion is recommended during periods when seedings may fail.

3. Seed Mixtures:

Mixtures	Rate per Acre (lbs)	Rate per 1,000 sq. ft. (lbs)
A. White clover or ladino clover <sup>1</sup>	8	0.20
Smooth brome grass	20	0.45
Creeping red fescue <sup>2</sup>	2	0.05
Total	30	0.70

OR

B. Smooth brome grass <sup>3</sup>	25	0.60
Creeping red fescue	20	0.50
Perennial ryegrass	10	0.20
Total	55	1.30

<sup>1</sup> Inoculate with appropriate inoculum immediately prior to seeding. Ladino or birdsfoot trefoil may be substituted for common white clover and seeded at the same rate.

<sup>2</sup> Perennial ryegrass may be substituted for the creeping red fescue but increase seeding rate to 5 lbs/acre (0.1 lb/1,000 sq. ft).

<sup>3</sup> Use this mixture in areas which are mowed frequently. Common white clover may be added if desired and seeded at 8 lbs/acre (0.2 lb/1,000 sq. ft.)

#### 4. Seeding

Select the appropriate seed mixture and apply uniformly over the area. Rolling or cultipacking across the waterway is desirable.

Waterway centers or crucial areas may be sodded. Refer to the standard and specification for Stabilization with Sod. Be sure sod is securely anchored using staples or stakes.

#### 5. Mulching

All seeded areas will be mulched. Channels more than 300 feet long, and/or where the slope is 5 percent or more, must have the mulch securely anchored. Refer to the standard and specifications for Mulching for details.

#### 6. Maintenance

Fertilize, lime, and mow as needed to maintain dense protective vegetative cover.

Waterways shall not be used for roadways.

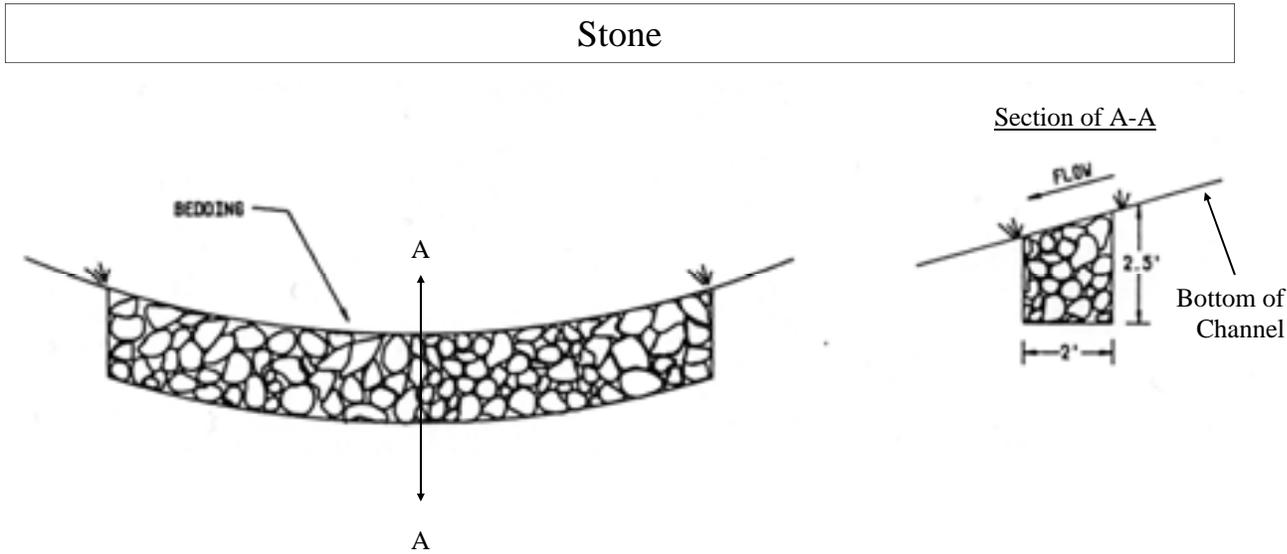
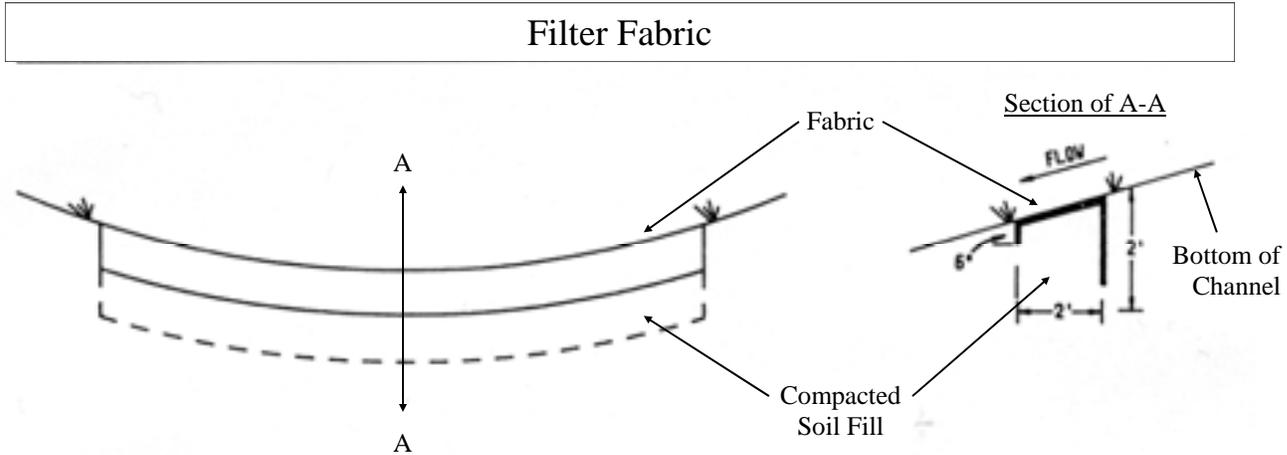
If rills develop in the centerline of a waterway, prompt attention is required to avoid the formation of gullies. Either stone and/or compacted soil fill with excelsior or filter fabric as necessary may be used during the establishment phase. See Figure 4.25, Rill Maintenance Measures. Spacing between rill maintenance barriers shall not exceed 100 feet.

**Table 4.10**  
**Maximum Permissible Velocities for Selected Seed Mixtures**

Cover	Slope Range <sup>2</sup> (%)	Permissible Velocity <sup>1</sup>	
		Erosion-resistant Soils (ft. per sec.) K=0.10 - 0.35 <sup>3</sup>	Easily Eroded Soils (ft. per sec.) K=0.36 - 0.80
Smooth Bromegrass	0-5	7	5
Hard Fescue	5-10	6	4
	Over 10	5	3
Grass Mixtures	<sup>2</sup> 0-5	5	4
	5-10	4	3
White/Red Clover	<sup>4</sup> 0-5	3.5	2.5
Alfalfa			
Red Fescue			

<sup>1</sup> Use velocities exceeding 5 feet per second only where good covers and proper maintenance can be obtained.  
<sup>2</sup> Do not use on slopes steeper than 10 percent except for vegetated side slopes in combination with a stone, concrete, or highly resistant vegetative center section.  
<sup>3</sup> K is the soil erodibility factor used in the Revised Universal Soil Loss Equation. Visit Appendix A or consult the appropriate USDA-NRCS technical guide for K values for New York State soils.  
<sup>4</sup> Do not use on slopes steeper than 5 percent except for vegetated side slopes in combination with a stone, concrete, or highly resistant vegetative center section.  
<sup>5</sup> Annuals - use on mild slopes or as temporary protection until permanent covers are established.  
<sup>6</sup> Use on slopes steeper than 5 percent is not recommended.

**Figure 4.25**  
**Rill Maintenance Measures**



# 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

### Super Silt Fence

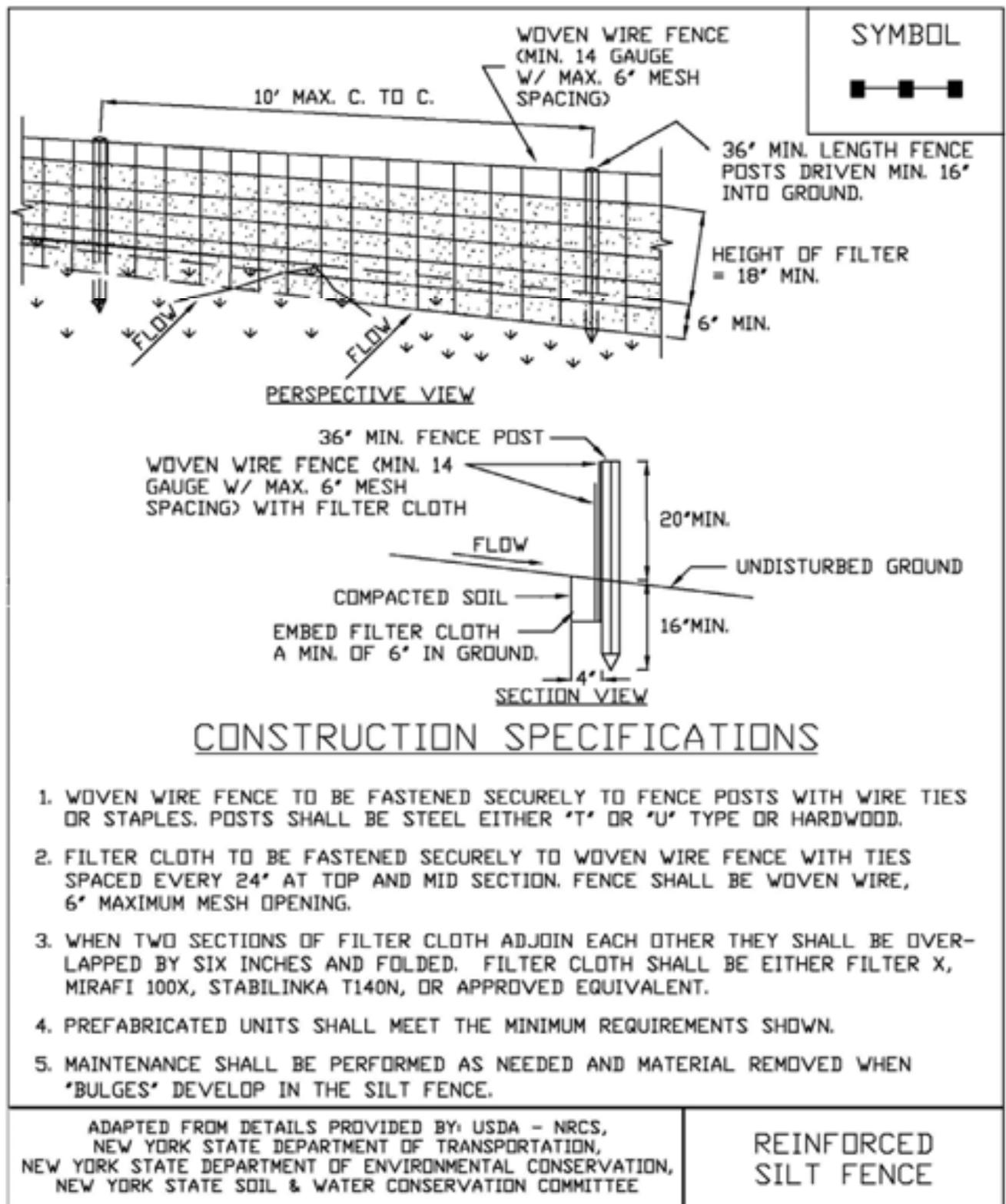


2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.5 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot. Posts for super silt fence shall be standard chain link fence posts.
3. Wire Fence for reinforced silt fence: Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.
4. Prefabricated silt fence is acceptable as long as all material specifications are met.

### Reinforced Silt Fence



**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

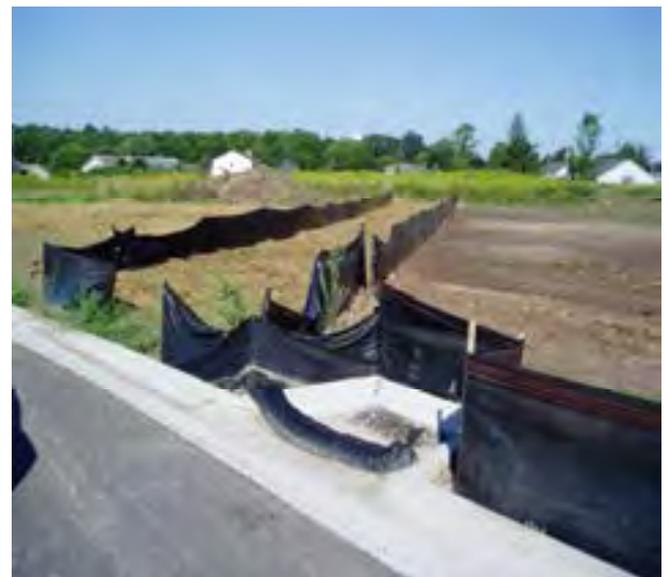
materials and any unstable soil and dispose of properly.

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.