



**NOTICE OF INTENT, TRANSFER, OR TERMINATION FOR COVERAGE UNDER
THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM**

**SWPPP Prepared: August 2020
Stormwater Pollution Prevention Plan (SWPPP)
Borger Replacement Project**

Planned Construction Start Date: _____

Planned Construction Completion Date: _____

Construction Supervisor: _____

Telephone: _____

Project Manager (signature): _____

Construction Contractor (signature): _____

Environmental Inspector (signature): _____

Note:

THIS PLAN MUST BE KEPT AT THE CONSTRUCTION SITE

Stormwater Pollution Prevention Plan (SWPPP)

For Construction Activities At:

Borger Replacement Project
Town of Dryden, Tompkins County, New York
Tax Parcel Numbers: 502489-66.-1-18 & 502489-66.-1-22

SWPPP Prepared For:

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SWPPP Preparation Date:

August 2020

NEW YORK STORMWATER POLLUTION PREVENTION PLAN
DOMINION ENERGY TRANSMISSION, INC.
BORGER REPLACEMENT PROJECT
TOMPKINS COUNTY, NEW YORK

TABLE OF CONTENTS

SECTION	PAGE
1.0 PROJECT OVERVIEW	1
1.1 Introduction.....	1
1.2 Permit Coverage Requirements for Owners or Operators	1
1.3 Project Description.....	2
1.4 Project Owner and Operators.....	3
2.0 PROJECT INFORMATION	4
2.1 Site Conditions.....	4
2.1.1 Site Location.....	4
2.1.2 Soils	4
2.1.3 Prior Land Uses	4
2.1.4 Surface Waters and Wetlands in Project Area	4
2.1.5 Environmentally Sensitive Areas.....	4
2.1.6 Stormwater and Drainage Features.....	5
2.2 Future Site Conditions	5
3.0 CONSTRUCTION ACTIVITIES	6
3.1 Sequence of Construction Activities.....	6
3.2 Timing of Certain Construction Activities	6
3.2.1 While Disturbing Under 5-Acres.....	6
3.2.2 While Disturbing Over 5-Acres.....	6
4.0 POST-CONSTRUCTION STORMWATER MANAGEMENT	8
4.1 Water Quality Volume.....	8
4.2 Hydrology and Hydraulic Calculations	8
4.2.1 Stream Channel Protection Volume.....	9
4.2.2 Overbank Flood Control.....	9
4.2.3 Extreme Flood Control	9
5.0 EROSION AND SEDIMENT CONTROL.....	10
5.1 General Construction Practices.....	10
5.2 Vegetative Measures	12
5.2.1 Topsoil.....	12
5.2.2 Permanent Vegetative Stabilization.....	12
5.2.3 Temporary Vegetative Practices (Interim Stabilization).....	14
5.3 Temporary & Permanent Structural Measures	14
5.3.1 Stabilized Construction Access.....	14
5.3.2 Compost Filter Sock	14

5.3.3	Compost Filter Sock Sediment Trap.....	15
5.3.4	Diversions.....	15
5.3.5	Flow Spreader.....	15
5.3.6	Vegetation Preservation Areas.....	15
5.3.7	Dust Control.....	15
5.3.8	Geotextile Filter Bag.....	16
5.4	Biotechnical Measures.....	16
5.5	Inspections.....	16
5.5.1	Contractor Inspections.....	16
5.5.2	Qualified Inspector.....	16
5.5.3	Inspection Schedule.....	17
5.5.4	Inspection Procedures and Report.....	17
5.5.5	Corrective Actions.....	17
5.6	Maintenance.....	18
5.6.1	Stabilized Construction Access.....	18
5.6.2	Compost Filter Sock.....	18
5.6.3	Compost Filter Sock Sediment Trap.....	18
5.6.4	Diversion.....	19
5.6.5	Flow Spreader.....	19
5.6.6	Vegetation Preservation Areas.....	19
5.6.7	Dust Control.....	19
5.6.8	Geotextile Filter Bag.....	19
5.7	Post-Construction Restoration Practices.....	20
5.7.1	Soil Restoration.....	20
5.7.2	Seeding.....	20
5.7.3	Post-Construction Monitoring.....	20
5.7.4	Achievement of Final Stabilization.....	21
5.8	Post-Construction Stormwater Management Maintenance.....	21
6.0	POLLUTION PREVENTION MEASURES.....	22
6.1	Chemicals, Oils and Grease.....	22
6.2	Vehicle Washing.....	22
6.3	Sanitary Waste.....	22
6.4	Solid Waste.....	22
6.5	Non-Stormwater Discharges.....	22

LIST OF APPENDICES

- A Project Location Map
- B Contractor Certification Forms
- C Project Drawings
- D SWPPP Inspection Reports
- E General Permit No. GP-0-20-001
- F Calculations
- G Soil Report
- H 5-Acre Disturbance Approval
- I Agency Coordination
- J Log of Changes to the SWPPP
- K Log of Corrective Actions
- L Notice of Intent Form and Receipt
- M Notice of Termination

1.0 PROJECT OVERVIEW

1.1 INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) has been developed for Dominion Energy Transmission, Inc. (DETI) for construction activities associated with the proposed replacement of compressors (Project) at the Borger Station located in the Town of Dryden, Tompkins County, New York. This SWPPP has been prepared in accordance with the requirements set forth in the New York State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity GP-0-20-001 (General Permit). A copy of the General Permit is included in Appendix E of this SWPPP. The proposed Project is located in the Seneca watershed; therefore, enhanced phosphorous removal designs are not required.

This SWPPP has been prepared in accordance with good engineering practices to meet the following objectives:

- Identify the potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with the Project; and
- Assure compliance with the terms and conditions of the General Permit.

DETI will implement and comply with the practices and procedures established in this SWPPP. This SWPPP provides a means to record site-specific information, including dates of construction activities, specific location of the Project, methods of erosion and sediment control, and appropriately detailed site construction plans.

This SWPPP contains relevant guidelines for pollution prevention, including sediment, runoff, and erosion control practices to be used by DETI during construction of the Project. All appropriate contractors and subcontractors will be informed of the contents of this document and the terms and conditions of the General Permit. Furthermore, all appropriate contractors and subcontractors will be required to understand the conditions and standards of this SWPPP and will be required to adhere to one or more control measure(s) during the duration of construction activities, as needed.

1.2 PERMIT COVERAGE REQUIREMENTS FOR OWNERS OR OPERATORS

The owner or operator shall retain a copy of the Notice of Intent (NOI), NOI Acknowledgment Letter, SWPPP, Municipal Separate Stormwater Sewer System (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 New York State Department of Environmental Conservation (NYSDEC) receives a complete Notice of Termination (NOT) submitted in accordance with Part V. of the General Permit (see Appendix E).

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 NOT has been submitted to the NYSDEC in accordance with Part V of the General Permit. This includes any changes made to the SWPPP pursuant to Part III.A.4 of the General Permit.

The owner or operator shall maintain a copy of the General Permit, NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance Form, inspection reports, and all documentation necessary to demonstrate eligibility with this permit at the construction site until all disturbed areas have achieved final stabilization and the NOT has been submitted to the NYSDEC. 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.

DETI shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Town of Dryden Stormwater Management officer.

DETI must keep the SWPPP current, so that at all times, it 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, DETI shall amend the SWPPP:

- Whenever the current provisions prove to be ineffective in minimizing pollutants in stormwater discharges from the site;
- 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; and
- To address issues or deficiencies identified during an inspection by the qualified inspector, the NYSDEC, or other regulatory authority.

1.3 PROJECT DESCRIPTION

DETI proposes to replace two existing turbines with new units at its Borger Station in the Town of Dryden. Each unit will have its own new building with a 3rd new building for auxiliaries. In addition, DETI will install an oxidation catalyst on an existing turbine to further reduce emissions, install three new microturbines, replace blowdown silencers/vents to allow for capped emergency shutdowns to reduce emissions, replace an aging boiler system, and install other minor station piping and updates. Two existing turbines will be disconnected and removed from service after the replacement turbines are brought in-service with the existing building being used for operations and storage. All work will occur within DETI owned property. The total limit of disturbance (LOD) associated with the Project is 11.38 acres.

The objectives of this SWPPP include stabilizing the site, protecting slopes and existing channels, reducing impervious surfaces, promoting infiltration, controlling sediment from exiting the

perimeter of the site, protecting adjacent receiving waters, following pollution prevention measures, and minimizing the area and duration of exposed soils.

1.4 PROJECT OWNER AND OPERATORS

Owner Name:	Dominion Energy Transmission, Inc.	Facility Operator /Contractor:	Dominion Energy Transmission, Inc.
Address:	707 East Main Street Richmond, VA 23219	Address:	219 Ellis Hollow Creek Rd. Ithica, NY 14850
Telephone:	804-335-4923	Telephone:	804-335-4923

Contractor(s) and subcontractor(s) contact information that will implement and maintain stormwater controls identified in this SWPPP.

Contractor's Name:	
Address:	
Contact Person:	
Telephone #:	

Contractor's Name:	
Address:	
Contact Person:	
Telephone #:	

Contractor's Name:	
Address:	
Contact Person:	
Telephone #:	

The Trained Contractor(s) identified above is(are) responsible for SWPPP implementation. The Trained Contractor(s) shall be responsible for installing, constructing, repairing, replacing, inspecting, and maintaining the erosion and sediment control practices included in the SWPPP and for constructing the post-construction stormwater management practices included in the SWPPP. A representative of each contractor company must identify a Trained Contractor and sign the Contractor Certification included in Appendix B.

2.0 PROJECT INFORMATION

2.1 SITE CONDITIONS

2.1.1 Site Location

The Project is located on Ellis Hollow Creek Road in the Town of Dryden, New York at latitude 42° 26' 20.85" N, longitude 76° 24' 25.27" W. The Town of Dryden is designated as a regulated MS4. A site location map for the Project is provided in Appendix A, Figure A-1.

2.1.2 Soils

According to the Natural Resource Conservation Service (NRCS) Web Soil Survey, the soil classification for the Project site includes Bath and Valois soils, 15 to 25 percent slopes; Chenango gravelly loam, 0 to 5 percent slopes; and Chenango gravelly loam fan, 0 to 8 percent slopes. A soil report for the Project area is provided in Appendix G. Soils exposure will be minimized during construction. Upon completion of construction activities, the disturbed areas that will remain as open space will be re-vegetated and stabilized.

2.1.3 Prior Land Uses

Existing structures, roads, and locations of known utilities and easements are depicted on maps in Appendix C. The current land use of the property is existing open mowed lawn, existing access roads, existing gravel lots, and existing above ground piping owned by DETI. Existing structures on the property include compressor buildings, turbine buildings, a control building, and other buildings associated with a gas compressor station. These facilities will remain after construction is completed.

2.1.4 Surface Waters and Wetlands in Project Area

Wetland and waterbody delineation surveys were conducted by Tetra Tech, Inc. at the existing compressor station. Several existing wetlands and waterbodies were identified during the delineation and have been shown on the mapping in Appendix C.

2.1.5 Environmentally Sensitive Areas

Coordination was performed on this subject property with U.S Fish and Wildlife Service (USFWS), New York Natural Heritage Program (NYNHP), the U.S. Army Corps of Engineers (USACE), and the New York State Department of Environmental Conservation (NYSDEC) and the clearance letters have been provided in Appendix I. Coordination was previously performed with New York State Historic Preservation Office (SHPO) for the New Market Project, which

included the limits of disturbance proposed by this Project. The NY SHPO clearance letter from July 22, 2014 has been included in Appendix I.

2.1.6 Stormwater and Drainage Features

Drainage at the Borger Station flows generally from north to south. Some impervious areas of the facility are treated by two existing infiltration beds. Infiltration Bed #1 receives overland flow from the existing turbine building access road in the northeast quadrant. Infiltration Bed#1 has an overflow drain that is connected to a yard drain southeast of the existing turbine building. Infiltration Trench #2 receives drainage from Infiltration Trench #1, the existing turbine building, and the surrounding gravel areas via the yard drain, overland flow, and a grass swale. A grass lined diversion channel in the northwest corner of the Borger Station diverts offsite runoff away from the infiltration trenches and discharges into an open area west of the existing environmental building. The area inside of the Borger Station fence has been observed to have high infiltration rates with stormwater runoff from large storms flowing inside of the fence and disappearing into the ground.

2.2 FUTURE SITE CONDITIONS

The overall Project involves some development of open space lawns into gravel and impervious areas. Planned post-development conditions include the addition of two new compressor buildings, an auxiliary building, new paved access roads and new gravel surfaces for above ground piping and equipment. Refer to the site plan drawings in Appendix C for a detailed depiction of the proposed changes.

3.0 CONSTRUCTION ACTIVITIES

This section describes the environmental construction techniques that will be used to perform the proposed construction activities. Stormwater Management Practices (SMPs) will be implemented throughout construction to minimize soil erosion and the transport of sediments from the construction area and to protect surface waters and wetlands located adjacent to the Project areas. Detail drawings of specific SMPs are included in Appendix C.

3.1 SEQUENCE OF CONSTRUCTION ACTIVITIES

The construction sequence provides an overview of the construction process. The construction sequence is found on the erosion and sediment control drawings, which are provided in Appendix C.

The construction sequence is a recommended sequence based on the proposed work and the regulatory requirements. All work must be performed in accordance with the written construction sequence. Any proposed modification to the construction sequence shall be approved by the environmental inspector.

3.2 TIMING OF CERTAIN CONSTRUCTION ACTIVITIES

3.2.1 While Disturbing Under 5-Acres

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.

3.2.2 While Disturbing Over 5-Acres

DETI shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the traditional land use control MS4 (located in Appendix H). DETI will comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

- The owner or operator shall have a qualified inspector conduct at least two (2) site inspections in accordance with Part IV.C of the General Permit (see Appendix E) 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.
- 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 shown in Appendix C shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Soil stabilization measures applicable to this Project are described in Section 5.0 of this SWPPP.

- The owner or operator shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills. The Project development will take place in one (1) phase. Maximum disturbed area and required cuts and fills are described in Appendix C.
- The owner or operator shall install any additional site specific practices needed to protect water quality. Refer to Section 5.0 for a list of site specific practices that are applicable to the Project.

4.0 POST-CONSTRUCTION STORMWATER MANAGEMENT

Currently, the proposed Project is developed at an existing compressor station. Buildings, equipment, and access roads are present on the property, which will remain in place during and after construction. Final site conditions will include the addition of two new compressors and their associated buildings and equipment.

Historically, a SWPPP was prepared by GAI Consultants, Inc. in March 2010 for proposed construction at the Borger Compressor Station. Two stormwater infiltration beds, Infiltration Bed #1 and Infiltration Bed #2, were constructed on the site based on the specifications contained in the 2010 SWPPP. A second SWPPP was prepared by Tetra Tech in April 2016 that included the addition of coolers and a minor building expansion. The existing Infiltration Bed #2 was used for the post-construction stormwater management (PCSM) controls in the 2016 SWPPP. Information from the 2010 and 2016 SWPPP documents were reviewed as part of this SWPPP to help determine existing conditions and PCSM calculations. Detailed PCSM calculations are provided in Appendix F.

The proposed development and changes to land cover are upslope of Infiltration Bed #2. Therefore, the first step to determine the need for new PCSM controls was to evaluate the effect of the proposed changes on the existing PCSM controls. With the addition of a short berm, all proposed new impervious areas can be directed to Infiltration Bed #2. As demonstrated in the calculations provided in Appendix F, the result of directing all new impervious areas to Infiltration Bed #2 and diverting upslope drainage is that no additional PCSM controls are required.

4.1 WATER QUALITY VOLUME

Two water quality volume (WQv) areas were evaluated, one for the drainage area to Infiltration Bed #1 and one for the drainage area to Infiltration Bed #2. The project limits of disturbance outside of those two areas will be restored to existing conditions and are not included in the WQv calculations provided in Appendix F.

The resulting WQv for Infiltration Bed #1 is 0.008 acre-feet (367 cubic feet). The design volume for Infiltration Bed #1 is 1,610 cubic feet, which is adequately sized to treat the full WQv.

The resulting WQv for Infiltration Bed #2 is 0.048 acre-feet (2,078 cubic feet). The design volume for Infiltration Bed #2 is 3,427 cubic feet, which is adequately sized to treat the full WQv.

4.2 HYDROLOGY AND HYDRAULIC CALCULATIONS

A single point of interest (POI-1) was selected at a roadside ditch for Ellis Hollow Creek Road near the southeast entrance of the station. The drainage area to POI-1 includes all areas of the Project that are changing from existing conditions. Hydrology and hydraulic (H&H) calculations

are provided in Appendix F for POI-1. Table 4.1 summarizes the results of the H&H calculations after routing through Infiltration Bed #1 and Infiltration Bed #2.

Table 4.1 - Peak Discharge with SMP Controls

Storm Event (years)	Total Pre-Development Peak Flow (cfs)	Total Post-Development Peak Flow (cfs)	Total Difference Post-Pre (cfs)	Flow Decrease
1 (Cpv)	0.00	0.00	0.00	Same
10 (Qp)	0.00	0.00	0.00	Same
100 (Qf)	0.00	0.00	0.00	Same

4.2.1 Stream Channel Protection Volume

Stream Channel Protection Volume (Cpv) requirements are designed to protect stream channels from erosion. In New York this goal is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event, remained from runoff reduction. According to the *2015 NY State Stormwater Management Design Manual*, “the Cpv requirement does not apply in certain conditions, including the following: reduction of the entire Cpv volume is achieved at a site through green infrastructure or infiltration systems.” The 1-year, 24-hour storm event is shown in the calculations provided in Appendix F to be entirely contained within the two infiltration beds. Therefore, reduction of the entire Cpv volume is achieved through infiltration systems.

4.2.2 Overbank Flood Control

The primary purpose of the overbank flood control sizing criterion is to prevent an increase in the frequency and magnitude of out-of-bank flooding generated by urban development (i.e., flow events that exceed the bankfull capacity of the channel, and therefore must spill over into the floodplain). Overbank control requires storage to attenuate the post development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. As indicated in the Table 4.1, the post development 10-year, 24-hour peak discharge rate is the same as the pre-development discharge rate.

4.2.3 Extreme Flood Control

The intent of the extreme flood criteria is to (a) prevent the increased risk of flood damage from large storm events, (b) maintain the boundaries of the predevelopment 100-year floodplain, and (c) protect the physical integrity of stormwater management practices. The 100-Year Control requires storage to attenuate the post development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. As indicated in the Table 4.1, the post development 100-year, 24-hour peak discharge rate is the same as the pre-development discharge rate.

5.0 EROSION AND SEDIMENT CONTROL

Project construction activities will expose bare soils and increase the potential for erosion and sedimentation. Through adherence to this SWPPP, the potential for soil erosion and sedimentation during construction will be minimized, and the disturbed areas will be restored and/or stabilized when construction is completed.

The erosion and sediment control measures for this site are based on the *2016 New York Standards and Specification for Erosion and Sediment Control*. If there is a conflict between this plan and the *2016 NY Standards and Specification for Erosion and Sediment Control*, then the contractor will adhere to the more stringent plan. The control measures implemented at the site shall be consistent with all applicable federal, state, or NYSDEC requirements for erosion and sediment control and stormwater management. All erosion and sediment control measures shall be designed, installed, and maintained in accordance with good engineering practices and the minimum standards of the *2016 NY Standards and Specification for Erosion and Sediment Control*.

5.1 GENERAL CONSTRUCTION PRACTICES

General construction practices are intended to provide a general course of action during Project construction to conform to applicable regulatory agency requirements for temporary and permanent erosion and sediment controls. The Contractor shall comply with the requirements listed in this section. The Contractor may be required to alter controls based on effectiveness of controls or differing site conditions encountered.

1. No equipment is permitted outside of the construction LOD.
2. No excavated materials are to be placed outside of the LOD.
3. Earth disturbance may ONLY occur within the LOD.
4. Rock and soil stockpile locations will be determined at the time of construction, but will be located within the Project LOD.
5. Clear only what is required for immediate construction activity. Clearing shall be performed as construction progresses. Mass clearings of the entire site should be avoided.
6. When soil disturbance is less than five (5) acres at any one time: 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.

The soil stabilization measures in Appendix C shall be in conformance with the technical standard, *New York State Standards and Specifications for Erosion and Sediment Control*, dated November 2016. Soil stabilization measures applicable to this Project are described

in Section 5.0 of this SWPPP.

For an earth disturbance activity or any stage or phase of an activity to be considered temporarily stabilized, the disturbed areas shall be covered with one of the following: A minimum uniform coverage of mulch and seed with a density capable of resisting accelerated erosion and sedimentation, or an acceptable SMP which temporarily minimizes accelerated erosion and sedimentation. These areas will be temporarily stabilized in accordance with Section 5.2.3.

7. Temporary stabilization will not occur on active vehicular travel ways, stockpiles, and ditch spoil areas unless these activities are ceased in those areas.
8. All earth disturbance activities shall proceed in accordance with the sequence provided within this document. Deviation from this sequence must be approved by the environmental inspector.
9. General site clearing, grubbing, topsoil and agricultural soil stripping may not commence in any stage or phase of the Project until the controls specified by the Construction Sequence for that stage or phase have been installed and are functioning as described in this document.
10. Stockpile heights shall be minimized as much as practical with slopes no greater than natural sloughing.
11. Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate controls to minimize the potential for erosion and sediment pollution.
12. Until the site is permanently stabilized, all controls must be maintained properly. Maintenance must include weekly (or biweekly) inspections of all controls and inspections after each measurable rain event. Any deficiencies should be repaired immediately upon discovery.
13. If erosion control blankets are utilized, revegetate these areas as soon as possible with permanent seeding measures, as described in this document.
14. For active construction areas such as borrow or stockpile areas, roadway improvements and areas within 50 feet of a building under construction, a perimeter sediment control system shall be installed and maintained to contain soil. Exposed disturbed areas adjacent to a conveyance that provides rapid offsite discharge of sediment, such as a cut slope at an entrance, shall be covered with plastic or geotextile to prevent soil loss until it can be stabilized. Stabilized construction access will be maintained to control vehicle tracking material off site.

5.2 VEGETATIVE MEASURES

5.2.1 Topsoil

Site Preparation

1. As needed, install erosion control practices such as diversions, channels, sediment traps, and stabilizing measures, or maintain if already installed.
2. Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent. Areas that have been overly compacted shall be decompacted to a minimum depth of 12 inches with a deep ripper or chisel plow prior to topsoiling.
3. 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 1.5 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.

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.

5.2.2 Permanent Vegetative Stabilization

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 inches. 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 solid test can be obtained to determine fertilizer needs, apply commercial fertilizer at 600 lbs per acre of 5-10-10 or equivalent. If manure is used, apply a quantity to 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. Other grasses may be seeded any time of the year with either solid is not frozen and is workable. When legumes such as birdsfoot trefoil are included, spring seedings are preferred.

Table 5.1 - Recommended Permanent Seed Mix

General Seed Mix:	Variety	lbs/acre	lbs/1,000 sq ft
Birdsfoot Trefoil ^a or Common White Clover	Empire	8 ^b	0.20
	Pardee Common	8	0.20
Tall Fescue	KY-31/Rebel	20	0.45
Redtop or Ryegrass (Perennial)	Common	2	0.05
	Pennfine/Linn	5	0.10

a. Add inoculant immediately prior to seeding

b. Mix 4 lbs each of empire and pardee or 4 lbs of birdsfoot and 4 lbs white clover per acre.

Time of seeding

The optimum timing for the general seed mixture is early spring (March through May). 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. If seeding is found to be impracticable during the peak summer months, an appropriate temporary mulch shall be applied.

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 mulch standard and specification 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.

5.2.3 Temporary Vegetative Practices (Interim Stabilization)

If spring, summer, or early fall, then seed the area with ryegrass (annual or perennial) at 30 lbs. per acre (approximately 0.7 lb/1,000 sq ft or use 1 lb/1,000 sq ft.). If late fall or early winter, then seed certified 'arostook' winter rye (cereal rye) at 100 lbs per acre (2.5 lbs/1,000 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/1,000 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 hydro-mulch 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.

5.3 TEMPORARY & PERMANENT STRUCTURAL MEASURES

5.3.1 Stabilized Construction Access

Stabilized construction access shall be installed in accordance with the plans and drawings found in Appendix C, in order reduce or eliminate the tracking of sediment onto public rights-of-way or streets. Where crossing a roadside ditch, an appropriately sized culvert shall be provided.

5.3.2 Compost Filter Sock

Compost filter sock shall be installed around the Project perimeter and downslope of soil stockpiles in accordance with the plans and drawings found in Appendix C to filter and settle sediment laden

sheet flow and reduce runoff velocity. Compost filter sock shall be installed prior to any upslope earth disturbance.

5.3.3 Compost Filter Sock Sediment Trap

The sediment trap shall be installed in accordance with the plans and drawings found in Appendix C to intercept sediment laden runoff and trap the sediment in order to protect drainage ways, properties, and rights-of-way below the sediment trap from sedimentation. The sediment trap shall be installed to contain the required volume as indicated on the plans. Minor excavation immediately behind the compost sock outlet is permitted to achieve the required volume.

5.3.4 Diversions

The diversion shall be installed according the plans and drawings found in Appendix C. The diversions are provided to direct clean water away from disturbed construction areas and PCSM SMPs. Provide flow spreaders at the outlets of the diversions.

5.3.5 Flow Spreader

Flow spreaders shall be installed in accordance with the plans and drawings found in Appendix C to convert concentrated flow to sheet flow and release it uniformly over a stabilized area. Flow spreaders that are to remain in place permanently shall be provided with a concrete spreader lip.

5.3.6 Vegetation Preservation Areas

Areas designated for preservation of vegetation are indicated on the drawings found in Appendix C. These are areas within the designated limits of disturbance; however, activities within these areas that would remove or otherwise harm existing vegetation are prohibited. Vegetation preservation areas are typically located upslope of clearwater diversions or downslope of sediment control practices; and are commonly protected with orange construction fence. Activities prohibited in vegetation preservation areas include excavation, grading, soil stockpiling, gravel placement, and heavy construction equipment operation. Activities typically allowed in vegetation preservation areas include fence post installation, fence post removal, temporary material staging and light passenger vehicle traffic.

5.3.7 Dust Control

Measures shall be taken to control dust where construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing off-site may occur and cause damages if dust is not controlled. In non-driving areas, dust control can be achieved with vegetative cover, mulching, and spray adhesives. In driving areas, dust control can be achieved with sprinkling water, polymer emulsions, barriers, and the installation of windbreaks. Waters to

which other components have not been added that are used to control dust are authorized discharges under the General Permit.

5.3.8 Geotextile Filter Bag

Geotextile filter bag shall be used as a portable device through which sediment laden water is pumped through prior to discharging to off-site drainage. This can be employed to filter pumped water discharge from foundation excavations and trenches. Uncontaminated discharges from construction site de-watering operations are authorized discharges under the General Permit.

5.4 BIOTECHNICAL MEASURES

No biotechnical measures are proposed for this project.

5.5 INSPECTIONS

5.5.1 Contractor Inspections

The Trained Contractor shall 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 conditions 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 timeframe. The Trained Contractor can stop inspections during the suspension or shutdown of construction activities in accordance with Part IV Sections B.2 and B.3 of the General Permit, provided in Appendix E.

5.5.2 Qualified Inspector

Routine site inspections shall be performed by a Qualified Inspector. A Qualified Inspector is 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, or other NYSDEC 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 NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC 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.

5.5.3 Inspection Schedule

Inspections are to be completed at least once every seven (7) calendar days during construction. Weekly inspections are to be performed by a Qualified Inspector per NYSDEC definitions. In certain watersheds and during construction activities where more than five (5) acres of soil is being disturbed 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. For more information, see Part IV Section C of the General Permit, provided in Appendix E.

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 can stop conducting the weekly maintenance inspections, and must conduct a site inspection at least once every thirty (30) calendar days. The Qualified Inspector shall begin conducting the maintenance inspections in accordance with Part IV.B.1 of the General Permit (Appendix E) as soon as soil disturbance activities resume.

For construction sites where soil disturbance activities have been shut down with partial project completion, the Qualified Inspector can stop conducting the maintenance inspections if all areas disturbed as part 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.

5.5.4 Inspection Procedures and Report

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

The Qualified Inspector shall prepare an inspection report subsequent to each and every inspection. A sample inspection report form is shown in Appendix D. Each SWPPP Inspection report must be added to the Appendix D of the SWPPP. The inspection reports must at a minimum include the information shown on the sample form. The weekly inspection reports must be submitted to the Town of Dryden Stormwater Management Officer within 48 hours of each inspection. For more information, see Part IV Section C.4 of the General Permit, provided in Appendix E.

5.5.5 Corrective Actions

Within one business day of the completion of an inspection, the Qualified Inspector shall notify DETI and appropriate contractor or subcontractor identified in Section 2.0 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.

For more information, see Part IV Section C.5 of the General Permit, provided in Appendix E.

5.6 MAINTENANCE

Unless otherwise specified, all maintenance must be started the next business day after an inspection identifies that a control is not functioning as required.

5.6.1 Stabilized Construction Access

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.

5.6.2 Compost Filter Sock

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; photodegradable filter socks after 1 year. Polypropylene 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 may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut, and the compost spread as an additional mulch to act as a soil supplement.

5.6.3 Compost Filter Sock Sediment Trap

Compost sock sediment traps shall be inspected weekly and after each runoff event. Sediment shall be removed when it reaches 1/3 the height of the socks. Photodegradable and biodegradable socks shall not be used for more than 1 year. Upon completion of the work, the compost sock sediment

trap shall be removed. The compost within the socks may be used during cleanup as a vegetative growth medium in accordance with the site stabilization plan.

5.6.4 Diversion

The diversion shall have an outlet that functions with a minimum of erosion. Runoff shall be conveyed to a sediment trapping device until the drainage area above the diversion is adequately stabilized. The openings in the ArmorFlex lining should have adequate soil to support vegetation growth. Vegetation should be established in the ArmorFlex openings and mowed at the same frequency and length as surrounding lawn areas. Vegetation outside of the designed flow area should be maintained in good condition to prevent scouring if the diversion drain is overtopped.

5.6.5 Flow Spreader

Flow spreaders constructed of wood, asphalt, stone or concrete curbing require periodic inspection to check for damage and to be repaired as needed. The spreader pool should be inspected for sand accumulation and debris that may reduce capacity. Debris buildup within the channel should be removed when it has accumulated to approximately 10 to 20% of design volume or channel capacity. Remove debris such as leaf litter, branches, tree growth and any sediment build-up from the spreader and dispose of appropriately. Inspect areas downslope of the level spreader for erosion and repair eroded areas as necessary.

5.6.6 Vegetation Preservation Areas

Construct sturdy fences, warning flags, or other indicators/barriers around valuable vegetation for protection from construction equipment. Place indicators/barriers far enough away from trees so that tall equipment such as backhoes and dump trucks do not contact tree branches. Construction limits should be identified and clearly marked to exclude equipment. Avoid spills of oil/gas and other contaminants. Obstructive and broken branches should be pruned properly. The branch collar on all branches whether living or dead should not be damaged.

5.6.7 Dust Control

Maintain dust control measures through dry weather periods until all disturbed areas are stabilized. Spray adhesives mixing ratios and application rates shall 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.

5.6.8 Geotextile Filter Bag

The geotextile filter bag is considered full when remaining bag flow area has been reduced by 75%. At this point, it should be replaced with a new bag. Disposal may be accomplished by removing the bag to an appropriate designated upland area, cut open, remove the geotextile for disposal, and spread sediment contents and seeded and mulched according to the vegetative plan.

5.7 POST-CONSTRUCTION RESTORATION PRACTICES

5.7.1 Soil Restoration

Soil restoration shall be applied to all areas subject to compaction during construction that will be permanently left as open space. These areas, such as temporary drives, laydown, or equipment storage, should be de-compacted using surface disking, or other de-compaction methods approved by the environmental inspector. In these areas aeration of the soil should occur, including 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. Six inches of topsoil should be applied. This applies to areas which are being restored to an open condition, not those that existed as gravel in the pre-development condition and will be restored as such. The environmental inspector should use a soil penetrometer to compare the soil compaction of the disturbed areas to the adjacent undisturbed areas to determine if de-compaction is successful.

5.7.2 Seeding

All disturbed areas void of, or having insufficient, cover to prevent erosion and sediment transport shall be seeded and mulched according to the plans and specifications.

5.7.3 Post-Construction Monitoring

Until final stabilization has been met, 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 and functioning 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. These inspections must be made on a monthly basis. Final stabilization means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

5.7.4 Achievement of Final Stabilization

Upon final stabilization, all temporary controls shall be removed and disposed of in accordance with this SWPPP. Any areas disturbed shall be reseeded and remulched in accordance with this SWPPP.

5.8 POST-CONSTRUCTION STORMWATER MANAGEMENT MAINTENANCE

DETI shall be responsible for the long-term operation and maintenance of the post-construction stormwater management practices. The post-construction stormwater management practices for the Project include the existing infiltration bed and associated berm, a diversion drain, and a flow spreader. Certain activities must occur prior to submitting the Project notice of termination and commencement of post-construction operations. A written operation and maintenance plan shall be developed and implemented by DETI in accordance with the General Permit. A mechanism or agreement shall be established that requires operation and maintenance of the practices in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record. Due to the modifications proposed to Infiltration Bed #2, any existing agreements related to Infiltration Bed #2 will need to be reviewed and modified as necessary.

6.0 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.

6.1 CHEMICALS, OILS AND GREASE

Earth-moving equipment is powered by internal combustion engines that are fueled and lubricated by petroleum-derived products. While these fluids are contained within onboard tanks or enclosures, normal wear and tear can result in spillage, even when scheduled maintenance is diligently performed. These spills appear as dark stains and are readily noticeable.

6.2 VEHICLE WASHING

The discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters should be minimized. This applies to washing operations that use clean water only. Soaps or solvents used in vehicle and equipment washing are prohibited from being discharged.

6.3 SANITARY WASTE

If sanitary facilities are provided at the Project site, they shall be maintained in a neat and clean condition. All wastes, both sewage and wastewater, will be disposed of per federal and state regulations.

6.4 SOLID WASTE

Solid waste (including trash and debris) will be disposed of properly, and hazardous materials (including oil, gasoline, and paint) will be properly stored with secondary containment.

6.5 NON-STORMWATER DISCHARGES

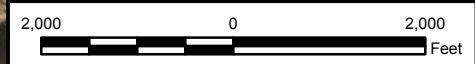
Any chemical or petroleum spills will be promptly halted and contained. Once halted and contained, the Company Construction Representative will be immediately informed. The Company Construction Representative will then contact the Plant Environmental Coordinator to ensure any necessary notifications are handled per required federal and State spill regulations. The contractor will be responsible for prompt and proper clean-up of the spilled material. Soils that are contaminated will be removed and properly disposed of. Any spills and subsequent cleanup actions shall be noted on the next inspection report. Allowable non-stormwater discharges that may occur during the Project are discharges from emergency/unplanned firefighting activities; fire hydrant flushings; testing of firefighting equipment, provided that such equipment is for water only fire suppression; potable water sources including waterline flushings; irrigation drainage;

lawn watering; uncontaminated infiltration and inflow; leakage from raw water conveyance systems; routine external building wash down and vehicle washing which does not use detergents or other compounds; pavement wash waters where spills or leaks of toxic or hazardous materials, other than minor and routine releases from motor vehicles, have not occurred (unless such material has been removed) and where detergents are not used; air conditioning and steam condensate; springs; uncontaminated groundwater; and foundation or footing drains where flows are not contaminated with process materials such as solvents. Prohibited discharges include (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. If any of these discharges are to occur, the contractor should immediately notify DETI. DETI will subsequently take appropriate action including notification to the appropriate regulatory agencies.

APPENDIX A

Project Location Map

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2013 ESRI and its data suppliers).



PROJECT LOCATION MAP
BORGER COMPRESSOR STATION

 DOMINION TRANSMISSION, INC.
 TOMPKINS COUNTY, NEW YORK

DRAWN BY: J. HERNING 03/11/16
 CHECKED BY: R. MYIRSKI 03/11/16
 APPROVED BY:

 CONTRACT NUMBER: 112C06473

FIGURE NUMBER	REV
A-1	0

APPENDIX B

Contractor Certification Forms

**CONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN**

BORGER REPLACEMENT PROJECT, TOMPKINS COUNTY, NEW YORK

This certification is part of the document that comprises the storm water pollution prevention plan (SWPPP) to be administered for construction activities associated with the above-referenced project. All contractors and subcontractors are required to sign the following certification statement:

Certification Statement:

"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 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."

Contractor Company Name: _____

Representative Name: _____

Representative Title: _____

Signature: _____

Date: _____

APPENDIX C

Project Drawings

APPENDIX D

SWPPP Inspection Reports

Note: The included blank example form may be used to document inspections

Stormwater Pollution Plan Inspection Form

For Compliance with New York SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001)

Date: <input style="width: 90%;" type="text"/>	Time: <input style="width: 90%;" type="text"/>
Project Name: <input style="width: 90%;" type="text"/>	Inspector Name: <input style="width: 90%;" type="text"/>
Project Location: <input style="width: 90%;" type="text"/>	Inspector Title: <input style="width: 90%;" type="text"/>
Weather Conditions (e.g. Dry, Wet): <input style="width: 90%;" type="text"/>	Soil Conditions : <input style="width: 90%;" type="text"/>

Describe the runoff at all discharge locations:	
Describe the condition of all surface waterbodies:	
Identify all E&S practices that need repair or maintenance:	
Identify all E&S practices that are not designed or installed properly:	
Describe and/or sketch the location and condition of disturbed areas and vegetated areas:	
Describe PCSM practices installed and identify practices not conforming to the SWPPP:	
Describe the corrective actions that are required¹:	

1. Take digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing or that have received corrective actions.

APPENDIX E

General Permit No. 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

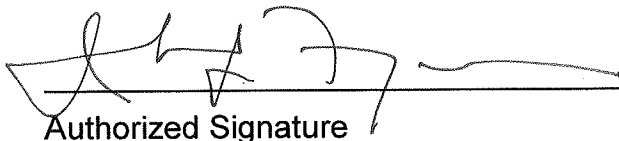
Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

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**

Table of Contents

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

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

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

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

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

B. Effluent Limitations Applicable to Discharges from Construction Activities

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

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

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

- a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge of pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:
- (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharges*;
 - (ii) Control stormwater *discharges*, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;
 - (iii) *Minimize* the amount of soil exposed during *construction activity*;
 - (iv) *Minimize* the disturbance of *steep slopes*;
 - (v) *Minimize* sediment *discharges* from the site;
 - (vi) Provide and maintain *natural buffers* around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharges*, unless *infeasible*;
 - (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;
 - (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and
 - (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.
- b. **Soil Stabilization.** In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

- c. **Dewatering.** *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

- d. **Pollution Prevention Measures.** Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:
 - (i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

 - (ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

 - (iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

- e. **Prohibited Discharges.** The following *discharges* are prohibited:
 - (i) Wastewater from washout of concrete;

 - (ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

- (iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;
 - (iv) Soaps or solvents used in vehicle and equipment washing; and
 - (v) Toxic or hazardous substances from a spill or other release.
- f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator of a construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual (“Design Manual”), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices (“SMPs”) are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. The *owner or operator of a construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

- (i) Runoff Reduction Volume (“RRv”): Reduce the total Water Quality Volume (“WQv”) by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.
- (ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual.

The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (“Cpv”): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
 - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
 - (2) The site discharges directly to tidal waters, or fifth order or larger streams.

- (iv) *Overbank* Flood Control Criteria (“Qp”): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
 - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
 - (2) A downstream analysis reveals that *overbank* control is not required.

- (v) Extreme Flood Control Criteria (“Qf”): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
 - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
 - (2) A downstream analysis reveals that *overbank* control is not required.

b. Sizing Criteria for New Development in Enhanced Phosphorus Removal Watershed

- (i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

- (ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
 - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
 - (2) The site *discharges* directly to tidal waters, or fifth order or larger streams.
- (iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
 - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
 - (2) A downstream analysis reveals that *overbank* control is not required.
- (v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
 - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
 - (2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

- (i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.
- (1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or
 - (2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or
 - (3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or
 - (4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

- (ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.
2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.
3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: “Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned”; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.
4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;
2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;
3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;
4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;
6. *Construction activities* for residential, commercial and institutional projects:
 - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
 - b. Which are undertaken on land with no existing *impervious cover*; and
 - c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture (“USDA”) Soil Survey as Soil Slope Phase “D”, (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.
7. *Construction activities* for linear transportation projects and linear utility projects:
 - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
 - b. Which are undertaken on land with no existing *impervious cover*; and
 - c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase “D” (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:
- a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.
 - 1-5 acres of disturbance - 20 feet
 - 5-20 acres of disturbance - 50 feet
 - 20+ acres of disturbance - 100 feet, or
 - b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
 - (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
 - (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
 - (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
 - (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or
 - c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

- (i) No Affect
- (ii) No Adverse Affect
- (iii) Executed Memorandum of Agreement, or

d. Documentation that:

- (i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.
9. *Discharges from construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.
2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.
3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (<http://www.dec.ny.gov/>). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

**NOTICE OF INTENT
NYS DEC, Bureau of Water Permits
625 Broadway, 4th Floor
Albany, New York 12233-3505**

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.
3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.
4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.
2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:
 - a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (<http://www.dec.ny.gov/>) for more information,
 - b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators of construction activities* that are required to obtain *UPA* permits

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>The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:</p> <ul style="list-style-type: none">• 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• 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• Construction of a barn or other <i>agricultural building</i>, silo, stock yard or pen.
<p>The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:</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>The following construction activities that involve soil disturbances of one (1) or more acres of land:</p> <ul style="list-style-type: none">• Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains• Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects• Pond construction• Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover• Cross-country ski trails and walking/hiking trails• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.• Slope stabilization projects• Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

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

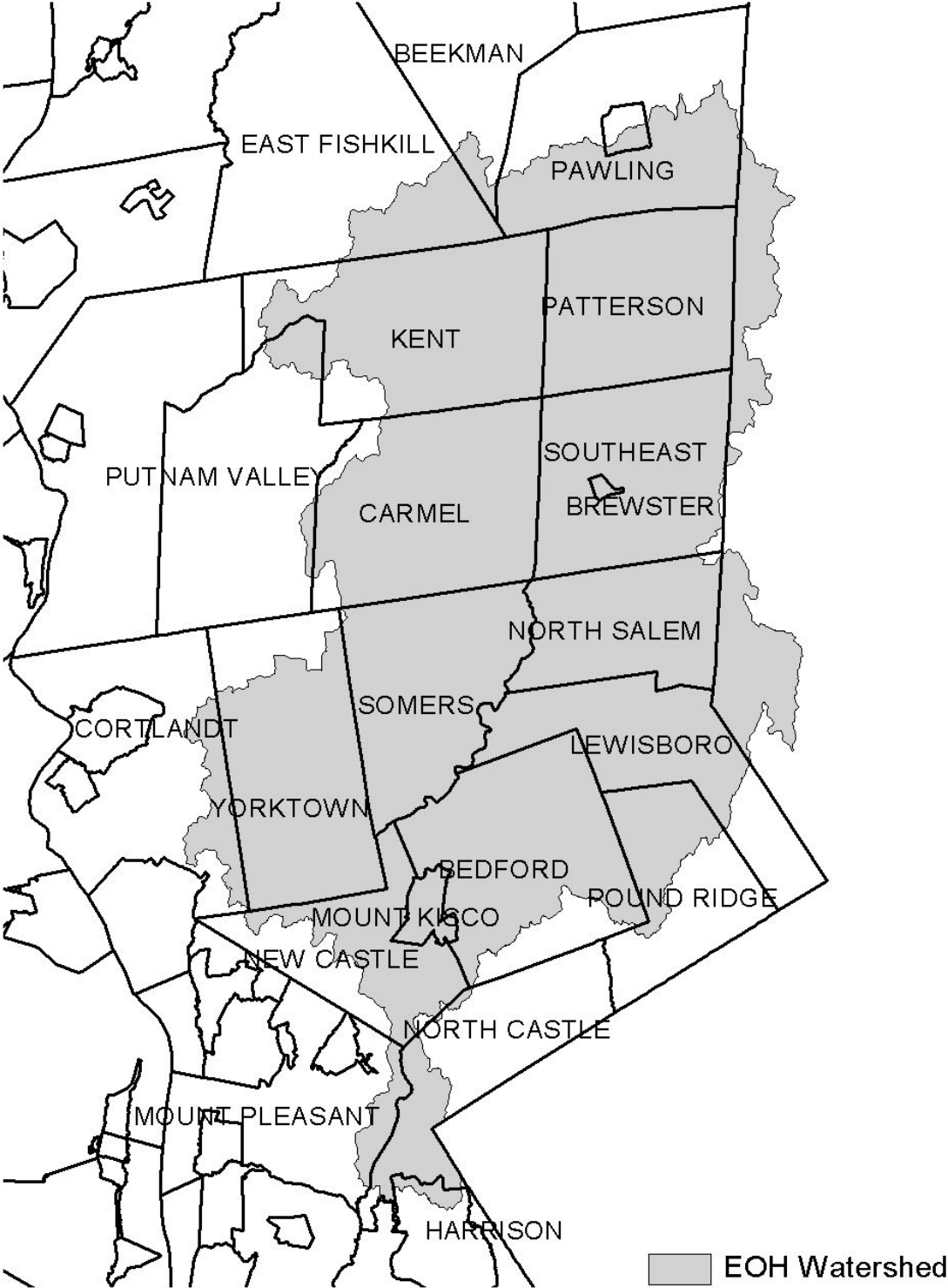


Figure 2 - Onondaga Lake Watershed



Figure 3 - Greenwood Lake Watershed

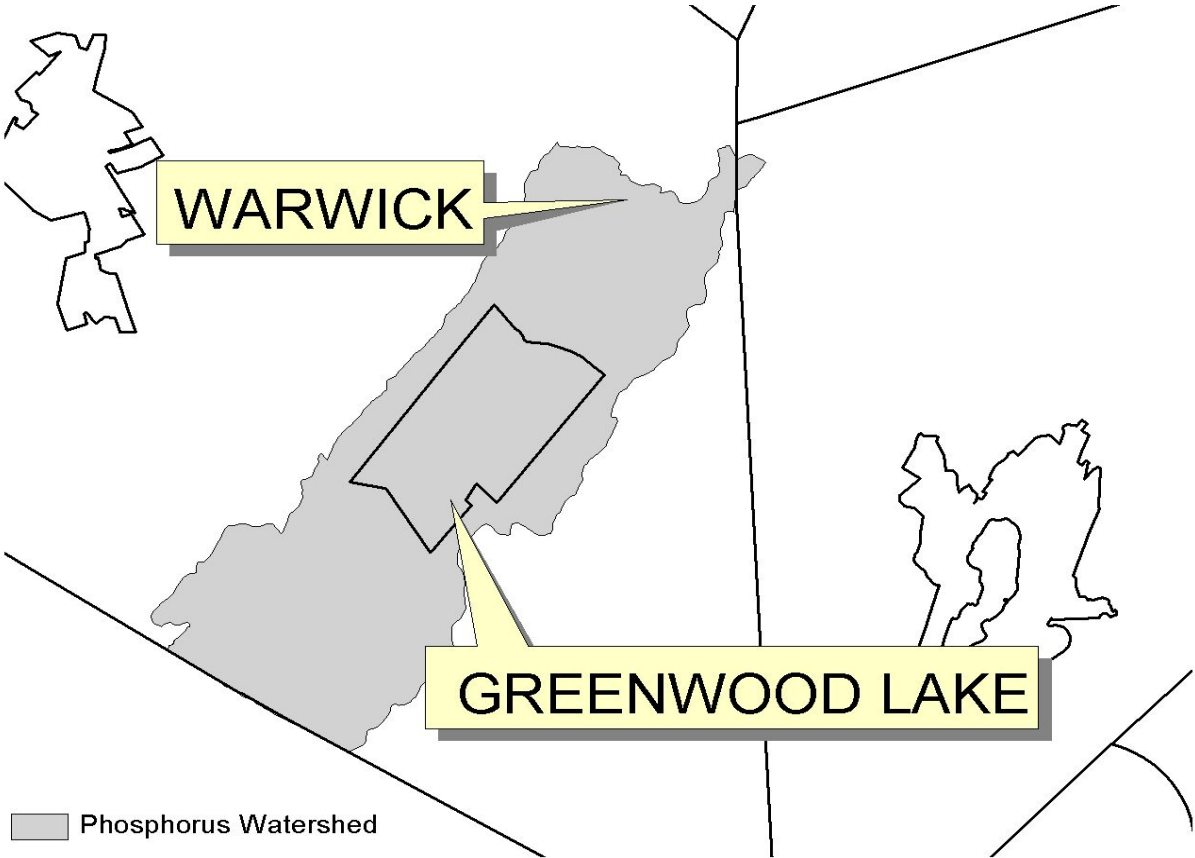


Figure 4 - Oscawana Lake Watershed

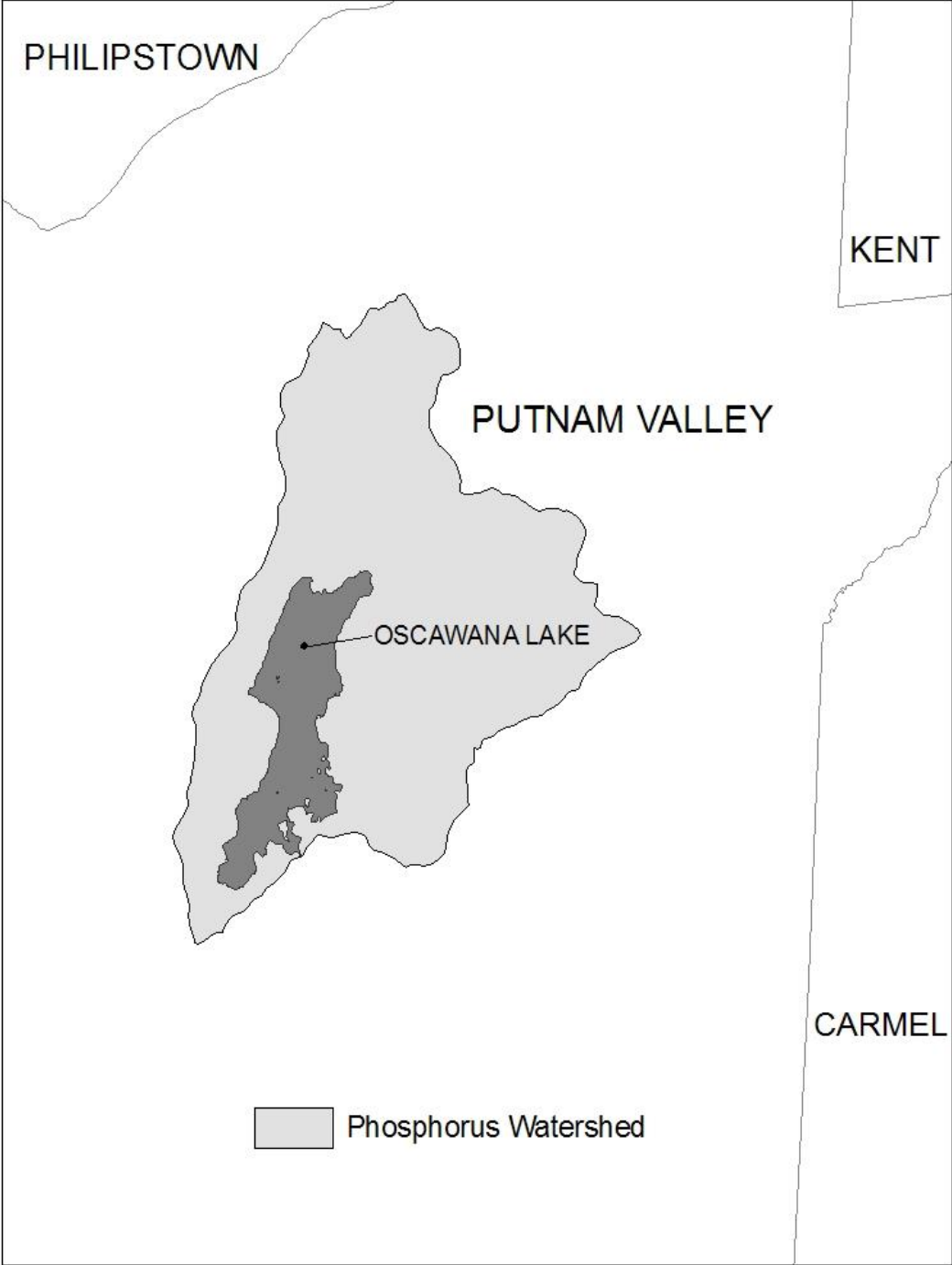
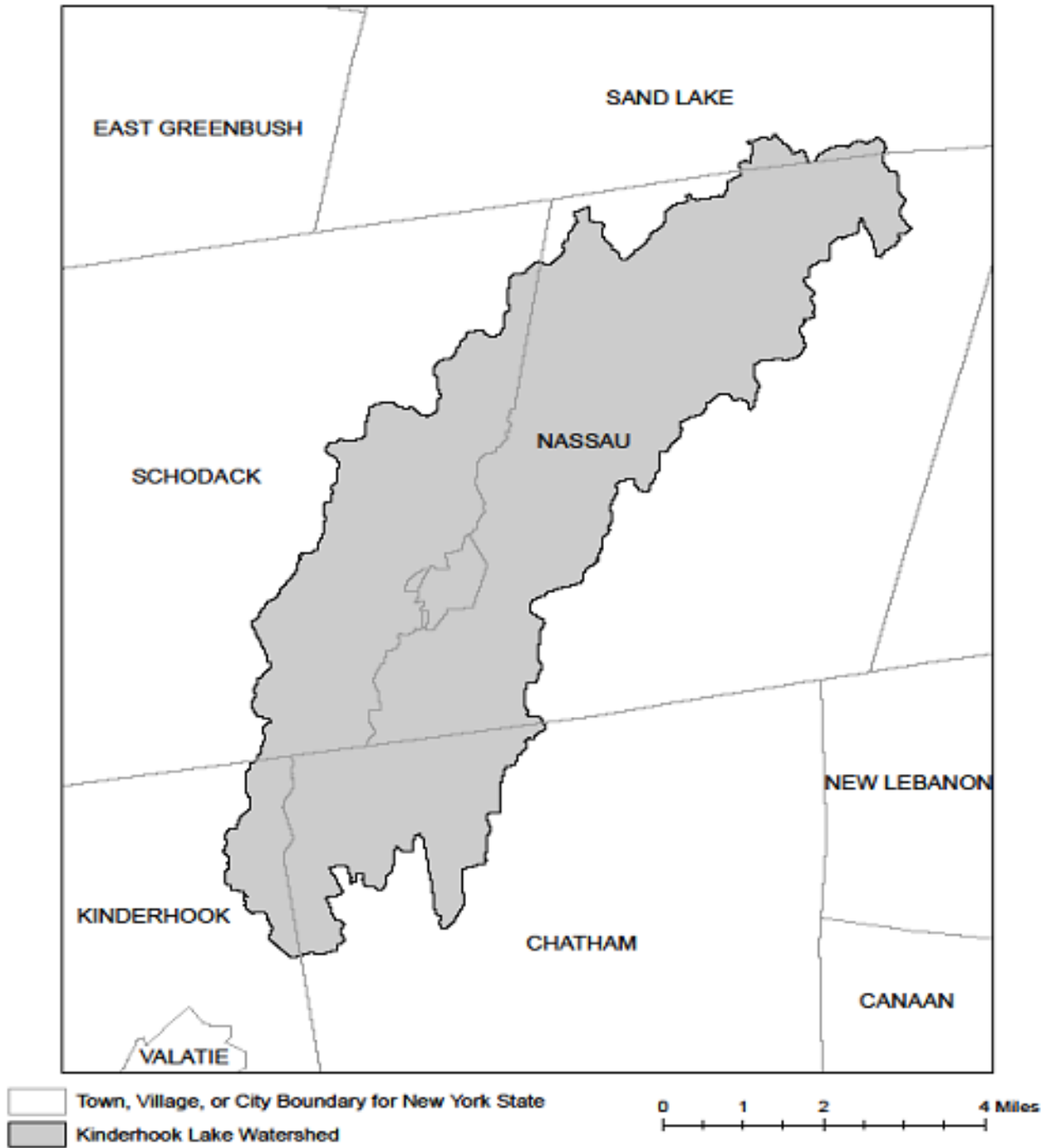


Figure 5 - Kinderhook Lake Watershed



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

Calculations

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>1</u> OF <u>9</u>
Client: DETI	Project Number: 212C-BF-00135	
Subject: Borger Compressor Replacement Project PCSM Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

Existing Conditions:

Select data and calculations from a 2010 SWPPP prepared by GAI Consultants, Inc. is included as an attachment to this calculation. The Infiltration Bed #2 designed by GAI is located directly downslope of the proposed new compressor buildings and is ideally positioned to treat the new development. Therefore, the PCSM calculations from the 2010 SWPPP were reconsidered to show that BMP # 2 could control the proposed development. The 2010 SWPPP calculations generally are understood, with some unresolved issues. The results presented in the 2010 SWPPP calculations for WQv, CPv Required, and Q_r do not match the NOI attached to the 2010 SWPPP. The 2016 SWPPP prepared by Tetra Tech used the 2010 SWPPP NOI results for WQv calculations. This will be reconsidered in the calculations below by reevaluating the 2010 SWPPP and 2016 SWPPP calculations and assuming that the 2010 SWPPP NOI contains incorrect information. Also, when evaluating the drainage areas for Bed #1 (Appendix G, Table 2 of the 2010 SWPPP) and Bed #2 (Appendix G, Table 4 of the 2010 SWPPP), the impervious areas in the tables do not match the WQv calculation. The tables were used for the calculations in this SWPPP since they have a higher impervious surface value and are more conservative.

Study Areas:

A single point of interest (POI) was selected at Infiltration Bed #2. The areas within the LOD outside of the point of interest will remain unchanged from pre-developed to post-developed conditions, so they are not considered in the PCSM calculations. The total drainage area to the POI is changed from the pre-development condition to the post-development condition due to a berm extension that captures more runoff in the post-development condition. The POI study area is 1.35 acres in the pre-development condition and 2.22 acres in the post-development condition. A sub-area is also provided in the drainage areas for the areas controlled by Infiltration Bed #1 and Infiltration Bed #2. No modifications were made to the drainage area for Bed #1; therefore, data from the 2010 SWPPP was used for the Bed #1 hydrology. Bed #1 outflow is directed to Bed #2 through stormwater pipes. The drainage area to Bed #2 is affected by the development and the hydrology has been recalculated. A PCSM Drainage Area Map, a Pre-Development Drainage Area Land Cover Map, and a Post-Development Drainage Area Land Cover Map are included as attachments to this calculation.

Offsite runoff from the north is diverted around the study area by an existing diversion berm and a proposed Diversion A. Offsite areas are therefore not included in the drainage area at the POI.

Land cover for the drainage areas was derived from a combination of site development drawings and available satellite imagery. Soil types and hydrologic soil groups within the drainage areas were taken from publicly available *USDA-NRCS Web Soil Survey* data.

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>2</u> OF <u>9</u>
Client: DETI		Project Number: 212C-BF-00135
Subject: Borger Compressor Replacement Project PCSM Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

Water Quality Volume:

Water quality volume (WQv) was calculated for two catchments. One draining to Infiltration Bed #1 and one draining to Infiltration Bed #2. All other areas outside of these two catchments are undeveloped and will be restored to existing conditions after construction. NYSDEC worksheets for calculating the WQv to produce NOI information are provided as an attachment to this calculation.

Within the WQv catchment areas there is surface gravel. However, the purpose of the gravel is to keep vegetation away from aboveground piping and equipment, not for roads or vehicle travel. The gravel is clean and uncompacted, allowing for much better infiltration than what would occur on a gravel road. This type of gravel is referred to as "Uncompacted Clean Gravel" in these calculations and is not considered to be impervious for the purpose of the WQv calculation. This is consistent with the calculations in the 2010 SWPPP.

Bed #1

$$WQv \text{ (acre-feet)} = [(P)(Rv)(A)] / 12$$

Where:

P (inches) = 90% Rainfall Event Number

A (acres) = Contributing Site Area

I (%) = Impervious Cover

$$Rv = 0.05 + 0.009I$$

The 90% rainfall event was determined to be 1.0 inch from Figure 4.1 of the *2015 New York State Stormwater Management Design Manual*. No areas on the property will be placed in a conservation easement.

$$P = 1.0 \text{ inches}$$

$$A = 0.22 \text{ acres (per the 2010 SWPPP)}$$

$$I = 0.10 \text{ acres} / 0.22 \text{ acres} = 45\% \text{ (per the 2010 SWPPP)}$$

$$Rv = 0.05 + 0.009 * 45 = 0.46$$

The resulting WQv is 0.008 acre-feet (367 cubic feet). The design volume for Bed #1 is 1,006 square feet * 4 ft * 0.4 = 1,610 cubic feet (per the 2010 SWPPP), which is adequately sized to treat the full WQv.

Bed #2

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>3</u> OF <u>9</u>
Client: DETI		Project Number: 212C-BF-00135
Subject: Borger Compressor Replacement Project PCSM Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

The 90% rainfall event was determined to be 1.0 inch from Figure 4.1 of the *2015 New York State Stormwater Management Design Manual*. No areas on the property will be placed in a conservation easement.

P = 1.0 inches
A = 2.00 acres
I = 0.53 acres / 2.00 acres = 26%
Rv = 0.05 + 0.009 * 26 = 0.29

The resulting WQv is 0.048 acre-feet (2,078 cubic feet). The design volume for Bed #2 is 2,142 square feet * 4 ft*0.4 = 3,427 cubic feet (per the 2010 SWPPP), which is adequately sized to treat the full WQv.

Pre-Treatment:

Bed #1

The pre-treatment for Infiltration Bed #1 does not need further evaluation since the area draining to the infiltration bed is unchanged between the pre-development and post-development conditions.

Bed #2

Size pre-treatment for:

1 x WQv = 0.048 ac-ft (2,078 cf)

Pea gravel pre-treatment (taken from 2010 SWPPP):

2 inches thick with porosity of 0.32 over the entire area of Bed #1
Pvfilter = (0.32)(2/12)(2142 sf) = 114 cf

Runoff into Infiltration Bed #2 is either by overland flow or via the existing culvert that will be connect at its inlet to an underdrain.

Overland flow is filtered through a 20-foot wide grass filter strip for pre-treatment. The filter strip meets the 20-width minimum, no volume calculated. The maximum flow length to the grass filter strip is 75-feet, which will maintain a sheet flow condition.

The underdrain is connected to a larger area of uncompacted clean gravel that receives runoff from the proposed impervious areas. The clean gravel will filter solids and provide pre-treatment storage volume in the void space. The pre-treatment volume includes the gravel in the underdrain trench and the clean gravel above the trench.

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>4</u> OF <u>9</u>
Client: DETI	Project Number: 212C-BF-00135	
Subject: Borger Compressor Replacement Project PCSM Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

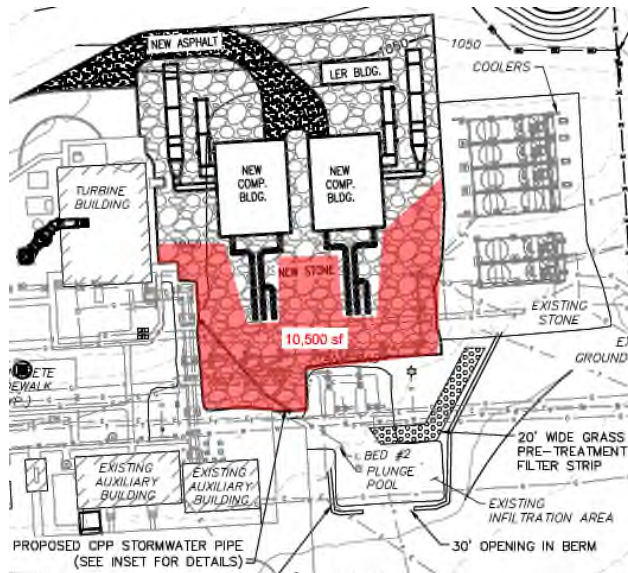
Underdrain pre-treatment:

- Bottom Width = 2'
- Depth = 1.5'
- Side Slopes = 1:1
- Top Width = 5'
- Length = 70'
- Porosity = 40%

Trench Volume = $0.4 * 70 \text{ ft} * [(2 \text{ ft} * 1.5 \text{ ft}) + (1.5 \text{ ft} * 1.5 \text{ ft})] = 0.4 * 70 \text{ ft} * 5.25 \text{ sf} = \underline{147 \text{ cf}}$

Uncompacted gravel pre-treatment:

The uncompacted clean gravel will be a minimum of 6-inches in thickness and infiltration rates below the gravel are assumed to be at least 6 in/hr based on infiltration testing in the area. Therefore, the uncompacted clean gravel will be able to provide at least 6-inches of pre-treatment storage volume over its surface area. The gravel surface area downslope of the proposed buildings is approximately 10,500 sf.



Subtracting the surface area of the underdrain reduces the effective pre-treatment surface area to:

$10,500 \text{ sf} - (70 \text{ ft} * 5 \text{ ft}) = 10,150 \text{ sf}$

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>5</u> OF <u>9</u>
Client: DETI		Project Number: 212C-BF-00135
Subject: Borger Compressor Replacement Project PCSM Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

$$\text{Treatment Volume} = 10,150 \text{ sf} * 0.5 \text{ ft} * 0.4 = \underline{2,030 \text{ cf}}$$

$$\text{Bed \#2 pre-treatment} = 114 \text{ cf} + 147 \text{ cf} + 2,030 \text{ cf} = 2,291 \text{ cf} > 2,078 \text{ cf}$$

Channel Protection and Flood Control:

Peak discharge rates were determined using TR-55 by computer modeling with Bentley PondPack. The 1-, 10-, and 100-year 24-hour storm events were analyzed in PondPack to determine pre- and post-development peak discharge rates. Rainfall amounts for the 1-, 10-, and 100-year 24-hour storm events were obtained from *NOAA Atlas 14, Volume 10, Version 3* and are 2.0, 3.9 inches, and 6.0 inches respectively. The time of concentration paths for all drainage areas studied enter onsite developed areas within the first ~100-feet. All time of concentration values are taken to be the minimum value of 5-minutes. The PondPack model report is provided as an attachment to this calculation.

Curve numbers (CN) for each catchment were determined by overlaying available land cover and soil maps as shown in the attachments. Typical CN numbers were selected based on the standard TR-55 CN tables. The exception is for Uncompacted Clean Gravel. The 2010 SWPPP assigns a CN value of 46 to this type of gravel with a direct 40% reduction based on the void space of the gravel. This approach likely underestimates the actual CN value. To provide a more conservative value the following calculation was used to determine the CN value for Uncompacted Clean Gravel:

$$S = (1000/CN) - 10 \quad \text{[from TR-55, potential maximum retention after runoff begins]}$$

$$CN = 76 \quad \text{[from TR-55, Impervious Gravel, A Type Soils]}$$

$$S = (1000/76) - 10 = 3.16 \text{ inches}$$

The porosity of a loose, clean gravel is estimated to be 0.32 and the porosity of a compacted silty gravel is estimated to be 0.15 per *Swiss Standard SN 670 010b, Characteristic Coefficients of soils, Association of Swiss Road and Traffic Engineers*. Therefore, the adjustment to the S value based on the estimated porosity ratio is:

$$3.16 \text{ inches} * 0.32/0.15 = 6.74 \text{ inches}$$

and the adjusted CN is:

$$CN = 1000 / (S+10) = 1000 / (6.74+10) = \mathbf{60}$$

The PondPack results for the peak discharge at POI-1 without providing SMP controls are summarized in Table 1. The table indicates that peak discharge rate reduction is required for all storm events.

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>6</u> OF <u>9</u>
Client: DETI		Project Number: 212C-BF-00135
Subject: Borger Compressor Replacement Project PCSM Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

Table 1 –Peak Discharge without SMP Controls

Description	Peak Discharge Rate (cfs)		
	1-Year Storm	10-Year Storm	100-Year Storm
Pre-Development	0.00	0.00	0.00
Post-Development	0.05	2.44	6.90

Note: Post-development runoff is the sum of the post-development controlled areas and the post-development uncontrolled area.

The dimensions and storage volumes provided in the 2010 SWPPP for Infiltration Bed #1 and Infiltration Bed #2 were used to model each of the infiltration bed SMP's in the PondPack model. The gravel portion of each infiltration bed was modeled using a 40% void space ratio.

Table 2 - Bed #1 Volumes

Elevation (ft)	Area (sq-ft)	Voids (%)	Total Volume (cu-ft)	Total Volume (ac-ft)
1046	1006	40	0	0.0000
1050	1006	40	1609.6	0.0370
1051	1006	100	2615.6	0.0600

Table 3 - Bed #2 Volumes

Elevation (ft)	Area (sq-ft)	Voids (%)	Total Volume (cu-ft)	Total Volume (ac-ft)
1036.5	2142	40	0	0.0000
1040.5	2142	40	3427.2	0.0787
1041.5	2142	100	5569.2	0.1279

It was determined that the high infiltration rate soils present onsite could affect flood control capacity, so a constant rate of removal was assessed for each SMP based on an infiltration rate.

For Infiltration Bed #1 the 100-year storm is retained within the SMP without accounting for infiltration, so no infiltration was included in the model.

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>7</u> OF <u>9</u>
Client: DETI	Project Number: 212C-BF-00135	
Subject: Borger Compressor Replacement Project PCSM Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

The 2010 SWPPP included two infiltration tests within Infiltration Bed #2. The test results showed an infiltration of 0.1 inches per second for one test and the other test infiltrated too fast to measure. The test result of 0.1 in/s (360 in/hr) is an extremely fast rate. Over the Infiltration Bed #2 surface area of 2,142 sf, the outflow due to infiltration would be:

$$2,142 \text{ sf} * 0.1 \text{ in/s} * 1 \text{ ft}/12 \text{ in} = 17.85 \text{ cfs}$$

The Bed #2 outflow of 17.85 cfs due to infiltration exceeds the 100-year storm inflow to Bed #2 of 5.84 cfs resulting in no storage volume required. While anecdotal evidence indicates that this infiltration rate is accurate, to demonstrate the flood control performance of Bed #2 at a lower than tested infiltration rate, a safety factor of 3 was applied to the infiltration outflow rate. With the safety factor applied, the constant infiltration rate used in the PondPack model for BMP #2 is:

$$17.85 \text{ cfs} / 3 = 5.95 \text{ cfs}$$

The PondPack model results at POI-1 with the post-development controlled catchments routed through Infiltration Bed #1 and Infiltration Bed # 2 are presented in Table 4.

Table 4 - Peak Discharge with SMP Controls

Storm Event (years)	Total Pre-Development Peak Flow (cfs)	Total Post-Development Peak Flow (cfs)	Total Difference Post-Pre (cfs)	Flow Decrease
1 (Cpv)	0.00	0.0	0.0	Same
10 (Qp)	0.00	0.0	0.0	Same
100 (Qf)	0.00	0.0	0.0	Same

Cpv

Stream Channel Protection Volume Requirements (Cpv) are designed to protect stream channels from erosion. In New York State this goal is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event, remained from runoff reduction. According to the *2015 NY State Stormwater Management Design Manual*, "the Cpv requirement does not apply in certain conditions, including the following: reduction of the entire Cpv volume is achieved at a site through green infrastructure or infiltration systems."

The 1-year, 24-hour storm event is shown by the PondPack to be entirely contained within the two infiltration beds (no peak flow discharge from either bed). Therefore, reduction of the entire Cpv volume is achieved through infiltration systems.

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>8</u> OF <u>9</u>
Client: DETI		Project Number: 212C-BF-00135
Subject: Borger Compressor Replacement Project PCSM Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

Qp

Overbank control requires storage to attenuate the post development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. As indicated in the Table 4, the post development 10-year, 24-hour peak discharge rate is the same as the pre-development discharge rate.

Qf

Overbank control requires storage to attenuate the post development 100-year, 24-hour peak discharge rate (Qp) to predevelopment rates. As indicated in the Table 4, the post development 100-year, 24-hour peak discharge rate is the same as the pre-development discharge rate.

Permanent Diversion:

Design Criteria:

The minimum capacity shall be adequate to carry the peak rate of runoff from a 100-year, 24-hour storm.

Diversion A:

Drainage area figures are attached to this calculation that show the drainage area to Diversion A, including the land cover types and the time of concentration. Peak discharge rates were determined using TR-55 by computer modeling with WinTR-55. The 10-year and 100-year, 24-hour storm events were analyzed in WinTR-55 to determine peak discharge rates for the channel. The rainfall amount for the 24-hour storm events were obtained from NOAA Atlas 14, Volume 10, Version 3. The WinTR-55 model report is provided as an attachment to this calculation. The 10-year, 24-hour storm event peak discharge rate is 13.26 cfs and the 100-year, 24-hour storm event peak discharge rate is 35.11 cfs.

Manning's equation was used to determine diversion hydrology by computer modeling with Bentley FlowMaster. The diversion is an 18-inch deep, 8-foot top width parabolic channel with vegetated open ArmorFlex lining. The FlowMaster report is provided as an attachment to this calculation. The FlowMaster results show that Diversion A has a flow depth of 17.5 inches. This design gives Diversion A a freeboard of 0.5 inches for the 100-year 24-hour storm.

Flow Spreader:

Design Criteria:

The peak stormwater flow rate to a flow spreader due to runoff from a 10- year 24-hour storm must be less than 0.5 cubic feet per second per foot length of flow spreader lip. The flow spreader length may not be more than 30 feet if flow is entering from one end of the spreader. Longer lengths require flow to split evenly from the center of the spreader.

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>9</u> OF <u>9</u>
Client: DETI		Project Number: 212C-BF-00135
Subject: Borger Compressor Replacement Project PCSM Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

Diversion Drain Level Spreader:

Per the diversion drain calculations, the 10-year 24-hour storm event peak discharge rate for the flow spreader is 13.26 cfs. The flow spreader length is determined by 0.5 cfs/foot per the *New York State Standards and Specifications for Erosion and Sediment Control*. The level spreader length is:

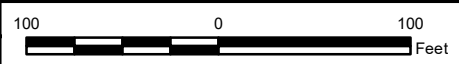
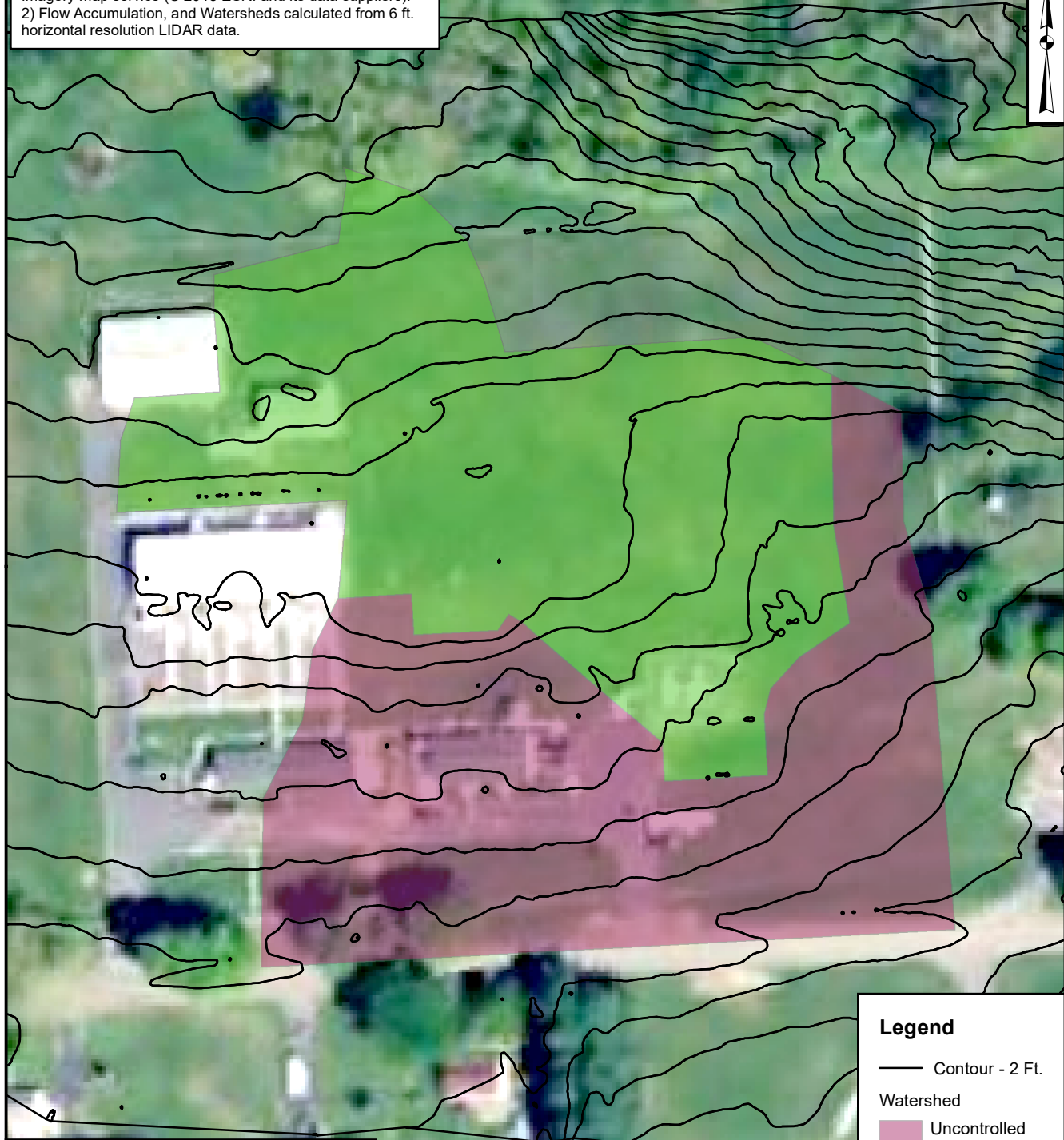
$$13.26 \text{ cfs} / 0.5 \text{ cfs/foot} = 26.5 \text{ feet}$$

The spreader length provided is 27-feet. An ArmorFlex lined lip will be used for a permanent installation.

PCSM Calculation Attachments:

- Figure 1 – PCSM Drainage Area Map**
- Figure 2 – Pre-Development Drainage Area Land Cover Map**
- Figure 3 – Post-Development Drainage Area Land Cover Map**
- Figure 4 – Offsite PCSM Drainage Area Map**
- Figure 5 – Offsite PCSM Drainage Area Land Cover Map**
- PondPack Report**
- Soil Map and HSG Data**
- NOAA Atlas 14 Point Precipitation Frequency Estimates**
- NYSDEC GI Worksheets**
- GAI 2010 Stormwater Calculations**
- WinTR-55 Report**
- FlowMaster Report**

Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2013 ESRI and its data suppliers).
2) Flow Accumulation, and Watersheds calculated from 6 ft. horizontal resolution LIDAR data.



Legend

- Contour - 2 Ft.
- Watershed
 - Uncontrolled
 - Controlled

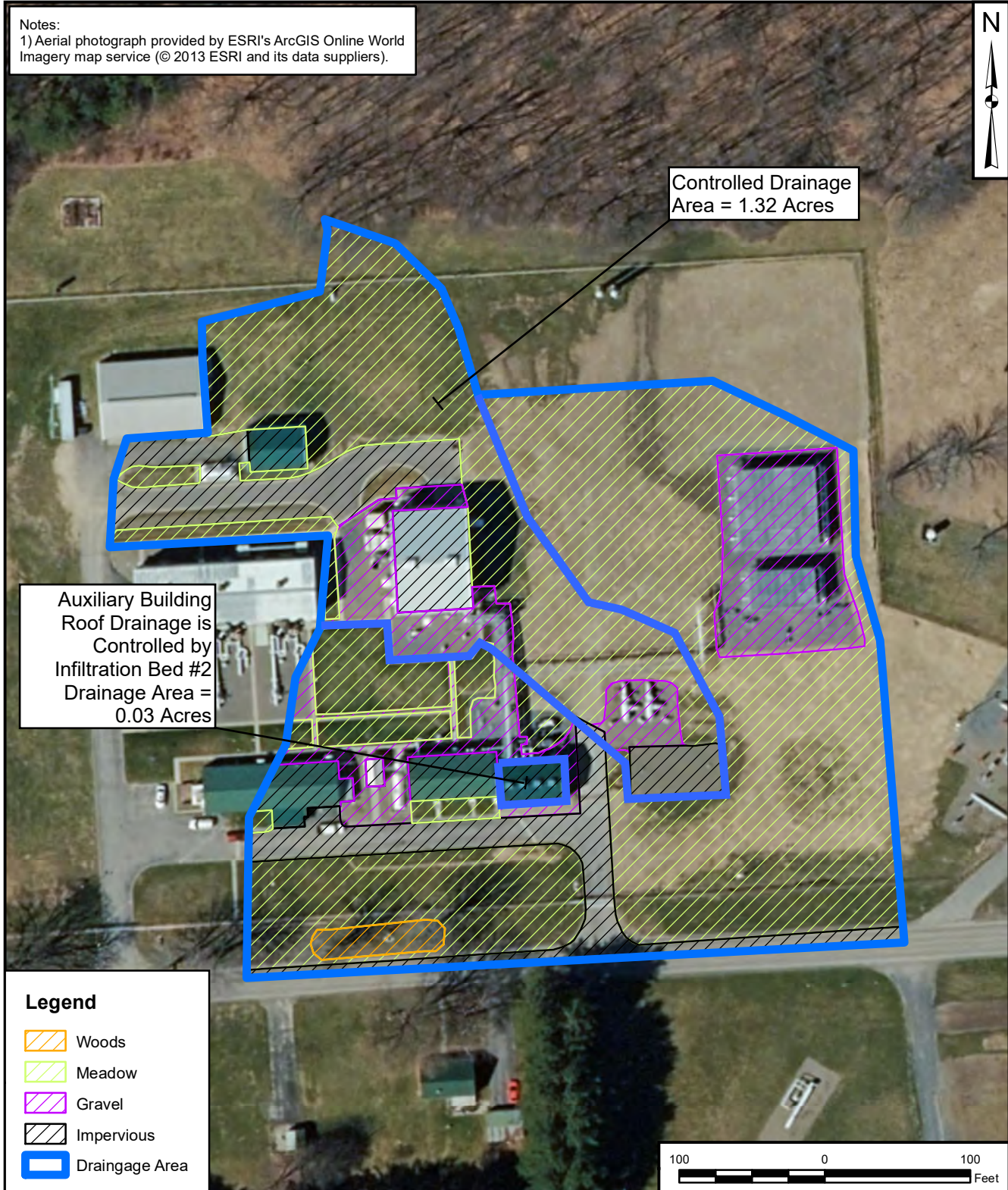


STORMWATER DRAINAGE AREA MAP
CALCULATED WATERSHEDS
BORGER COMPRESSOR STATION
DOMINION TRANSMISSION, INC.
TOMPKINS COUNTY, NEW YORK

DRAWN BY: T. TEAFORD 07/22/20
CHECKED BY: T. DUNAWAY 07/22/20
APPROVED BY:
CONTRACT NUMBER: 112C06473

FIGURE NUMBER	A-6	REV	0
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Notes:
 1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2013 ESRI and its data suppliers).



Legend

-  Woods
-  Meadow
-  Gravel
-  Impervious
-  Drainage Area



PRE-DEVELOPMENT DRAINAGE AREA
 LAND COVER MAP

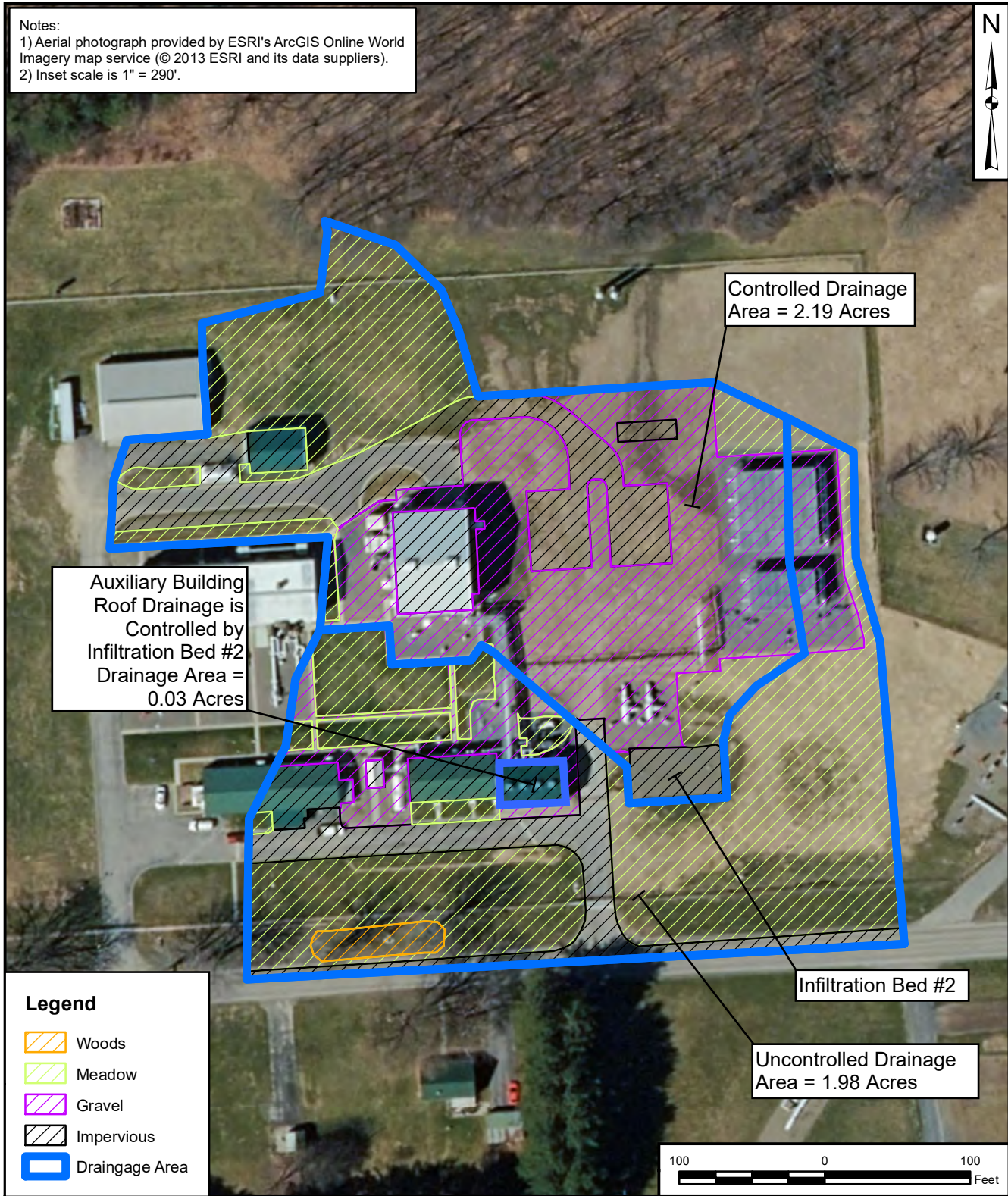
BORGER COMPRESSOR REPLACEMENT PROJECT
 TOMPKINS COUNTY, NEW YORK

DOMINION ENERGY TRANSMISSION, INC.

DRAWN BY: T. TEAFORD 01/27/20	
CHECKED BY: T. DUNAWAY 01/27/20	
APPROVED BY:	
CONTRACT NUMBER: 212C-BF-00135	
FIGURE NUMBER	REV
2	0

Notes:

- 1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2013 ESRI and its data suppliers).
- 2) Inset scale is 1" = 290'.



Auxiliary Building
Roof Drainage is
Controlled by
Infiltration Bed #2
Drainage Area =
0.03 Acres

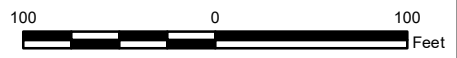
Controlled Drainage
Area = 2.19 Acres

Infiltration Bed #2

Uncontrolled Drainage
Area = 1.98 Acres

Legend

- Woods
- Meadow
- Gravel
- Impervious
- Drainage Area

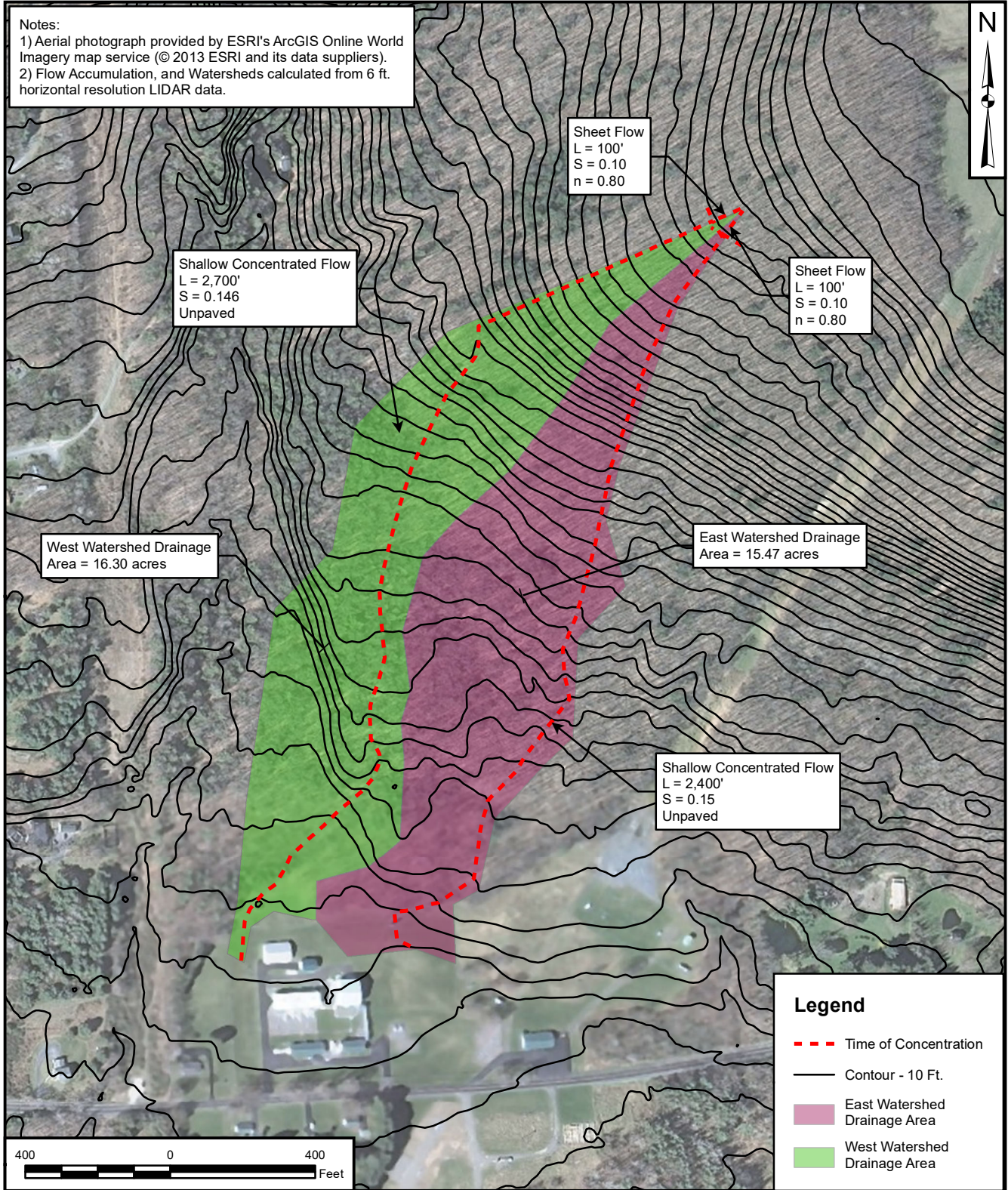


POST-DEVELOPMENT DRAINAGE AREA
LAND COVER MAP

BORGER COMPRESSOR REPLACEMENT PROJECT
TOMPKINS COUNTY, NEW YORK

DOMINION ENERGY TRANSMISSION, INC.

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CHECKED BY: T. DUNAWAY 01/27/20	
APPROVED BY:	
CONTRACT NUMBER: 212C-BF-00135	
FIGURE NUMBER	REV
3	0



OFFSITE PCSM DRAINAGE AREA MAP

BORGER COMPRESSOR REPLACEMENT PROJECT
TOMPKINS COUNTY, NEW YORK

DOMINION ENERGY TRANSMISSION, INC.

DRAWN BY: T. TEAFORD 07/22/20
 CHECKED BY: T. DUNAWAY 07/22/20
 APPROVED BY:

CONTRACT NUMBER: 212C-BF-00135

FIGURE NUMBER	REV
4	0

Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2013 ESRI and its data suppliers).



Legend

-  Woods
-  Meadow
-  Drainage Area



OFFSITE PCSM DRAINAGE AREA MAP
BORGER COMPRESSOR REPLACEMENT PROJECT
TOMPKINS COUNTY, NEW YORK
DOMINION ENERGY TRANSMISSION, INC.

DRAWN BY: T. TEAFORD 07/22/20
CHECKED BY: T. DUNAWAY 07/22/20
APPROVED BY:
CONTRACT NUMBER: 212C-BF-00135

FIGURE NUMBER	4	REV	0
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Scenario: 100-year

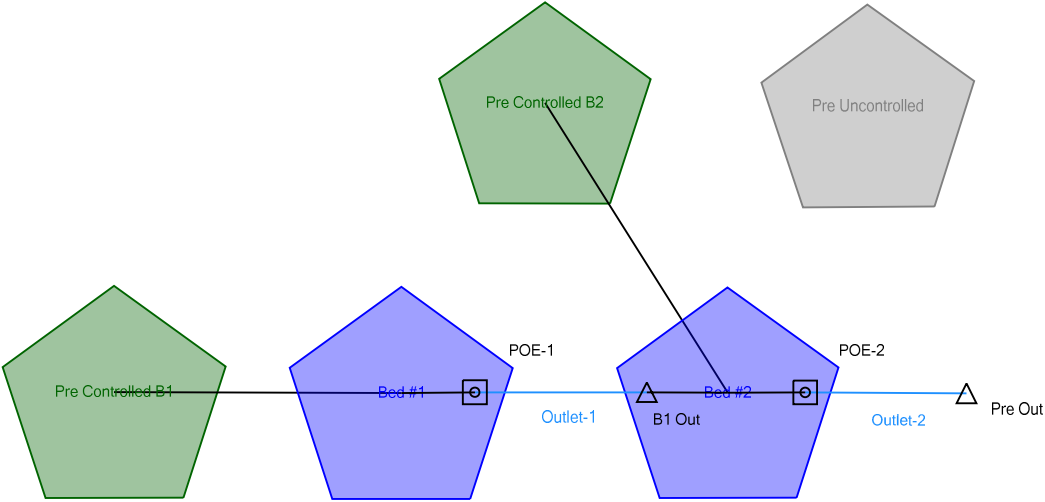


Table of Contents

	Master Network Summary	1
Time-Depth - 1		
	Time-Depth Curve, 100 years	2
	Time-Depth Curve, 10 years	4
	Time-Depth Curve, 1 years	6
Pre Controlled B1		
	Runoff CN-Area, 1 years	8
Pre Controlled B2		
	Runoff CN-Area, 1 years	9
Bed #1		
	Elevation vs. Volume Curve, 1 years	10
Bed #2		
	Elevation vs. Volume Curve, 1 years	11
Bed 1		
	Outlet Input Data, 1 years	12
Bed 2		
	Outlet Input Data, 1 years	14

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)
Pre Controlled B1	1-year	1	0.001	12.350	0.00
Pre Controlled B1	10-year	10	0.014	12.000	0.23
Pre Controlled B1	100-year	100	0.037	11.950	0.66
Pre Controlled B2	1-year	1	0.000	24.000	0.00
Pre Controlled B2	10-year	10	0.032	12.000	0.35
Pre Controlled B2	100-year	100	0.114	12.000	1.86

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)
Pre Out	1-year	1	0.000	0.000	0.00
Pre Out	10-year	10	0.000	0.000	0.00
Pre Out	100-year	100	0.000	0.000	0.00

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Bed #2 (IN)	1-year	1	0.000	24.000	0.00	(N/A)	(N/A)
Bed #2 (OUT)	1-year	1	0.000	0.000	0.00	1,036.50	0.000
Bed #2 (IN)	10-year	10	0.032	12.000	0.35	(N/A)	(N/A)
Bed #2 (OUT)	10-year	10	0.000	0.000	0.00	1,036.50	0.000
Bed #2 (IN)	100-year	100	0.114	12.000	1.86	(N/A)	(N/A)
Bed #2 (OUT)	100-year	100	0.000	0.000	0.00	1,036.50	0.000
Bed #1 (IN)	1-year	1	0.001	12.350	0.00	(N/A)	(N/A)
Bed #1 (OUT)	1-year	1	0.000	0.000	0.00	1,046.15	0.001
Bed #1 (IN)	10-year	10	0.014	12.000	0.23	(N/A)	(N/A)
Bed #1 (OUT)	10-year	10	0.000	0.000	0.00	1,047.51	0.014
Bed #1 (IN)	100-year	100	0.037	11.950	0.66	(N/A)	(N/A)
Bed #1 (OUT)	100-year	100	0.000	0.000	0.00	1,049.97	0.037

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 100 years
 Storm Event: 100-year

Time-Depth Curve: 100-year

Label	100-year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.2	0.2
2.500	0.2	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.3	0.3	0.3	0.3
4.000	0.3	0.3	0.3	0.3	0.3
4.500	0.3	0.3	0.3	0.4	0.4
5.000	0.4	0.4	0.4	0.4	0.4
5.500	0.4	0.4	0.4	0.5	0.5
6.000	0.5	0.5	0.5	0.5	0.5
6.500	0.5	0.5	0.6	0.6	0.6
7.000	0.6	0.6	0.6	0.6	0.6
7.500	0.7	0.7	0.7	0.7	0.7
8.000	0.7	0.7	0.7	0.8	0.8
8.500	0.8	0.8	0.8	0.8	0.9
9.000	0.9	0.9	0.9	0.9	1.0
9.500	1.0	1.0	1.0	1.0	1.1
10.000	1.1	1.1	1.1	1.2	1.2
10.500	1.2	1.3	1.3	1.3	1.4
11.000	1.4	1.5	1.5	1.6	1.6
11.500	1.7	1.8	2.1	2.6	3.4
12.000	4.0	4.1	4.2	4.3	4.4
12.500	4.4	4.5	4.5	4.6	4.6
13.000	4.6	4.7	4.7	4.7	4.8
13.500	4.8	4.8	4.8	4.9	4.9
14.000	4.9	4.9	5.0	5.0	5.0
14.500	5.0	5.0	5.1	5.1	5.1
15.000	5.1	5.1	5.2	5.2	5.2
15.500	5.2	5.2	5.2	5.3	5.3
16.000	5.3	5.3	5.3	5.3	5.3
16.500	5.3	5.4	5.4	5.4	5.4
17.000	5.4	5.4	5.4	5.4	5.5
17.500	5.5	5.5	5.5	5.5	5.5

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 100 years
 Storm Event: 100-year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
18.000	5.5	5.5	5.5	5.6	5.6
18.500	5.6	5.6	5.6	5.6	5.6
19.000	5.6	5.6	5.6	5.7	5.7
19.500	5.7	5.7	5.7	5.7	5.7
20.000	5.7	5.7	5.7	5.7	5.7
20.500	5.8	5.8	5.8	5.8	5.8
21.000	5.8	5.8	5.8	5.8	5.8
21.500	5.8	5.8	5.8	5.8	5.9
22.000	5.9	5.9	5.9	5.9	5.9
22.500	5.9	5.9	5.9	5.9	5.9
23.000	5.9	5.9	5.9	6.0	6.0
23.500	6.0	6.0	6.0	6.0	6.0
24.000	6.0	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 10 years
 Storm Event: 10-year

Time-Depth Curve: 10-year

Label	10-year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.2	0.2	0.2	0.2	0.2
5.000	0.2	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.3
6.000	0.3	0.3	0.3	0.3	0.3
6.500	0.3	0.4	0.4	0.4	0.4
7.000	0.4	0.4	0.4	0.4	0.4
7.500	0.4	0.4	0.4	0.5	0.5
8.000	0.5	0.5	0.5	0.5	0.5
8.500	0.5	0.5	0.5	0.5	0.6
9.000	0.6	0.6	0.6	0.6	0.6
9.500	0.6	0.6	0.7	0.7	0.7
10.000	0.7	0.7	0.7	0.8	0.8
10.500	0.8	0.8	0.8	0.9	0.9
11.000	0.9	0.9	1.0	1.0	1.1
11.500	1.1	1.2	1.4	1.7	2.2
12.000	2.6	2.7	2.7	2.8	2.8
12.500	2.9	2.9	2.9	3.0	3.0
13.000	3.0	3.0	3.1	3.1	3.1
13.500	3.1	3.1	3.2	3.2	3.2
14.000	3.2	3.2	3.2	3.2	3.3
14.500	3.3	3.3	3.3	3.3	3.3
15.000	3.3	3.3	3.4	3.4	3.4
15.500	3.4	3.4	3.4	3.4	3.4
16.000	3.4	3.4	3.4	3.5	3.5
16.500	3.5	3.5	3.5	3.5	3.5
17.000	3.5	3.5	3.5	3.5	3.5
17.500	3.6	3.6	3.6	3.6	3.6

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 10 years
 Storm Event: 10-year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
18.000	3.6	3.6	3.6	3.6	3.6
18.500	3.6	3.6	3.6	3.6	3.7
19.000	3.7	3.7	3.7	3.7	3.7
19.500	3.7	3.7	3.7	3.7	3.7
20.000	3.7	3.7	3.7	3.7	3.7
20.500	3.7	3.7	3.7	3.8	3.8
21.000	3.8	3.8	3.8	3.8	3.8
21.500	3.8	3.8	3.8	3.8	3.8
22.000	3.8	3.8	3.8	3.8	3.8
22.500	3.8	3.8	3.8	3.8	3.9
23.000	3.9	3.9	3.9	3.9	3.9
23.500	3.9	3.9	3.9	3.9	3.9
24.000	3.9	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 1 years
 Storm Event: 1-year

Time-Depth Curve: 1-year

Label	1-year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	1 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.0
1.500	0.0	0.0	0.0	0.0	0.0
2.000	0.0	0.0	0.0	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.1
3.500	0.1	0.1	0.1	0.1	0.1
4.000	0.1	0.1	0.1	0.1	0.1
4.500	0.1	0.1	0.1	0.1	0.1
5.000	0.1	0.1	0.1	0.1	0.1
5.500	0.1	0.1	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.2	0.2
6.500	0.2	0.2	0.2	0.2	0.2
7.000	0.2	0.2	0.2	0.2	0.2
7.500	0.2	0.2	0.2	0.2	0.2
8.000	0.2	0.2	0.3	0.3	0.3
8.500	0.3	0.3	0.3	0.3	0.3
9.000	0.3	0.3	0.3	0.3	0.3
9.500	0.3	0.3	0.3	0.4	0.4
10.000	0.4	0.4	0.4	0.4	0.4
10.500	0.4	0.4	0.4	0.4	0.5
11.000	0.5	0.5	0.5	0.5	0.5
11.500	0.6	0.6	0.7	0.9	1.1
12.000	1.3	1.4	1.4	1.4	1.5
12.500	1.5	1.5	1.5	1.5	1.5
13.000	1.6	1.6	1.6	1.6	1.6
13.500	1.6	1.6	1.6	1.6	1.6
14.000	1.7	1.7	1.7	1.7	1.7
14.500	1.7	1.7	1.7	1.7	1.7
15.000	1.7	1.7	1.7	1.7	1.7
15.500	1.8	1.8	1.8	1.8	1.8
16.000	1.8	1.8	1.8	1.8	1.8
16.500	1.8	1.8	1.8	1.8	1.8
17.000	1.8	1.8	1.8	1.8	1.8
17.500	1.8	1.8	1.8	1.9	1.9

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 1 years
 Storm Event: 1-year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
18.000	1.9	1.9	1.9	1.9	1.9
18.500	1.9	1.9	1.9	1.9	1.9
19.000	1.9	1.9	1.9	1.9	1.9
19.500	1.9	1.9	1.9	1.9	1.9
20.000	1.9	1.9	1.9	1.9	1.9
20.500	1.9	1.9	1.9	1.9	1.9
21.000	1.9	2.0	2.0	2.0	2.0
21.500	2.0	2.0	2.0	2.0	2.0
22.000	2.0	2.0	2.0	2.0	2.0
22.500	2.0	2.0	2.0	2.0	2.0
23.000	2.0	2.0	2.0	2.0	2.0
23.500	2.0	2.0	2.0	2.0	2.0
24.000	2.0	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Runoff CN-Area
 Label: Pre Controlled B1

Return Event: 1 years
 Storm Event: 1-year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil A	98.000	0.100	0.0	0.0	98.000
Meadow - cont. grass (non grazed) - ---- - Soil A	30.000	0.120	0.0	0.0	30.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.220	(N/A)	(N/A)	60.909

Subsection: Runoff CN-Area
 Label: Pre Controlled B2

Return Event: 1 years
 Storm Event: 1-year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Uncompacted Clean Gravel	60.000	0.160	0.0	0.0	60.000
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil A	98.000	0.279	0.0	0.0	98.000
Meadow - cont. grass (non grazed) - ---- - Soil A	30.000	0.690	0.0	0.0	30.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.129	(N/A)	(N/A)	51.056

Subsection: Elevation vs. Volume Curve
Label: Bed #1

Return Event: 1 years
Storm Event: 1-year

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
1,046.00	0.000
1,050.00	0.037
1,051.00	0.060

Subsection: Elevation vs. Volume Curve
Label: Bed #2

Return Event: 1 years
Storm Event: 1-year

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
1,036.50	0.000
1,040.50	0.079
1,041.50	0.128

Subsection: Outlet Input Data
Label: Bed 1

Return Event: 1 years
Storm Event: 1-year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	1,046.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	1,051.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir Tailwater Settings	Weir - 1 Tailwater	Forward	TW	1,050.00 (N/A)	1,051.00 (N/A)

Subsection: Outlet Input Data
Label: Bed 1

Return Event: 1 years
Storm Event: 1-year

Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
<hr/>	
Number of Openings	1
Elevation	1,050.00 ft
Weir Length	1.80 ft
Weir Coefficient	3.10 (ft ^{0.5})/s
<hr/>	
Structure ID: TW	
Structure Type: TW Setup, DS Channel	
<hr/>	
Tailwater Type	Free Outfall
<hr/>	
Convergence Tolerances	
<hr/>	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft ³ /s
Flow Tolerance (Maximum)	10.000 ft ³ /s

Subsection: Outlet Input Data
Label: Bed 2

Return Event: 1 years
Storm Event: 1-year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	1,036.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	1,041.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir Tailwater Settings	Weir - 1 Tailwater	Forward	TW	1,040.50 (N/A)	1,041.50 (N/A)

Subsection: Outlet Input Data
Label: Bed 2

Return Event: 1 years
Storm Event: 1-year

Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
<hr/>	
Number of Openings	1
Elevation	1,040.50 ft
Weir Length	30.00 ft
Weir Coefficient	3.10 (ft ^{0.5})/s
<hr/>	
Structure ID: TW	
Structure Type: TW Setup, DS Channel	
<hr/>	
Tailwater Type	Free Outfall
<hr/>	
Convergence Tolerances	
<hr/>	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft ³ /s
Flow Tolerance (Maximum)	10.000 ft ³ /s

Index

B

Bed #1 (Elevation vs. Volume Curve, 1 years)...10

Bed #2 (Elevation vs. Volume Curve, 1 years)...11

Bed 1 (Outlet Input Data, 1 years)...12, 13

Bed 2 (Outlet Input Data, 1 years)...14, 15

M

Master Network Summary...1

P

Pre Controlled B1 (Runoff CN-Area, 1 years)...8

Pre Controlled B2 (Runoff CN-Area, 1 years)...9

T

Time-Depth - 1 (Time-Depth Curve, 1 years)...6, 7

Time-Depth - 1 (Time-Depth Curve, 10 years)...4, 5

Time-Depth - 1 (Time-Depth Curve, 100 years)...2, 3

Scenario: 100-year

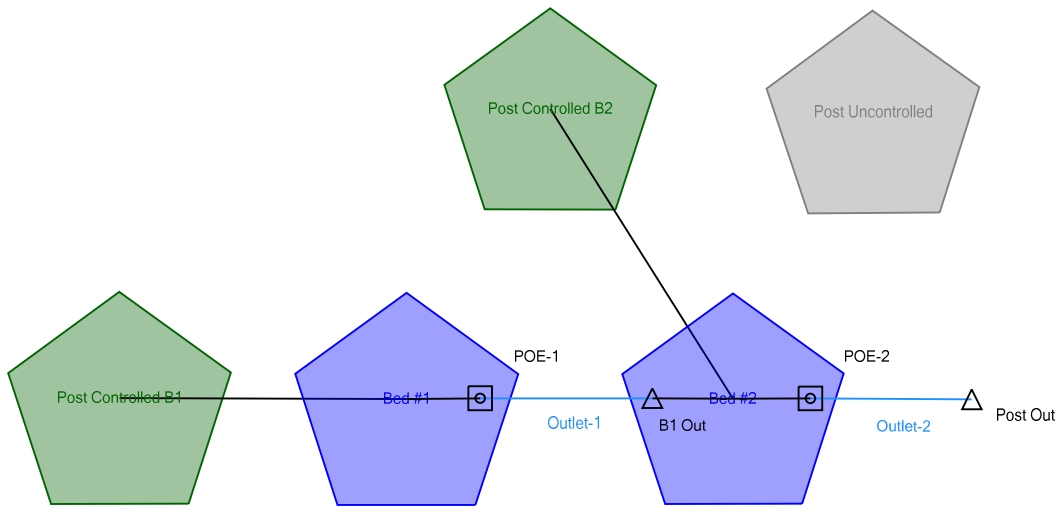


Table of Contents

	Master Network Summary	1
Time-Depth - 1		
	Time-Depth Curve, 100 years	2
	Time-Depth Curve, 10 years	4
	Time-Depth Curve, 1 years	6
Post Controlled B1		
	Runoff CN-Area, 1 years	8
Post Controlled B2		
	Runoff CN-Area, 1 years	9
Bed #1		
	Elevation vs. Volume Curve, 1 years	10
Bed #2		
	Elevation vs. Volume Curve, 1 years	11
Bed 1		
	Outlet Input Data, 1 years	12
Bed 2		
	Outlet Input Data, 1 years	14

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)
Post Controlled B1	1-year	1	0.001	12.350	0.00
Post Controlled B1	10-year	10	0.014	12.000	0.23
Post Controlled B1	100-year	100	0.037	11.950	0.66
Post Controlled B2	1-year	1	0.015	12.050	0.05
Post Controlled B2	10-year	10	0.135	12.000	2.21
Post Controlled B2	100-year	100	0.348	11.950	6.24

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)
Post Out	1-year	1	0.000	0.000	0.00
Post Out	10-year	10	0.000	0.000	0.00
Post Out	100-year	100	0.000	0.000	0.00

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Bed #2 (IN)	1-year	1	0.015	12.050	0.05	(N/A)	(N/A)
Bed #2 (OUT)	1-year	1	0.000	0.000	0.00	1,036.50	0.000
Bed #2 (IN)	10-year	10	0.135	12.000	2.21	(N/A)	(N/A)
Bed #2 (OUT)	10-year	10	0.000	0.000	0.00	1,036.50	0.000
Bed #2 (IN)	100-year	100	0.348	11.950	6.24	(N/A)	(N/A)
Bed #2 (OUT)	100-year	100	0.000	0.000	0.00	1,037.17	0.013
Bed #1 (IN)	1-year	1	0.001	12.350	0.00	(N/A)	(N/A)
Bed #1 (OUT)	1-year	1	0.000	0.000	0.00	1,046.15	0.001
Bed #1 (IN)	10-year	10	0.014	12.000	0.23	(N/A)	(N/A)
Bed #1 (OUT)	10-year	10	0.000	0.000	0.00	1,047.51	0.014
Bed #1 (IN)	100-year	100	0.037	11.950	0.66	(N/A)	(N/A)
Bed #1 (OUT)	100-year	100	0.000	0.000	0.00	1,049.97	0.037

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 100 years
 Storm Event: 100-year

Time-Depth Curve: 100-year

Label	100-year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.2	0.2
2.500	0.2	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.3	0.3	0.3	0.3
4.000	0.3	0.3	0.3	0.3	0.3
4.500	0.3	0.3	0.3	0.4	0.4
5.000	0.4	0.4	0.4	0.4	0.4
5.500	0.4	0.4	0.4	0.5	0.5
6.000	0.5	0.5	0.5	0.5	0.5
6.500	0.5	0.5	0.6	0.6	0.6
7.000	0.6	0.6	0.6	0.6	0.6
7.500	0.7	0.7	0.7	0.7	0.7
8.000	0.7	0.7	0.7	0.8	0.8
8.500	0.8	0.8	0.8	0.8	0.9
9.000	0.9	0.9	0.9	0.9	1.0
9.500	1.0	1.0	1.0	1.0	1.1
10.000	1.1	1.1	1.1	1.2	1.2
10.500	1.2	1.3	1.3	1.3	1.4
11.000	1.4	1.5	1.5	1.6	1.6
11.500	1.7	1.8	2.1	2.6	3.4
12.000	4.0	4.1	4.2	4.3	4.4
12.500	4.4	4.5	4.5	4.6	4.6
13.000	4.6	4.7	4.7	4.7	4.8
13.500	4.8	4.8	4.8	4.9	4.9
14.000	4.9	4.9	5.0	5.0	5.0
14.500	5.0	5.0	5.1	5.1	5.1
15.000	5.1	5.1	5.2	5.2	5.2
15.500	5.2	5.2	5.2	5.3	5.3
16.000	5.3	5.3	5.3	5.3	5.3
16.500	5.3	5.4	5.4	5.4	5.4
17.000	5.4	5.4	5.4	5.4	5.5
17.500	5.5	5.5	5.5	5.5	5.5

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 100 years
 Storm Event: 100-year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
18.000	5.5	5.5	5.5	5.6	5.6
18.500	5.6	5.6	5.6	5.6	5.6
19.000	5.6	5.6	5.6	5.7	5.7
19.500	5.7	5.7	5.7	5.7	5.7
20.000	5.7	5.7	5.7	5.7	5.7
20.500	5.8	5.8	5.8	5.8	5.8
21.000	5.8	5.8	5.8	5.8	5.8
21.500	5.8	5.8	5.8	5.8	5.9
22.000	5.9	5.9	5.9	5.9	5.9
22.500	5.9	5.9	5.9	5.9	5.9
23.000	5.9	5.9	5.9	6.0	6.0
23.500	6.0	6.0	6.0	6.0	6.0
24.000	6.0	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 10 years
 Storm Event: 10-year

Time-Depth Curve: 10-year

Label	10-year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.2	0.2	0.2	0.2	0.2
5.000	0.2	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.3
6.000	0.3	0.3	0.3	0.3	0.3
6.500	0.3	0.4	0.4	0.4	0.4
7.000	0.4	0.4	0.4	0.4	0.4
7.500	0.4	0.4	0.4	0.5	0.5
8.000	0.5	0.5	0.5	0.5	0.5
8.500	0.5	0.5	0.5	0.5	0.6
9.000	0.6	0.6	0.6	0.6	0.6
9.500	0.6	0.6	0.7	0.7	0.7
10.000	0.7	0.7	0.7	0.8	0.8
10.500	0.8	0.8	0.8	0.9	0.9
11.000	0.9	0.9	1.0	1.0	1.1
11.500	1.1	1.2	1.4	1.7	2.2
12.000	2.6	2.7	2.7	2.8	2.8
12.500	2.9	2.9	2.9	3.0	3.0
13.000	3.0	3.0	3.1	3.1	3.1
13.500	3.1	3.1	3.2	3.2	3.2
14.000	3.2	3.2	3.2	3.2	3.3
14.500	3.3	3.3	3.3	3.3	3.3
15.000	3.3	3.3	3.4	3.4	3.4
15.500	3.4	3.4	3.4	3.4	3.4
16.000	3.4	3.4	3.4	3.5	3.5
16.500	3.5	3.5	3.5	3.5	3.5
17.000	3.5	3.5	3.5	3.5	3.5
17.500	3.6	3.6	3.6	3.6	3.6

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 10 years
 Storm Event: 10-year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
18.000	3.6	3.6	3.6	3.6	3.6
18.500	3.6	3.6	3.6	3.6	3.7
19.000	3.7	3.7	3.7	3.7	3.7
19.500	3.7	3.7	3.7	3.7	3.7
20.000	3.7	3.7	3.7	3.7	3.7
20.500	3.7	3.7	3.7	3.8	3.8
21.000	3.8	3.8	3.8	3.8	3.8
21.500	3.8	3.8	3.8	3.8	3.8
22.000	3.8	3.8	3.8	3.8	3.8
22.500	3.8	3.8	3.8	3.8	3.9
23.000	3.9	3.9	3.9	3.9	3.9
23.500	3.9	3.9	3.9	3.9	3.9
24.000	3.9	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 1 years
 Storm Event: 1-year

Time-Depth Curve: 1-year

Label	1-year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	1 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.0
1.500	0.0	0.0	0.0	0.0	0.0
2.000	0.0	0.0	0.0	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.1
3.500	0.1	0.1	0.1	0.1	0.1
4.000	0.1	0.1	0.1	0.1	0.1
4.500	0.1	0.1	0.1	0.1	0.1
5.000	0.1	0.1	0.1	0.1	0.1
5.500	0.1	0.1	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.2	0.2
6.500	0.2	0.2	0.2	0.2	0.2
7.000	0.2	0.2	0.2	0.2	0.2
7.500	0.2	0.2	0.2	0.2	0.2
8.000	0.2	0.2	0.3	0.3	0.3
8.500	0.3	0.3	0.3	0.3	0.3
9.000	0.3	0.3	0.3	0.3	0.3
9.500	0.3	0.3	0.3	0.4	0.4
10.000	0.4	0.4	0.4	0.4	0.4
10.500	0.4	0.4	0.4	0.4	0.5
11.000	0.5	0.5	0.5	0.5	0.5
11.500	0.6	0.6	0.7	0.9	1.1
12.000	1.3	1.4	1.4	1.4	1.5
12.500	1.5	1.5	1.5	1.5	1.5
13.000	1.6	1.6	1.6	1.6	1.6
13.500	1.6	1.6	1.6	1.6	1.6
14.000	1.7	1.7	1.7	1.7	1.7
14.500	1.7	1.7	1.7	1.7	1.7
15.000	1.7	1.7	1.7	1.7	1.7
15.500	1.8	1.8	1.8	1.8	1.8
16.000	1.8	1.8	1.8	1.8	1.8
16.500	1.8	1.8	1.8	1.8	1.8
17.000	1.8	1.8	1.8	1.8	1.8
17.500	1.8	1.8	1.8	1.9	1.9

Subsection: Time-Depth Curve
 Label: Time-Depth - 1

Return Event: 1 years
 Storm Event: 1-year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
18.000	1.9	1.9	1.9	1.9	1.9
18.500	1.9	1.9	1.9	1.9	1.9
19.000	1.9	1.9	1.9	1.9	1.9
19.500	1.9	1.9	1.9	1.9	1.9
20.000	1.9	1.9	1.9	1.9	1.9
20.500	1.9	1.9	1.9	1.9	1.9
21.000	1.9	2.0	2.0	2.0	2.0
21.500	2.0	2.0	2.0	2.0	2.0
22.000	2.0	2.0	2.0	2.0	2.0
22.500	2.0	2.0	2.0	2.0	2.0
23.000	2.0	2.0	2.0	2.0	2.0
23.500	2.0	2.0	2.0	2.0	2.0
24.000	2.0	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Runoff CN-Area
 Label: Post Controlled B1

Return Event: 1 years
 Storm Event: 1-year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil A	98.000	0.100	0.0	0.0	98.000
Meadow - cont. grass (non grazed) - ---- - Soil A	30.000	0.120	0.0	0.0	30.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.220	(N/A)	(N/A)	60.909

Subsection: Runoff CN-Area
 Label: Post Controlled B2

Return Event: 1 years
 Storm Event: 1-year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Uncompacted Clean Gravel	60.000	0.964	0.0	0.0	60.000
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil A	98.000	0.525	0.0	0.0	98.000
Meadow - cont. grass (non grazed) - ---- - Soil A	30.000	0.510	0.0	0.0	30.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.999	(N/A)	(N/A)	62.326

Subsection: Elevation vs. Volume Curve
Label: Bed #1

Return Event: 1 years
Storm Event: 1-year

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
1,046.00	0.000
1,050.00	0.037
1,051.00	0.060

Subsection: Elevation vs. Volume Curve
Label: Bed #2

Return Event: 1 years
Storm Event: 1-year

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
1,036.50	0.000
1,040.50	0.079
1,041.50	0.128

Subsection: Outlet Input Data
Label: Bed 1

Return Event: 1 years
Storm Event: 1-year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	1,046.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	1,051.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir Tailwater Settings	Weir - 1 Tailwater	Forward	TW	1,050.00 (N/A)	1,051.00 (N/A)

Subsection: Outlet Input Data
Label: Bed 1

Return Event: 1 years
Storm Event: 1-year

Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
<hr/>	
Number of Openings	1
Elevation	1,050.00 ft
Weir Length	1.80 ft
Weir Coefficient	3.10 (ft ^{0.5})/s
<hr/>	
Structure ID: TW	
Structure Type: TW Setup, DS Channel	
<hr/>	
Tailwater Type	Free Outfall
<hr/>	
Convergence Tolerances	
<hr/>	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft ³ /s
Flow Tolerance (Maximum)	10.000 ft ³ /s
<hr/>	

Subsection: Outlet Input Data
 Label: Bed 2

Return Event: 1 years
 Storm Event: 1-year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	1,036.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	1,041.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir Tailwater Settings	Weir - 1 Tailwater	Forward	TW	1,040.50 (N/A)	1,041.50 (N/A)

Subsection: Outlet Input Data
Label: Bed 2

Return Event: 1 years
Storm Event: 1-year

Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
<hr/>	
Number of Openings	1
Elevation	1,040.50 ft
Weir Length	30.00 ft
Weir Coefficient	3.10 (ft ^{0.5})/s
<hr/>	
Structure ID: TW	
Structure Type: TW Setup, DS Channel	
<hr/>	
Tailwater Type	Free Outfall
<hr/>	
Convergence Tolerances	
<hr/>	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft ³ /s
Flow Tolerance (Maximum)	10.000 ft ³ /s
<hr/>	

Index

B

Bed #1 (Elevation vs. Volume Curve, 1 years)...10

Bed #2 (Elevation vs. Volume Curve, 1 years)...11

Bed 1 (Outlet Input Data, 1 years)...12, 13

Bed 2 (Outlet Input Data, 1 years)...14, 15

M

Master Network Summary...1

P

Post Controlled B1 (Runoff CN-Area, 1 years)...8

Post Controlled B2 (Runoff CN-Area, 1 years)...9

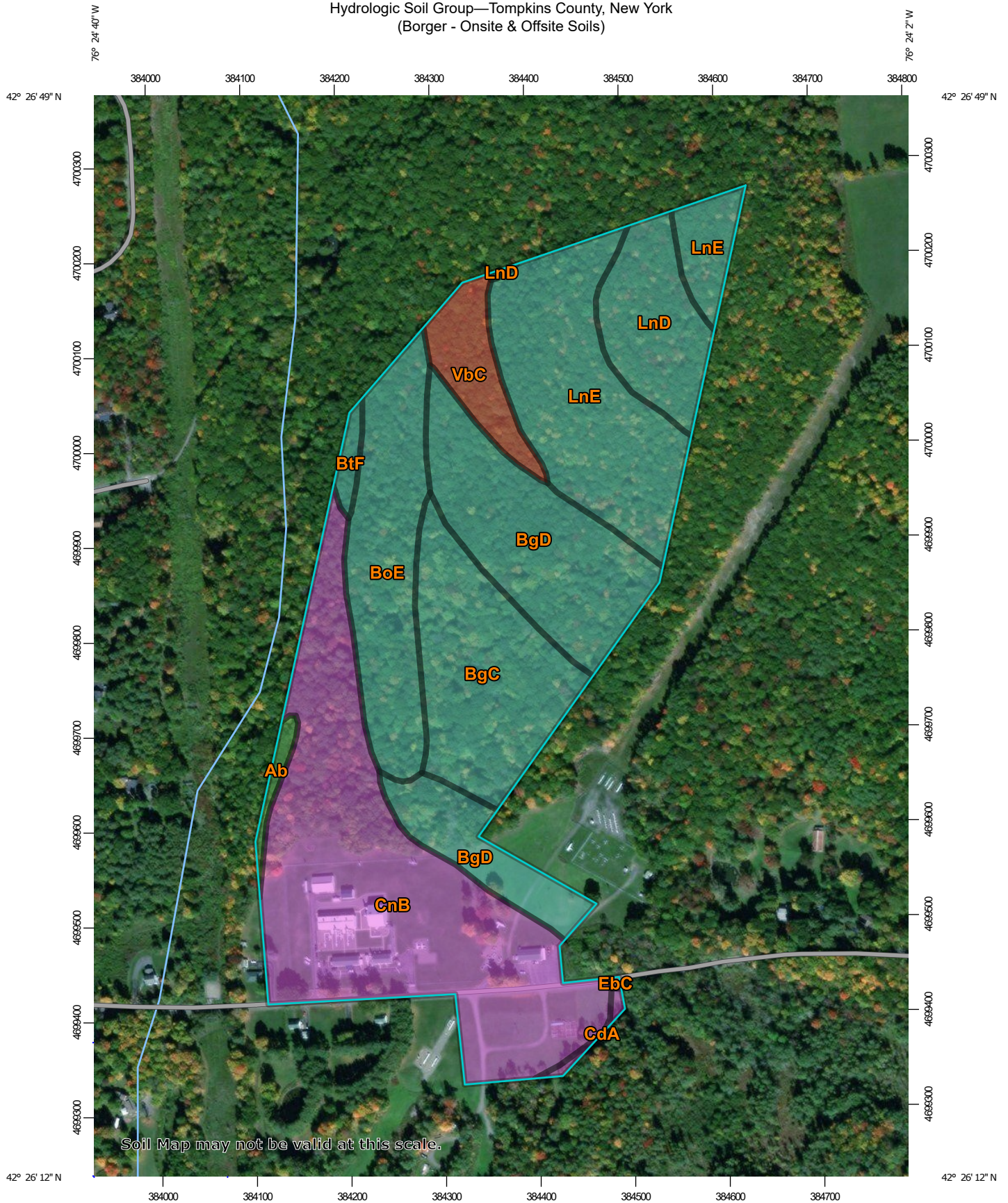
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Time-Depth - 1 (Time-Depth Curve, 1 years)...6, 7

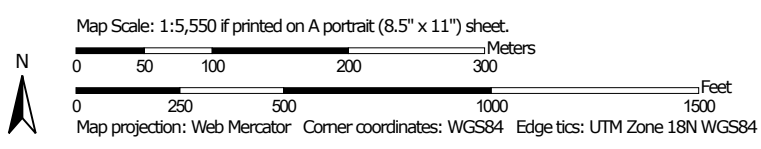
Time-Depth - 1 (Time-Depth Curve, 10 years)...4, 5

Time-Depth - 1 (Time-Depth Curve, 100 years)...2, 3

Hydrologic Soil Group—Tompkins County, New York
(Borger - Onsite & Offsite Soils)




Soil Map may not be valid at this scale.



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: Tompkins County, New York
 Survey Area Data: Version 15, Sep 16, 2019

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

Date(s) aerial images were photographed: Aug 29, 2012—Nov 6, 2016

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
Ab	Alluvial land	A/D	0.5	0.7%
BgC	Bath and Valois soils, 5 to 15 percent slopes	C	8.2	12.2%
BgD	Bath and Valois soils, 15 to 25 percent slopes, eroded	C	11.6	17.2%
BoE	Bath and Valois soils, 25 to 35 percent slopes	C	7.5	11.2%
BtF	Bath, Valois, and Lansing soils, 35 to 60 percent slopes	C	0.5	0.8%
CdA	Chenango gravelly loam, 0 to 5 percent slopes	A	0.2	0.3%
CnB	Chenango gravelly loam, fan, 0 to 8 percent slopes	A	20.4	30.2%
EbC	Erie channery silt loam, 8 to 15 percent slopes	D	0.0	0.0%
LnD	Lordstown channery silt loam, 15 to 25 percent slopes	C	4.5	6.7%
LnE	Lordstown channery silt loam, 25 to 35 percent slopes	C	11.3	16.8%
VbC	Volusia channery silt loam, 8 to 15 percent slopes	D	2.6	3.9%
Totals for Area of Interest			67.4	100.0%

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



NOAA Atlas 14, Volume 10, Version 3
 Location name: Town of Dryden, New York, USA*
 Latitude: 42.4396°, Longitude: -76.4077°
 Elevation: 1053.47 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

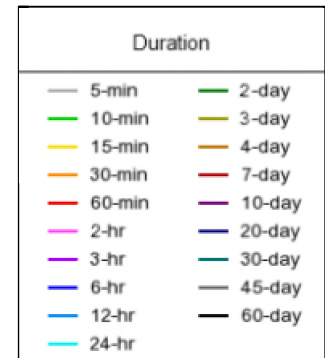
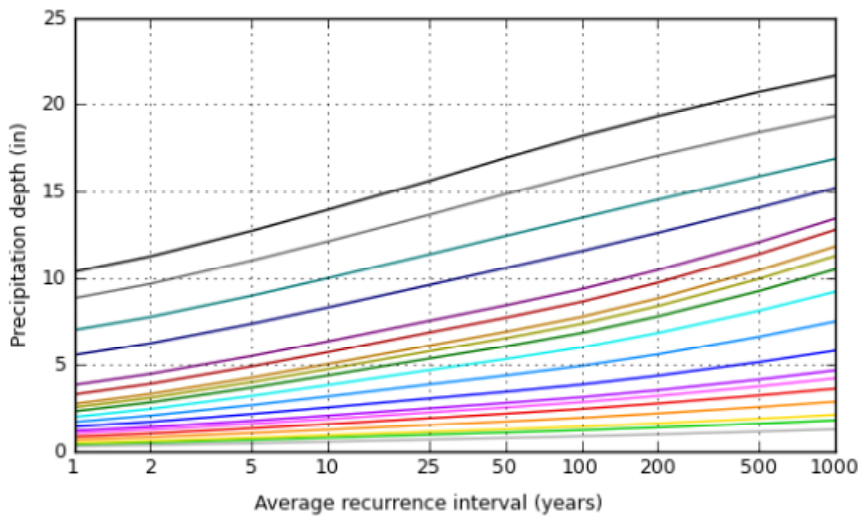
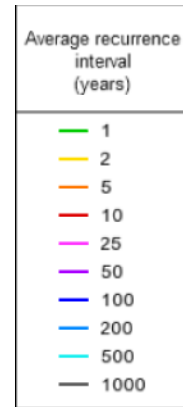
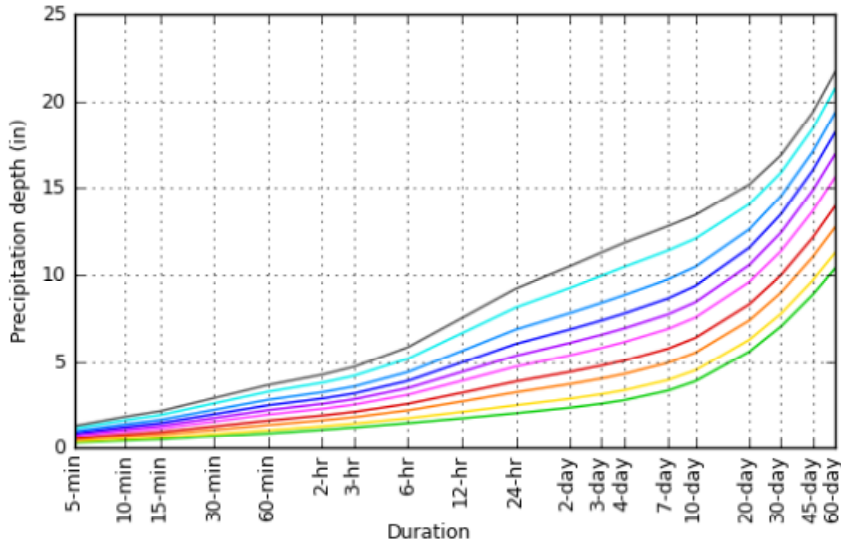
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.298 (0.239-0.367)	0.364 (0.292-0.449)	0.472 (0.376-0.584)	0.561 (0.445-0.699)	0.683 (0.522-0.894)	0.775 (0.579-1.04)	0.872 (0.631-1.22)	0.984 (0.668-1.41)	1.15 (0.746-1.70)	1.28 (0.813-1.95)
10-min	0.422 (0.339-0.520)	0.515 (0.413-0.636)	0.667 (0.532-0.825)	0.794 (0.630-0.989)	0.968 (0.740-1.27)	1.10 (0.821-1.47)	1.24 (0.894-1.73)	1.40 (0.947-1.99)	1.63 (1.06-2.41)	1.82 (1.15-2.76)
15-min	0.497 (0.399-0.612)	0.606 (0.486-0.748)	0.785 (0.627-0.972)	0.933 (0.740-1.16)	1.14 (0.871-1.49)	1.29 (0.966-1.73)	1.45 (1.05-2.03)	1.64 (1.11-2.35)	1.91 (1.24-2.84)	2.14 (1.35-3.24)
30-min	0.675 (0.542-0.832)	0.823 (0.660-1.01)	1.06 (0.850-1.32)	1.26 (1.00-1.58)	1.54 (1.18-2.02)	1.75 (1.31-2.34)	1.97 (1.42-2.75)	2.22 (1.51-3.17)	2.59 (1.68-3.84)	2.89 (1.83-4.38)
60-min	0.854 (0.686-1.05)	1.04 (0.834-1.28)	1.34 (1.07-1.66)	1.60 (1.27-1.99)	1.94 (1.49-2.54)	2.20 (1.65-2.95)	2.48 (1.79-3.46)	2.79 (1.90-3.99)	3.26 (2.12-4.83)	3.65 (2.31-5.53)
2-hr	1.07 (0.861-1.31)	1.27 (1.03-1.56)	1.61 (1.29-1.98)	1.89 (1.51-2.34)	2.27 (1.75-2.96)	2.56 (1.93-3.41)	2.87 (2.09-3.99)	3.23 (2.20-4.59)	3.78 (2.46-5.57)	4.24 (2.69-6.38)
3-hr	1.20 (0.974-1.47)	1.43 (1.15-1.74)	1.79 (1.45-2.19)	2.09 (1.68-2.58)	2.51 (1.94-3.26)	2.82 (2.13-3.75)	3.16 (2.31-4.39)	3.56 (2.43-5.03)	4.17 (2.72-6.12)	4.69 (2.98-7.04)
6-hr	1.45 (1.19-1.76)	1.73 (1.41-2.10)	2.18 (1.77-2.66)	2.56 (2.07-3.14)	3.08 (2.40-3.97)	3.46 (2.64-4.59)	3.88 (2.86-5.37)	4.39 (3.01-6.17)	5.17 (3.38-7.54)	5.83 (3.72-8.69)
12-hr	1.73 (1.42-2.08)	2.09 (1.72-2.52)	2.70 (2.20-3.26)	3.20 (2.60-3.89)	3.89 (3.04-4.99)	4.40 (3.36-5.79)	4.95 (3.67-6.81)	5.62 (3.87-7.85)	6.64 (4.37-9.63)	7.52 (4.81-11.1)
24-hr	2.02 (1.67-2.41)	2.48 (2.05-2.96)	3.23 (2.65-3.88)	3.85 (3.14-4.65)	4.71 (3.70-6.00)	5.34 (4.10-6.98)	6.03 (4.49-8.24)	6.86 (4.74-9.51)	8.12 (5.36-11.7)	9.20 (5.91-13.5)
2-day	2.34 (1.95-2.78)	2.86 (2.37-3.39)	3.70 (3.06-4.41)	4.40 (3.62-5.28)	5.37 (4.25-6.80)	6.08 (4.70-7.90)	6.86 (5.13-9.32)	7.80 (5.41-10.8)	9.24 (6.12-13.2)	10.5 (6.75-15.3)
3-day	2.57 (2.15-3.04)	3.12 (2.60-3.69)	4.02 (3.34-4.78)	4.77 (3.93-5.70)	5.79 (4.60-7.31)	6.55 (5.08-8.48)	7.38 (5.54-9.99)	8.39 (5.83-11.5)	9.93 (6.59-14.2)	11.3 (7.26-16.4)
4-day	2.77 (2.32-3.26)	3.34 (2.80-3.94)	4.28 (3.57-5.07)	5.06 (4.18-6.03)	6.13 (4.88-7.70)	6.92 (5.38-8.92)	7.77 (5.85-10.5)	8.82 (6.14-12.1)	10.4 (6.93-14.8)	11.8 (7.63-17.2)
7-day	3.32 (2.79-3.89)	3.93 (3.30-4.61)	4.92 (4.12-5.80)	5.74 (4.78-6.81)	6.88 (5.50-8.58)	7.72 (6.02-9.88)	8.63 (6.50-11.5)	9.72 (6.80-13.2)	11.4 (7.58-16.1)	12.8 (8.27-18.4)
10-day	3.86 (3.27-4.51)	4.49 (3.79-5.25)	5.52 (4.64-6.48)	6.37 (5.32-7.53)	7.55 (6.05-9.35)	8.42 (6.58-10.7)	9.35 (7.04-12.4)	10.4 (7.33-14.2)	12.1 (8.06-17.0)	13.4 (8.70-19.3)
20-day	5.58 (4.75-6.48)	6.26 (5.32-7.28)	7.38 (6.24-8.60)	8.31 (6.98-9.74)	9.58 (7.71-11.7)	10.6 (8.25-13.2)	11.5 (8.65-15.0)	12.6 (8.90-16.9)	14.1 (9.44-19.6)	15.2 (9.88-21.7)
30-day	7.03 (6.01-8.12)	7.77 (6.63-8.99)	8.97 (7.62-10.4)	9.97 (8.41-11.7)	11.3 (9.15-13.8)	12.4 (9.72-15.4)	13.5 (10.1-17.3)	14.5 (10.3-19.4)	15.9 (10.7-22.1)	16.9 (11.0-24.0)
45-day	8.84 (7.58-10.2)	9.66 (8.27-11.1)	11.0 (9.37-12.7)	12.1 (10.2-14.1)	13.6 (11.0-16.5)	14.8 (11.6-18.3)	16.0 (11.9-20.3)	17.1 (12.1-22.7)	18.4 (12.4-25.4)	19.3 (12.6-27.4)
60-day	10.3 (8.90-11.9)	11.2 (9.66-12.9)	12.7 (10.9-14.7)	13.9 (11.8-16.2)	15.6 (12.6-18.8)	16.9 (13.3-20.8)	18.2 (13.6-23.0)	19.3 (13.8-25.6)	20.7 (14.0-28.6)	21.6 (14.1-30.6)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

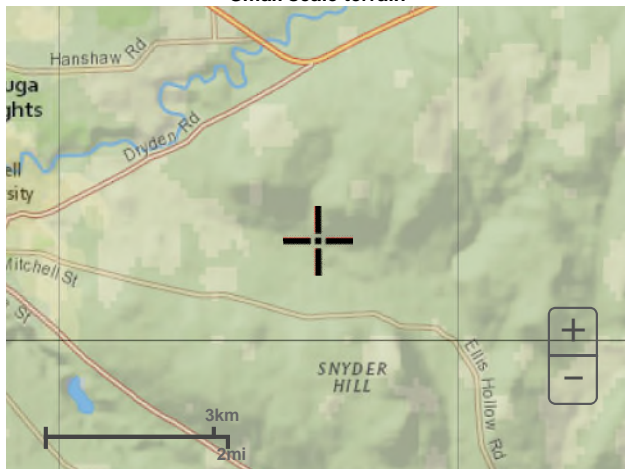
PF graphical

PDS-based depth-duration-frequency (DDF) curves
 Latitude: 42.4396°, Longitude: -76.4077°



Maps & aerals

Small scale terrain

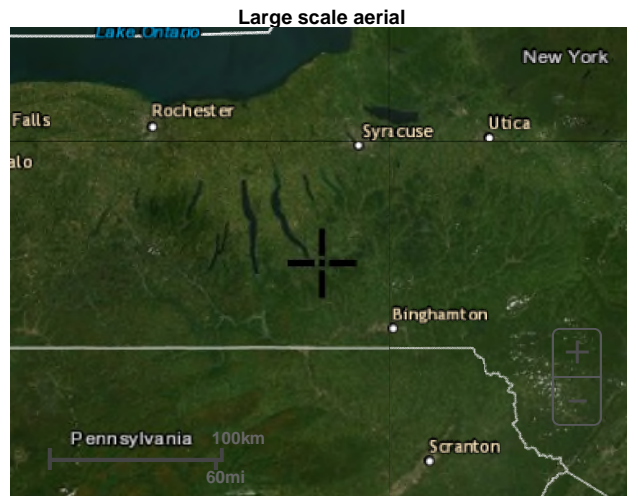


Large scale terrain



Large scale map





[Back to Top](#)

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[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?..... No

Design Point:	POI-1	
P=	1.00	inch

Manually enter P, Total Area and Impervious Cover.

Breakdown of Subcatchments						
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft ³)	Description
1	0.22	0.10	45%	0.46	367	
2	2.00	0.53	26%	0.29	2,078	
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	2.22	0.63	28%	0.30	2,445	Subtotal 1
Total	2.22	0.63	28%	0.30	2,445	Initial WQv

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

Recalculate WQv after application of Area Reduction Techniques					
	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Runoff Coefficient Rv	WQv (ft ³)
"<<Initial WQv"	2.22	0.63	28%	0.30	2,445
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	2.22	0.63	28%	0.30	2,445
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	2.22	0.63	28%	0.30	2,445
WQv reduced by Area Reduction techniques					0

Borger Compressor Replacement Project 2020

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techniques/Standard SMPs		Total Contributing Area	Total Contributing Impervious Area	WQv Reduced (RRv)	WQv Treated
			(acres)	(acres)	cf	cf
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	2.22	0.63	2445	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	2.22			
	Bioretention & Infiltration Bioretention	F-5	0.00	0.00	0	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4)	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2)	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
Wet Swale (O-2)	O-2					
Totals by Area Reduction		→	0.00	0.00	0	
Totals by Volume Reduction		→	0.00	0.00	0	
Totals by Standard SMP w/RRV		→	4.44	0.63	2445	0
Totals by Standard SMP		→	0.00	0.00		0
Totals (Area + Volume + all SMPs)		→	4.44	0.63	2,445	0
Impervious Cover v		okay				

Minimum RRv

Enter the Soils Data for the site

Soil Group	Acres	S
A	2.22	55%
B		40%
C		30%
D		20%
Total Area	2.22	

Calculate the Minimum RRv

S =	0.55	
Impervious =	0.63	<i>acre</i>
Precipitation	1	<i>in</i>
Rv	0.95	
Minimum RRv	1,185	<i>ft3</i>
	0.03	<i>af</i>

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	2445	0.056
30	Total RRV Provided	2445	0.056
31	Is RRV Provided \geq WQv Required?	Yes	
32	Minimum RRV	1185	0.027
32a	Is RRV Provided \geq Minimum RRV Required?	Yes	
33a	Total WQv Treated	0	0.000
34	Sum of Volume Reduced & Treated	2445	0.056
34	Sum of Volume Reduced and Treated	2445	0.056
35	Is Sum RRV Provided and WQv Provided \geq WQv Required?	Yes	

Apply Peak Flow Attenuation			
36	Channel Protection	C_{pv}	
37	Overbank	Q_p	
37	Extreme Flood Control	Q_f	
	Are Quantity Control requirements met?		

Infiltration Trench Worksheet

Design Point:	POI-1						
Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft ³)	Precipitation (in)	Description
1	0.22	0.10	0.45	0.46	366.63	1.00	
Enter Impervious Area Reduced by Disconnection of Rooftops			45%	0.46	367	<<WQv after adjusting for Disconnected Rooftops	
Design Elements							
Pretreatment Techniques to Prevent Clogging							
Infiltration Rate			6.00	in/hr	Okay		
Pretreatment Sizing			100%	of WQv	25% minimum 50% if >2 in/hr; 100% if >5in/hour		
Required Pretreatment Volume			367	ft ³			
Pretreatment Provided			367	ft ³			
Pretreatment techniques utilized			Pea Gravel		Pretreatment can be provided in the form of a sedimentation basin, sump pit, grass channel, plunge pool or other measure		
Size the Infiltration Trench							
Ap = Vw / (ndt)							
Design Volume		Vw	367	ft ³			
Porosity		n	0.4				
Design Depth		dt	4.0	ft	maximum of four feet		
Depth to Groundwater			8.0	ft	>3 feet from seasonally high water table		
Required Surface Area		Ap	229	ft ²			
Width		W	8	ft	Provide the dimensions here		
Length		L	130	ft	Provide the dimensions here		
Surface Area Provided			1006.2	ft ²	Okay		
Volume Provided			1,610	ft ³	Storage Volume provided in infiltration trench not including pretreatment.		
Determine Runoff Reduction							
RRv	367	ft³	90% of the storage provided				
Volume Treated	0	ft ³	This is the portion of the WQv that is not reduced/infiltrated				

Infiltration Trench Worksheet

Design Point:	POI-1						
Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft ³)	Precipitation (in)	Description
2	2.00	0.53	0.26	0.29	2077.99	1.00	
Enter Impervious Area Reduced			26%	0.29	2,078	<<WQv after adjusting for	
Design Elements							
Pretreatment Techniques to Prevent Clogging							
Infiltration Rate			360.00	in/hr	Okay		
Pretreatment Sizing			100%	of WQv	25% minimum 50% if >2 in/hr; 100% if >5in/hour		
Required Pretreatment Volume			2,078	ft ³			
Pretreatment Provided			2,291	ft ³			
Pretreatment techniques utilized			Gravel storage		Pretreatment can be provided in the form of a sedimentation basin, sump pit, grass channel, plunge pool or other measure		
Size the Infiltration Trench							
Ap = Vw / (ndt)							
Design Volume		Vw	2,078	ft ³			
Porosity		n	0				
Design Depth		dt	4.0	ft	maximum of four feet		
Depth to Groundwater			8.0	ft	>3 feet from seasonally high water table		
Required Surface Area		Ap	1299	ft ²			
Width		W	35	ft	Provide the dimensions here		
Length		L	61	ft	Provide the dimensions here		
Surface Area Provided			2142.32	ft ²	Okay		
Volume Provided			3,428	ft ³	Storage Volume provided in infiltration trench not including pretreatment.		
Determine Runoff Reduction							
RRv	2,078	ft³	90% of the storage provided				
Volume Treated	0	ft ³	This is the portion of the WQv that is not reduced/infiltrated				

Infiltration Stormwater Management Calculations

Base Data:

Location: Town of Dryden, NY

Project Area: 4.9 acres

New Permanent Development Area: 0.80 acre

Measured New Impervious Area: 0.35 acre

Site Soils Types:

- USDA: Gravelly Loam (CnB), Hydrologic soil group (HSG) A. (Appendix C)
- GEOTECHNICAL (6-30-2009): Sand and Gravel to a depth of 40 feet, water encountered at 27.9 feet (Appendix F)
- PERCOLATION TESTING (3-8-2010): > 5 in/hr in all three test locations. No water encountered between a depth of 3' and 4' from the proposed bottom of the infiltration beds. (Appendix G)



Chosen Stormwater Management SMP

- Infiltration Trench (I-1)

Site Specific Data and SMP Criteria Met

- Soil is Gravelly Loam
- Percolation Rate is > 5 in/hr
- Top of Bed Elevation:
 - Bed #1 = 116' (between 1' and 2' below original grade)
 - Bed #2 = 108' (at approximately original grade)
- Bottom of Bed Elevation
 - Bed #1 = 112' (to be constructed below light brown (orange) soil layer)
 - Bed #2 = 104'
- Ground water level
 - Project Boring Location – water at 27.9 feet
 - Bed #1 Perc test- no water encountered between 3 feet and 4 feet below the bottom of bed elevation. The boring location from the geotech report and Bed #1 location are within 100' of each other, and the top of grade elevation for the boring location on existing ground and the proposed top of grade elevation for bed #1 are nearly the same.
 - Bed #2 Perc test- no water encountered between 3 feet and 4 feet bottom of bed elevation
- Local Ground Slope –
 - Bed #1- proposed grading on site in this location will provide a slope of approximately 5%, up-gradient to the bed and bermed on the down-gradient side.
 - Bed #2 - approximately 3%

- Development area- generally slopes at 3% to 5%
- Soil clay content is less than 20%, site development is to take place in gravelly soils
- This area is not a hotspot land use
- Water well supply is nearest to Bed #1 and is 140' horizontal distance > 100', OK
- Bed #1 is closest to a building and is set back 25' and contained within a bermed area-

Drainage Areas

- Bed #1 is for collecting runoff from the new crushed stone road for the facility with a total drainage area of 0.2 acres.
- Bed #2 has a total drainage area of 1.3 acres that includes the 0.2 acre of drainage area for Bed #1. This is to provide emergency overflow to the proposed yard drain which discharges to a pipe connected to a swale that discharges into bed #2.
- The new development area is 0.8 acres <1.3 acres of area to be controlled. Therefore, this SWM facility will be designed to also provide control a portion of the existing development.

BED #1

Hydrologic Input Parameters (Refer to Table #1 and Table #2 attached for calculations)

Condition	Area	CN	Tc*
	<i>Acre</i>		<i>minutes</i>
Pre-Developed	0.2	51	5
Post-Developed	0.2	60	5

Bed #1 Hydrologic Calculations

(Refer to, Hyd. No. 1 and Hyd. No. 2 attached for calculations of Pre-Dev and Post-Dev Uncontrolled runoff rate and calculations below for Post-Dev Controlled)

Condition	Q1-yr (CPv)	Q10-yr	Q100-yr
Runoff	<i>cfs</i>	<i>Cfs</i>	<i>Cfs</i>
Pre-Dev	0.00	0.07	0.30
Post-Dev (uncontrolled)	0.01	0.24	0.56
Post-Dev (controlled)	0.00	0.00	0.00

Size overflow channel

Bed #1

- Size to bypass safely the 10-year storm
- Determine Q10 for Bed #1

Bed #1 overflow control will be by:

- Yard Drain with Grate set at Elev 116.0' flush with top of gravel bed,
- with 1' height berm at Elev 117'
- Area Length is: 1.8 feet (due to openings in grate, estimated 60% of the flow length for 3 sides used for over flow = $(12+12+12)*0.6 = 21.6$ inches = 1.8 feet)

Use Weir Equation:

- Use Weir Equation, $H = (Q/CL)^{0.67}$,
 $C=3.1$, $Q_{post10}=0.24$, $L=1.8$ feet
 - Head above weir is 0.12 feet = Top of water is 116.12 feet
 - Freeboard is $117-116.1 = 0.9$ feet > 0.5 feet **OK**
 - Check for 100 yr-storm
 - 0.21 feet
 - Freeboard is $117-116.21 = 0.79$ feet > 0.5 feet **OK**

Bed #1: Water Quality Volume, WQv

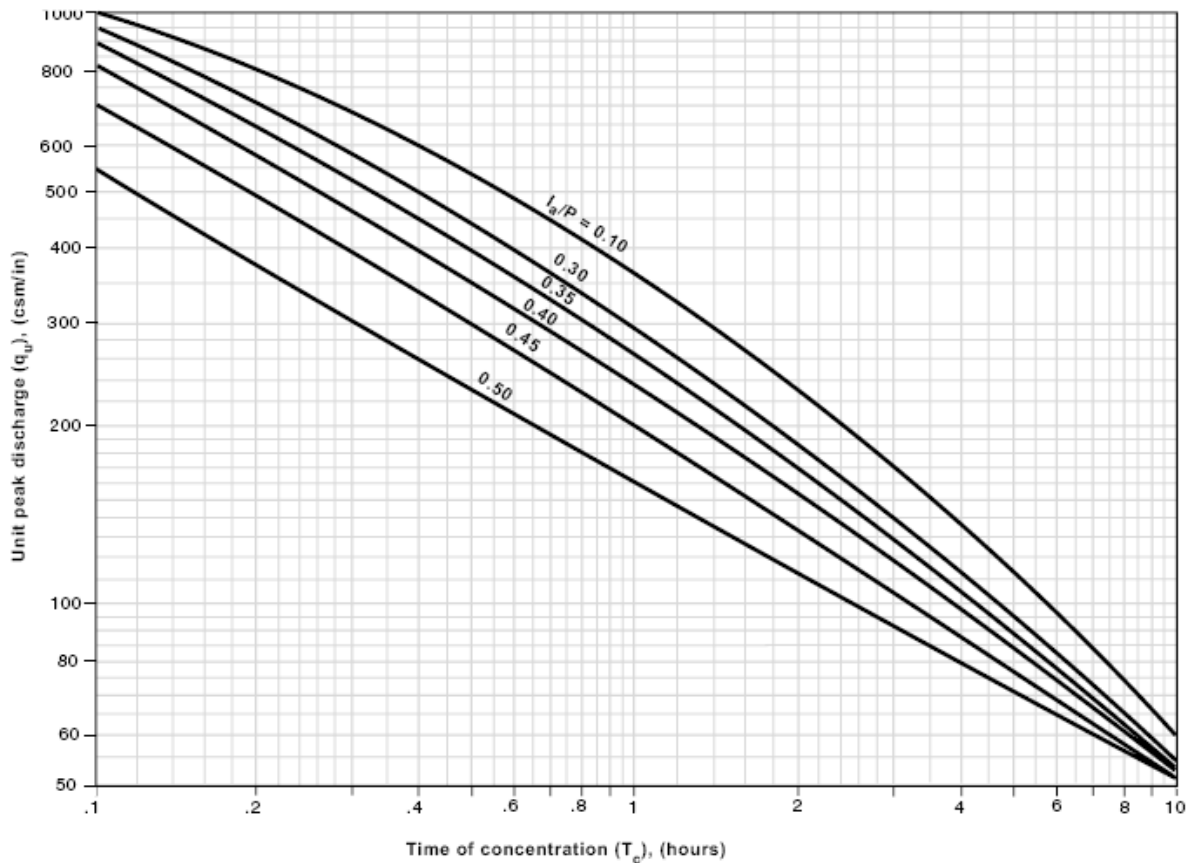
WQv

- Compute Impervious Cover
 $I = 0.05 \text{ acre} / 0.22 \text{ acres} = 23\%$
 - Compute Runoff Coefficient, Rv
 $Rv = 0.05 + (0.009 * I) = 0.05 + (0.009 * 23) = 0.26$
 - Compute WQv
- $WQv = (P_{WQv} = 0.87 \text{ inches (90\% rainfall in Town of Dryden, NY); rainfall for the 1-year storm}) * (Rv-0.26) * (A=0.2) * (1\text{ft}/12\text{in}) = 0.004 \text{ ac-ft}$

Bed #1: Compute Stream Channel Protection Volume, (CPv)

CPv uses Q1yr storm event

- Initial abstraction (Ia) for CN of 60 is 1.33 (200/CN-2)
 $Ia/P = 1.33/2.25$ (rainfall for the 1-yr storm) = 0.591
 $Tc = 0.1$ hours
- Using Exhibit 4-II of TR-55 below
 $qu = 550 \text{ csm/in}$ (Ia/P = 0.5 is closest to Ia/P = 0.7 calculated)
- Using $qu = 550 \text{ csm/in}$ and Figure B.1 in NYS SWM Design Manual-attached
 qo/qi (Ratio of Outflow to Inflow) = 0.035
 $Vs/Vr = 0.683 - 1.43(0.035) + 1.64(0.035)^2 - 0.804(0.035)^3 = 0.63$
 $Vr = \text{runoff in inches} = 0.07 \text{ inches}$
- $CPv = Vs = 0.63(0.07)(1/12)(0.2) = 0.000 \text{ ac-ft}$, negligible

Exhibit 4-II Unit peak discharge (q_u) for NRCS (SCS) type II rainfall distribution

Bed #1: Compute Extreme Flood Protection Volume, (Q_f)
 Q_f

$$q_o/q_i \text{ (is pre flow/post flow for 100-yr storm)} = 0.30/0.56 = 0.54$$

$$V_s/V_r = 0.26 \text{ (from Figure B.2 in NYS SWM Design Manual- Type II attached)}$$

$$Q_{p100} = V_s = 0.26 * (\text{storm runoff volume} = 0.026) = \underline{0.0065 \text{ ac-ft}} \text{ (326 cubic feet), } 0.026 \text{ ac-ft is the storm hydrograph volume from 100 year storm of Hyd. No. 2}$$

- Q_f Extended Detention of 15% = $0.0065 \times 1.15 = \underline{0.007 \text{ ac-ft}}$

Bed #1: Size the infiltration trench

$$A = \text{Volumes} / nd$$

$$\text{Volumes} = WQ_v + CP_v + Q_f = 0.004 + 0.000 + 0.008 = 0.012$$

- Q_{10} is part of Q_f and therefore is not added in to the total volume for control

$$n = 0.4$$

$$\text{Depth} = 4 \text{ feet}$$

- Area of infiltration bed (bottom surface) needed = $\underline{0.008 \text{ ac}} \text{ (349 sf)} < \text{designed } 1006 \text{ sf } \mathbf{OK}$

Bed #1: Size Pretreatment

Size Pre-treatment for:

$$0.25WQ_v = 0.25 * 0.004 = 0.001 \text{ ac-ft (44 sf)}$$

Pea Gravel pretreatment

2 inches thick with porosity of 0.32 over the entire area of Bed #1 with an area of 1006 cf (0.023 ac)

$$P_{\text{filter}} = (0.32)(2/12)(0.023) = \underline{0.0012 \text{ cft} > 0.001 \text{ ac-ft}} \text{ OK}$$

Also, a conservation mix is to be placed for vegetation in the 4' wide filter strip upgradient to Bed #1.

BED #2

Hydrologic Input Parameters (Refer to Table #3 and #4 attached for calculations)

Condition	Area	CN	Tc*
	<i>Acre</i>		<i>minutes</i>
Pre-Developed	1.1	40	5
Post-Developed	1.1	52	5

Bed #2 Hydrologic Calculations (Refer to Hyd. No. 7 and Hyd. No. 8 attached for calculations for Pre-Dev and Post-Dev Uncontrolled and calculations below for Post-Dev Controlled)

Condition	Q1-yr (Cpv_)	Q10-yr	Q100-yr
Runoff	<i>cfs</i>	<i>cfs</i>	<i>Cfs</i>
Pre-Dev	0.00	0.01	0.21
Post-Dev (uncontrolled)	0.0	0.46	1.79
Post-Dev (controlled)	0.0	0.0	0.0

Size overflow channel**Bed #2**

- Size to bypass safely the 100-year storm for the total 1.3 acres
Add peak outflows from Bed #1 and Bed #2 for Post-Dev Q100 = 2.83 cfs
(See Hyd. No. 9 attached)

Bed #2 overflow control will be by:

Weir overflow channel
with 1' height berm at Elev 109'
Weir Length is: 30 feet

- Use Weir Equation:
 - Use Weir Equation, $H = (Q/CL)^{0.67}$,
C=3.1, Qpost= 2.83, L= 30 feet
 - Head above weir is 0.1 feet = Top of water is 108.1 feet
 - Freeboard is 109-108.1 = 0.9 feet > 0.5 feet **OK**

Water Quality Volume, WQvWQv for 1.1 acres discharging to Bed#2Compute Impervious Cover

$$I = 0.18 \text{ acre}/1.1 \text{ acres} = 16\%$$

Compute Runoff Coefficient, Rv

$$Rv = 0.05 + (0.009 * I) = 0.05 + (0.009 * 16) = 0.19$$

Compute WQv

- $WQv = (P_{WQv} = 0.87 \text{ inches (90\% rainfall in Town of Dryden, NY); rainfall for the 1-year storm}) * (Rv = 0.19) * (A = 1.1) * (1 \text{ ft}/12 \text{ in}) = \underline{0.015 \text{ ac-ft}}$

Compute Stream Channel Protection Volume, (CPv)CPv

- Initial abstraction (Ia) for CN of 52 is 1.85 (200/CN -2)
 $Ia/P = 1.85/2.25(\text{rainfall for the 1-yr storm}) = 0.82$
 $Tc = 0.1 \text{ hours}$
- Using Exhibit 4-II of TR-55 on page 4 of 7
 $qu = 550 \text{ csm/in (Ia/P = 0.5 is closest to Ia/P = 0.7 calculated)}$
- Using $qu = 550 \text{ csm/in}$ and Figure B.1 in NYS SWM Design Manual
 Determine:
 $qo/qi \text{ (Ratio of Outflow to Inflow)} = 0.035$
 $Vs/Vr = 0.683 - 1.43(qo/qi = 0.035) + 1.64(0.035)^2 - 0.804(0.035)^3 = 0.63$
 $Vr = \text{runoff in inches} = 0.07 \text{ inches}$
- $CPv = Vs = 0.63(0.07)(1/12)(1.1) = \underline{0.004 \text{ ac-ft}}$

Compute Extreme Flood Protection Volume, (Qf)Qf

- $qo/qi \text{ (is pre flow/post flow for 100-yr storm)} = 0.21/1.79 = 0.12$
- $Vs/Vr = 0.52 \text{ (from Figure B.2 in NYS SWM Design Manual- Type II- attached)}$
- $Qp100 = Vs = 0.52 * (\text{storm runoff volume} = 0.093) = \underline{0.048 \text{ ac-ft}}$
- $Qf \text{ with Extended Detention of 15\%} = 0.048 * 1.15 = \underline{0.056 \text{ ac-ft}}$

Size the infiltration trench: Bed #2

- $A = \text{Volumes} / nd$

$$\text{Volumes} = WQv + CPv + Qf = 0.015 + 0.004 + 0.056 = 0.075 \text{ ac-ft}$$

- $Q10$ is part of Qf and therefore is not added in to the total volume for control

- $n = 0.4$
- Depth = 4 feet
- Area of infiltration bed (bottom surface) = $0.047 \text{ ac (2,031)} < \underline{\text{designed 2,142 sf OK}}$

Size Pre-treatment for Bed #2

Size Pre-treatment for:

$$0.25WQv = 0.25 * 0.012 = 0.003 \text{ ac-ft (131 cft)}$$

- Pea Gravel pretreatment
 2 inches thick with porosity of 0.32 over the entire area of Bed #1

- Pvfilter = (0.32)(2/12)(2142 sf) = 114 cf
- o Plunge Pool after Grass channel (apron outfall protection is provided at pipe outlet to channel)
 - Pv1 = (25.9sf/2)*2ft = 25.9 cf
- o Rock outfall protection
 - Pv2 = 45.5/2 *0.5ft = 11.34 cf
- o Remainder for Pretreatment
 - 131—114-25.9-11.3=20 cf
- o Grass Channel for Qwq with storm rainfall of 0.87 inches
 - Qwq 0.41 cfs, (Hyd. No. 7 attached), Velocity = 0.92 fps (Swale Design attached)
 - WQv = 0.012 ac-ft = 523 cf
 - Residence time = 10 minutes =600 sec
 - residence time will also be accounted for in the pipe and outlet protection
 - pipe is sloped at 1% for 157.56 feet + 28 feet at 2.8 % = 22 at 1% = 1.6 minutes ;10 minutes-1.6 minutes = 8.4 minutes
 - 0.92 x 504 = 464 ft
 - 464 *20/523 = 18 ft < 71 feet provided OK
 - (51 feet before plunge pool and 20 feet after plunge pool)

Conclusion:

- Infiltration Bed #1 and Bed #2 locations and designs meet site and SWM criteria.
- Both beds’ percolation tests indicated > 5 inch/hour drainage at the proposed bottom elevation and no groundwater was encountered within 3 feet of the bottom elevation at both bed locations.
- Both beds have been designed with the capacity of their drainage areas to control WQv + CPv+Qf.
- Both beds have an adequate amount of Pre-treatment.
- Utilities will be moved on-site as necessary to construct both beds.

**Summary of Post Development Area
Controlled Compared to Pre-Development Condition
(Peak Rates of Bed #1 and Bed #2 are Summed in the Table Below)**

Condition	WQv (ac-ft)	Q1 (cfs)	CPv (ac-ft)	Q100 (cfs)	Q100 (ac-ft)
Pre-Dev	-----	0+0 = 0	-----	0.30+0.21= 0.51	-----
Post-Dev (Uncontrolled)	0.007+0.012= 0.019	0.01+0= 0	0+0.004= 0.004	0.56+1.79= 2.35	0.007+0.06= 0.067
Post-Dev (Controlled)	0	0	0	0	0

*Post-Dev Runoff Volume is 100% controlled, thus the runoff rates (cfs) for Q1, Q10 and Q100 are 0.

Appendix G, Table 1

Bed #1

Pre-Construction Coverages- Borger Compressor Station

	Area (ft ²)	Area (Acre)	Curve Number (CN)
Existing Impervious Surface	1832	0.04	98
Existing Grass Area	7537	0.17	39
Total Limits of Disturbance	9369	0.22	51

Appendix G, Table 2

Bed #1

Post-Construction Coverages- Borger Compressor Station

	Area (ft ²)	Area (Acre)	Curve Number (CN)
Existing Impervious Surface	1832	0.04	98
New asphalted driveway curb	260	0.01	98
Crushed Stone Driveway and Bed #1 ¹	1998	0.05	76
Grass Area	5279	0.12	39
Total Limits of Disturbance	9369	0.22	60

Note:

1. Infiltration Bed #1 is considered impervious in this calculation as the porosity is taken in to account for sizing the bed.

Appendix G, Table 3

Bed #2

Pre-Construction Coverages- Borger Compressor Station

	Area (ft ²)	Area (Acre)	Curve Number (CN)
Existing Impervious Surface	1340	0.03	98
Existing non-compacted Gravel Surface ¹	1021	0.02	46
Grass Area	45555	1.05	39
Total Limits of Disturbance	47916	1.10	40

Note:

1. The non-compacted gravel CN number is derived from taking a runoff reduction of 40% of CN 76, based on the porosity value of placed stone with a size greater than 1.5" diameter (No. 3 crushed stone which is 3" diameter is existing at the gravel areas shown)

Appendix G, Table 4

Bed #2

Post-Construction Coverages- Borger Compressor Station

	Area (ft ²)	Area (Acre)	Curve Number (CN)
Existing Impervious Surface	1340	0.03	98
New Impervious Surface and Bed #2 ¹	6436	0.15	98
Crushed Stone Driveway and RCE left	2971	0.07	76
Gravel Area (Non-Compacted) ²	7096	0.16	46
Grass Area	30073	0.69	39
Total Limits of Disturbance	47916	1.10	52

Note:

1. Infiltration Bed #2 is considered impervious in this calculation as the porosity is taken in to account for sizing the bed.

2. The non-compacted gravel CN number is derived from taking a runoff reduction of 40% of CN 76, based on the porosity value of placed stone with a size greater than 1.5" diameter (No. 3 crushed stone ranging from 3" to 12" diameter is proposed on gravel areas except for the infiltration beds).

In the Table Below:

For the Project, the developed area of 0.49 acres is accounted for in beds #1 and #2, where 0.5 acre is treated

Bed#1		
Existing Impervious Surface	1832	0.04
New asphalted driveway curb	260	0.01
Crushed Stone Driveway	1998	0.05
Bed #2		
Existing Impervious Surface	1341	0.03
New Impervious Surface (Bldg/sidewalks)	4294	0.10
Crushed Stone Driveway and RCE left	2971	0.07
Gravel Area (Non-Compacted)	9238	0.21
TOTAL:	21934	0.50

WinTR-55 Current Data Description

--- Identification Data ---

User: TND Date: 7/28/2020
 Project: Borger Units: English
 SubTitle: Replacement Project Areal Units: Acres
 State: New York
 County: Tompkins
 Filename: S:\Marcellus_M-Z - Mark Sladic\Tt DIV_Dominion\Project\Borger Replacement Project\Calculations\

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
DiversionB	West Watershed	Outlet	16.3	60	.494
DiversionA	East Watershed	Outlet	15.47	67	.479

Total area: 31.77 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	10-Yr (in)	100-Yr (in)	-Yr (in)	-Yr (in)	-Yr (in)	-Yr (in)
2.48	3.85	6.03	.0	.0	.0	.0

Storm Data Source: User-provided custom storm data
 Rainfall Distribution Type: Type II
 Dimensionless Unit Hydrograph: <standard>

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Replacement Project
Tompkins County, New York

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	10-Yr (in)	100-Yr (in)	-Yr (in)	-Yr (in)	-Yr (in)	-Yr (in)
2.48	3.85	6.03	.0	.0	.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

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Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period	
	10-Yr (cfs)	100-Yr (cfs)

SUBAREAS		
DiversionB	7.55	26.35
DiversionA	13.26	35.11
REACHES		
OUTLET	20.75	61.17

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Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period	
	10-Yr (cfs) (hr)	100-Yr (cfs) (hr)

SUBAREAS

DiversionB	7.55	26.35
	12.24	12.20

DiversionA	13.26	35.11
	12.19	12.17

REACHES

OUTLET	20.75	61.17
--------	-------	-------

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Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
DiversionB	16.30	0.494	60	Outlet	West Watershed
DiversionA	15.47	0.479	67	Outlet	East Watershed
Total Area:	31.77 (ac)				

TND

Borger
Replacement Project
Tompkins County, New York

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)

Diversi o nB							
SHEET	100	0.1000	0.800				0.372
SHALLOW	2700	0.1460	0.050				0.122
					Time of Concentration		.494
							=====
Diversi o nA							
SHEET	100	0.1000	0.800				0.372
SHALLOW	2400	0.1500	0.050				0.107
					Time of Concentration		.479
							=====

TND

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Replacement Project
Tompkins County, New York

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number

DiversionB	Meadow -cont. grass (non grazed)	A	.51	30
	Woods	(good) A	3.87	30
	Woods	(good) C	10.97	70
	Woods	(good) D	.95	77
	Total Area / Weighted Curve Number		16.3	60
			====	==
DiversionA	Meadow -cont. grass (non grazed)	A	.79	30
	Meadow -cont. grass (non grazed)	C	.09	71
	Woods	(good) A	.54	30
	Woods	(good) C	13.99	70
	Woods	(good) D	.06	77
	Total Area / Weighted Curve Number		15.47	67
			=====	==

Worksheet for Diversion A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.030
Channel Slope	0.010 ft/ft
Constructed Depth	18.0 in
Constructed Top Width	8.00 ft
Discharge	35.11 cfs
Results	
Normal Depth	17.5 in
Flow Area	7.6 ft ²
Wetted Perimeter	8.5 ft
Hydraulic Radius	10.7 in
Top Width	7.88 ft
Critical Depth	15.8 in
Critical Slope	0.015 ft/ft
Velocity	4.60 ft/s
Velocity Head	0.33 ft
Specific Energy	1.78 ft
Froude Number	0.823
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	17.5 in
Critical Depth	15.8 in
Channel Slope	0.010 ft/ft
Critical Slope	0.015 ft/ft

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u>1</u> OF <u>1</u>
Client: DETI		Project Number: 212C-BF-00135
Subject: Borger Compressor Replacement Project ESC Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

Temporary Diversion:

Design Criteria:

The minimum capacity shall be adequate to carry the peak rate of runoff from a 10-year, 24-hour storm.

Diversion B:

Drainage area figures are attached to this calculation that show the drainage area to Diversion B, including the land cover types and the time of concentration. Peak discharge rates were determined using TR-55 by computer modeling with WinTR-55. The 10-year, 24-hour storm event was analyzed in WinTR-55 to determine peak discharge rates for the channel. The rainfall amount for the 24-hour storm events were obtained from NOAA Atlas 14, Volume 10, Version 3. The WinTR-55 model report is provided as an attachment to this calculation. The 10-year, 24-hour storm event peak discharge rate is 7.55 cfs + 13.26 cfs = 20.18 cfs.

Manning's equation was used to determine diversion hydrology by computer modeling with Bentley FlowMaster. The diversion is a 24-inch deep, 6-foot top width parabolic channel with vegetated lining. The FlowMaster report is provided as an attachment to this calculation. The FlowMaster results show that Diversion B has a flow depth of 20.3 inches. This design gives Diversion B freeboard of 3.7 inches for the 10-year 24-hour storm.

Flow Spreader:

Design Criteria:

The peak stormwater flow rate to a flow spreader due to runoff from a 10- year 24-hour storm must be less than 0.5 cubic feet per second per foot length of flow spreader lip. The flow spreader length may not be more than 30 feet if flow is entering from one end of the spreader. Longer lengths require flow to split evenly from the center of the spreader.

Diversion Drain Level Spreader:

Per the diversion drain calculations, the 10-year 24-hour storm event peak discharge rate for the flow spreader is 20.18 cfs. The flow spreader length is determined by 0.5 cfs/foot per the *New York State Standards and Specifications for Erosion and Sediment Control*. The level spreader length is:

$$20.18 \text{ cfs} / 0.5 \text{ cfs/foot} = 40.4 \text{ feet}$$

The spreader length provided is 56-feet. An ArmorFlex lined lip will be used for a permanent installation.

STANDARD DESIGN CALCULATION WORKSHEET

TETRA TECH, INC.	CALCULATION WORKSHEET	PAGE <u> 2 </u> OF <u> 1 </u>
Client: DETI		Project Number: 212C-BF-00135
Subject: Borger Compressor Replacement Project ESC Calculations		
By: TD	Checked By:	Approved By: TD Date: 8/4/20

Compost Filter Sock:

See the attached sizing table. Certain areas of the project that are designated as vegetation protection areas have CFS downslope as an added protection measure where fence posts are being installed. The CFS in those areas and below stockpiles that have additional downslope protection are sized as 12-inch without a calculation.

Compost Filter Sock Sediment Trap:

Compost sock sediment traps shall provide 3,600 cubic feet storage capacity with 12 inches of freeboard for each tributary drainage acreage. The drainage area to the trap is 2.07 acres. Therefore, the required volume for the trap is 7,452 cubic feet. The CFS is placed at contour elevation 1036 and upturned to elevation 1039. The volume capacity of the trap at elevation 1038 is:

$$V = A * 0.5d = 7550 \text{ sf} * 0.5 * 2 \text{ ft} = 7,550 \text{ cubic feet} > 7,452 \text{ cubic feet}$$

Calculation Attachments:

- Compost Filter Sock Sizing**
- FlowMaster Report**

CLIENT:	Dominion Energy Transmission, Inc.	JOB NUMBER:	212C-BF-00135
SUBJECT:	Compost Filter Sock Sizing		
BASED ON:	New York State Standards and Specifications for Erosion and Sediment Control, Pages 5.54 - 5.55	DRAWING NUMBER:	
BY: TD		APPROVED BY: DW	
Date: 3/3/20		DATE: 3/26/20	

Dia. (in.)	Slope %						
	2	5	10	20	25	33	50
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50

* Length in feet

Detail from New York State Standards & Specifications for Erosion and Sediment Control, November 2016 Edition

Sediment Barrier Location	Sediment Barrier #	Slope (%)	Slope Length (ft)	Sediment Barrier Length (ft)	Compost Filter Sock Diameter (in.)
LOD1, SW Corner	1	4.7	268	40	24
LOD1, SSW	2	4.7	268	60	24
LOD1, S	3	4.7	275	90	24
LOD1, SSE	4	3.7	300	100	32
LOD1, SE Corner	5	3.7	295	180	32
LOD1, SSE	6	4.8	140	50	12
LOD1, E	7	6	65	30	12
LOD1, NE Corner	8	13.3	30	25	12
LOD2, SSW	9	N/A	VP area	100	12
LOD2, SSW	10	N/A	VP area	110	12
LOD2, SSW	11	N/A	VP area	110	12
LOD2, SW Corner	12	4	300	170	32
LOD2, J-Hook 1040	13	4.2	325	30	32
LOD2, J-Hook 1041x2	14	4.2	312	80	32
LOD2, J-Hook 1042	15	4.2	275	30	24
LOD2, J-Hook 1043	16	4.2	260	30	24
LOD2, J-Hook 1044	17	4.2	240	30	18
LOD2, J-Hook 1045	18	4.2	220	30	12
LOD2, J-Hook 1046	19	4.2	195	30	12
LOD2, J-Hook 1047	20	4.2	165	30	12
LOD2, J-Hook 1048	21	4.2	140	30	12
LOD2, J-Hook 1049	22	4.5	200	30	12
Turbine Bldg. 1052	23	4.4	115	175	12
LOD2, Stockpile	24	N/A	Stockpile	60	32
LOD2, Stockpile	25	N/A	Stockpile	40	32
LOD2, Stockpile	26	N/A	Stockpile	90	32
Above Bed 2	25	3.8	325	90	32
LOD2, N of Trap	26	9.7	260	30	32
LOD2, NE	27	9.8	275	200	32
LOD2, SSE	28	N/A	VP area	150	12
LOD2, S-1	29	4.3	160	55	12
LOD2, S-2	30	4.3	70	55	12
LOD2, S-3	31	4.3	70	55	12

Worksheet for Diversion B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.005 ft/ft
Constructed Depth	24.0 in
Constructed Top Width	6.00 ft
Discharge	20.81 cfs

Results	
Normal Depth	20.3 in
Flow Area	6.2 ft ²
Wetted Perimeter	6.7 ft
Hydraulic Radius	11.2 in
Top Width	5.52 ft
Critical Depth	15.1 in
Critical Slope	0.017 ft/ft
Velocity	3.34 ft/s
Velocity Head	0.17 ft
Specific Energy	1.87 ft
Froude Number	0.554
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	20.3 in
Critical Depth	15.1 in
Channel Slope	0.005 ft/ft
Critical Slope	0.017 ft/ft

APPENDIX G

Soil Report



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for Tompkins County, New York

Borger Compressor Replacement



Preface

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

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

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

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

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

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

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Tompkins County, New York.....	13
BgD—Bath and Valois soils, 15 to 25 percent slopes, eroded.....	13
CdA—Chenango gravelly loam, 0 to 5 percent slopes.....	15
CnB—Chenango gravelly loam, fan, 0 to 8 percent slopes.....	16
References	19

How Soil Surveys Are Made

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

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

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

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

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

Custom Soil Resource Report

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

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

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

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

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

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

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

Custom Soil Resource Report

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

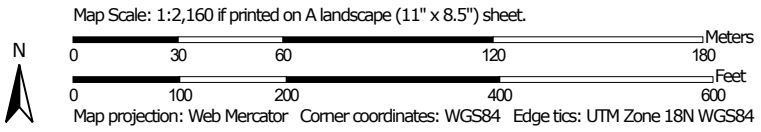
Soil Map

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

Custom Soil Resource Report Soil Map




Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit


 Gravelly Spot


 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot


 Other

 Special Line Features

Water Features

 Streams and Canals


Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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: Tompkins County, New York
 Survey Area Data: Version 15, Sep 16, 2019

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

Date(s) aerial images were photographed: Aug 29, 2012—Nov 6, 2016

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgD	Bath and Valois soils, 15 to 25 percent slopes, eroded	1.6	10.7%
CdA	Chenango gravelly loam, 0 to 5 percent slopes	0.0	0.0%
CnB	Chenango gravelly loam, fan, 0 to 8 percent slopes	13.5	89.3%
Totals for Area of Interest		15.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

Custom Soil Resource Report

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Tompkins County, New York

BgD—Bath and Valois soils, 15 to 25 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2v32d
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Bath, eroded, and similar soils: 40 percent
Valois and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bath, Eroded

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: channery silt loam
Bw1 - 9 to 13 inches: channery silt loam
Bw2 - 13 to 23 inches: channery loam
E - 23 to 27 inches: channery loam
Bx - 27 to 50 inches: very channery silt loam
C - 50 to 72 inches: very channery silt loam

Properties and qualities

Slope: 15 to 25 percent
Percent of area covered with surface fragments: 0.0 percent
Depth to restrictive feature: 26 to 38 inches to fragipan
Natural drainage class: Well drained
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 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Valois

Setting

Landform: Valley sides, lateral moraines, end moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from sandstone, siltstone, and shale

Typical profile

H1 - 0 to 2 inches: gravelly silt loam
H2 - 2 to 32 inches: gravelly silt loam
H3 - 32 to 49 inches: gravelly silt loam
H4 - 49 to 60 inches: gravelly silt loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 24 to 36 inches to fragipan
Natural drainage class: 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 35 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Howard

Percent of map unit: 5 percent
Landform: Valley trains, terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Mardin, eroded

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Volusia

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope

Custom Soil Resource Report

Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Lordstown

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope, nose slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Langford, eroded

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

CdA—Chenango gravelly loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 9x15
Elevation: 600 to 1,800 feet
Mean annual precipitation: 32 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Chenango and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango

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, derived mainly from sandstone, shale, and siltstone

Custom Soil Resource Report

Typical profile

H1 - 0 to 8 inches: gravelly loam

H2 - 8 to 26 inches: gravelly silt loam

H3 - 26 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat excessively 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

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Tioga

Percent of map unit: 5 percent

Hydric soil rating: No

Braceville

Percent of map unit: 5 percent

Hydric soil rating: No

Howard

Percent of map unit: 5 percent

Hydric soil rating: No

Red hook

Percent of map unit: 5 percent

Hydric soil rating: No

CnB—Chenango gravelly loam, fan, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9xlc

Mean annual precipitation: 32 to 42 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 120 to 160 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Chenango, fan, and similar soils: 75 percent

Custom Soil Resource Report

Minor components: 25 percent

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

Description of Chenango, Fan

Setting

Landform: Alluvial fans

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, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 8 inches: gravelly loam

H2 - 8 to 26 inches: gravelly silt loam

H3 - 26 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural 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: About 36 to 60 inches

Frequency of flooding: Rare

Frequency of ponding: None

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Genesee (hamlin)

Percent of map unit: 5 percent

Hydric soil rating: No

Red hook

Percent of map unit: 5 percent

Hydric soil rating: No

Arkport

Percent of map unit: 5 percent

Hydric soil rating: No

Tioga

Percent of map unit: 5 percent

Hydric soil rating: No

Braceville

Percent of map unit: 5 percent

Hydric soil rating: No

Custom Soil Resource Report

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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APPENDIX H

5-Acre Disturbance Approval

APPENDIX I

Agency Coordination



DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

REPLY TO
ATTENTION OF:

April 25, 2020

Regulatory Branch

SUBJECT: Determination of No Permit Required, Department of Army Application No. 2014-00513

Dominion Energy Transmission, Inc.
707 East Main Street
Richmond, Virginia 23219
Attn: Brian Wright

Dear Mr. Wright:

This pertains to your proposal to replace two existing Dresser DC990 centrifugal compressor units (Borger Units 2 and 3) with two new Solar Centaur 50LS centrifugal compressor units (Borger Units 5 and 6) with oxidation catalysts. Work also includes temporary workspace, parking areas, and laydown areas and construction of a security fence, all within the existing property comprised of the Borger Station operational area. The project is located at 219 Ellis Hollow Creek Road, Town of Dryden, Tompkins County, New York

One 0.02-acre emergent wetland was identified on the site which is part of the area where the fence is proposed, where either timber matting or biomats would be used to protect the area during fence installation. The use of mats in a wetland is not considered as fill.

Under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403), a permit is required for any structure or work that takes place in, under, or over a navigable water, or wetlands adjacent to navigable waters of the United States (WOUS). Under Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers regulates the discharge of dredged or fill material into WOUS, including wetlands. Certain types of excavation activities are defined as discharges of dredged material when they occur in WOUS. For instance, land clearing using mechanized equipment, ditching, channelization and other types of excavation when performed in such waters, including wetlands, would likely be regulated under Section 404 of the CWA.

I have reviewed the information which accompanied your application and have determined that a Department of the Army (DA) permit is not required. Should you modify your proposal to entail work in navigable waters or a discharge of dredged or fill material into a WOUS you must contact this office regarding DA permit requirements. Although a permit is not required, we request that proper measures be taken to prevent unintentional discharges from entering the waterway.

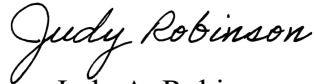
You are encouraged to contact the appropriate state and local governmental officials to ensure that the proposed work complies with their requirements.

Regulatory Branch

SUBJECT: Determination of No Permit Required, Department of Army Application No. 2014-00513

Questions pertaining to this matter should be directed to me at 716-879-6330, by writing to the following address: U.S. Army Corps of Engineers, 7413 County House Road, Auburn, New York 13021, or by e-mail at: judy.a.robinson@usace.army.mil.

Sincerely,

A handwritten signature in cursive script that reads "Judy Robinson".

Judy A. Robinson
Biologist

Encl.

cc: Francisco Canneto, Dominion Energy Services
Peggy Grant, Tetra Tech



United States Department of the Interior



FISH AND WILDLIFE SERVICE

New York Field Office

3817 Luker Road

Cortland, NY 13045

Phone: (607) 753-9334 Fax: (607) 753-9699

<http://www.fws.gov/northeast/nyfo>

To: Richard Gangle c/o Frank Canneto

Date: 3/31/2020

USFWS File No: 202247

Regarding your: Letter Fax Email

Dated: 3/27/2020

For project: Borger Compressor Station

Located: _____

In Town/County: Town of Dryden, Tompkins County, NY

Pursuant to the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), the U.S. Fish and Wildlife Service:

Acknowledges receipt of your “no effect” and/or no impact determination. No further ESA coordination or consultation is required.

Acknowledges receipt of your determination. Please provide a copy of your determination and supporting materials to any involved Federal agency for their final ESA determination.

Is taking no action pursuant to ESA or any legislation at this time, but would like to be kept informed of project developments.

As a reminder, until the proposed project is complete, we recommend that you check our website (<http://www.fws.gov/northeast/nyfo/es/section7.htm>) every 90 days from the date of this letter to ensure that listed species presence/absence information for the proposed project is current. Should project plans change or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered.

USFWS Contact(s): _____

Supervisor: **ROBYN NIVER** Digitally signed by ROBYN NIVER
Date: 2020.03.31 06:58:51 -04'00' Date: _____

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

April 13, 2020

Peggy A. Grant
Tetra Tech
301 Ellicott Street
Buffalo, NY 14203

Re: Borger Replacement Project
County: Tompkins Town/City: Dryden

Dear Ms. Grant:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 7 Office, Division of Environmental Permits, at dep.r7@dec.ny.gov.

Sincerely,



Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program



The following rare animal has been documented in the vicinity of the project site.

We recommend that potential impacts of the proposed project on this species be addressed as part of any environmental assessment or review conducted as part of the planning and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following animal, while not listed by New York State as Endangered or Threatened, is rare in New York and is of conservation concern.

<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>NY STATE LISTING</i>	<i>HERITAGE CONSERVATION STATUS</i>
Dragonflies and Damselflies			
Tiger Spiketail	<i>Cordulegaster erronea</i>	Unlisted	Critically Imperiled in NYS

Documented within 100 yards northwest of the project site. 2015-07-04: The dragonflies were found near a small, fast-moving rocky stream (less than three feet in width) flowing through fairly dense secondary forest. 14598

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at <http://plants.usda.gov/index.html> (for plants).



Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks, Recreation and Historic Preservation

Division for Historic Preservation
P.O. Box 189, Waterford, New York 12188-0189
518-237-8643

22 July 2014

Mr. Francisco Canneto
Dominion Transmission, Inc.
5000 Dominion Boulevard
Glen Allen, VA 23060

Re: FERC
Dominion Transmission New Market Project
Town of Veteran, Chemung County
Town of Frankfort, Herkimer County
Town of Georgetown, Madison County
Town of Minden, Montgomery County
Town of Rotterdam, Schenectady County
Town of Dryden, Tompkins County
14PR02199 / CP14-497

Dear Mr. Canneto:

The State Historic Preservation Office (SHPO) has reviewed the information submitted for this project (*Phase I Cultural Resources Investigation Report, New Market Project, Chemung, Tompkins, Madison, Herkimer, Montgomery, and Schenectady Counties, New York*, dated May 2014, prepared by Tetra Tech, Inc.). Our review has been in accordance with Section 106 of the National Historic Preservation Act and relevant implementing regulations.

Based on the information provided, SHPO recommends that the planned project will have **No Effect** on historic properties listed or eligible for listing on the National Register of Historic Places. This recommendation pertains only to the Area of Potential Effects (APE) examined during the above-referenced investigation. It is not applicable to any other portion of the project property. Should the project design be changed SHPO recommends further consultation with this office.

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 (6 NYCRR Part 617).

If you have any questions please don't hesitate to contact me.

Sincerely,

Philip A. Perazio, Historic Preservation Program Analyst – Archaeology Unit
Phone: 518-237-8643 x3276; FAX: 518-233-9049
Email: Philip.Perazio@parks.ny.gov

Cc: FERC (via eFiling)
Robert Peltier, Tetra Tech (via email)

APPENDIX J

Log of Changes to the SWPPP

Log of Changes to the SWPPP
Borger Replacement Project

Date of Change	Description of Changes

APPENDIX K

Log of Corrective Actions

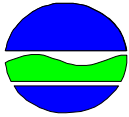
Log of Corrective Actions
Borger Replacement Project

Date of Change	Corrective Action

APPENDIX L

Notice of Intent Form and Receipt

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-0-20-001
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																				
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5. Do you plan to disturb more than 5 acres of soil at any one time? Yes No

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

A <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td><td></td><td></td></tr> </table> %					B <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td><td></td><td></td></tr> </table> %					C <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td><td></td><td></td></tr> </table> %					D <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td><td></td><td></td></tr> </table> %				

7. Is this a phased project? Yes No

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

Start Date <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td></tr> </table> / <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td></tr> </table> / <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td><td></td><td></td></tr> </table>									-	End Date <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td></tr> </table> / <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td></tr> </table> / <table border="1" style="display: inline-table; width: 40px; height: 20px;"> <tr><td></td><td></td><td></td><td></td></tr> </table>								

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

Name
[Grid for name entry]

9a. Type of waterbody identified in Question 9?

- Wetland / State Jurisdiction On Site (Answer 9b)
Wetland / State Jurisdiction Off Site
Wetland / Federal Jurisdiction On Site (Answer 9b)
Wetland / Federal Jurisdiction Off Site
Stream / Creek On Site
Stream / Creek Off Site
River On Site
River Off Site
Lake On Site
Lake Off Site
Other Type On Site
Other Type Off Site

9b. How was the wetland identified?

- Regulatory Map
Delineated by Consultant
Delineated by Army Corps of Engineers
Other (identify)

[Grid for 'Other Type Off Site' answer]

[Grid for 'Other (identify)' answer]

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? Yes No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? Yes No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? Yes No
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? Yes No
If Yes, what is the acreage to be disturbed? [Grid for acreage]

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? Yes No

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

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
[][][] . [][][] **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). [][][] . [][][]

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? Yes No

If Yes, go to question 36.

If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required [][][] . [][][] **acre-feet** **CPv Provided** [][][] . [][][] **acre-feet**

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

- Site discharges directly to tidal waters or a fifth order or larger stream.
- Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development [][][] . [][][] **CFS** **Post-development** [][][] . [][][] **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development [][][] . [][][] **CFS** **Post-development** [][][] . [][][] **CFS**



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 M

Notice of Termination

**New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
*(NOTE: Submit completed form to address above)***

**NOTICE OF TERMINATION for Storm Water Discharges Authorized
under the SPDES General Permit for Construction Activity**

Please indicate your permit identification number: NYR _____

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person:

4a. Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR _____

(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? yes no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? yes no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

**NOTICE OF TERMINATION for Storm Water Discharges Authorized under the
SPDES General Permit for Construction Activity - continued**

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? yes no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

- Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.
- Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).
- For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.
- For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____
(acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? yes
 no
(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:
(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:

Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the
SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

(NYS DEC Notice of Termination - January 2015)