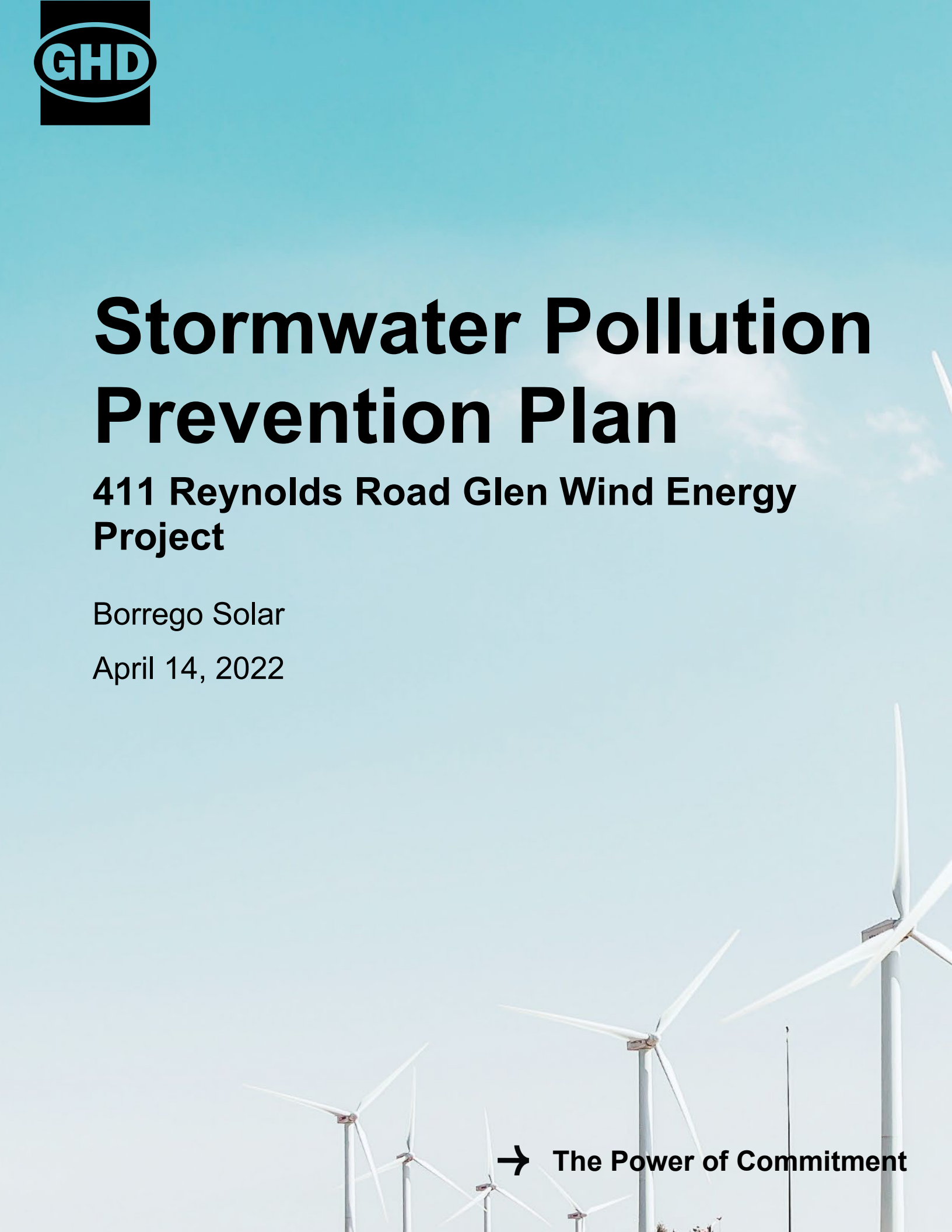
Stormwater Pollution Prevention Plan

411 Reynolds Road Glen Wind Energy Project

Borrego Solar

April 14, 2022



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GHD Consulting Services Inc.
285 Delaware Avenue, Suite 500
Buffalo, New York 14202, United States
T +1 716 856 2142 | **F** +1 716 856 2160 | **ghd.com**

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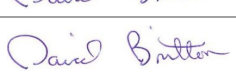
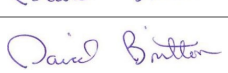
S4		Camie Jarrell	D. Britton		D. Britton		8/31/21
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Stormwater Pollution Prevention Plan
Preparer's Certification

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

Signature: Date: April 14, 2022

David M. Britton, P.E.
NY License No. 075722
GHD Consulting Services Inc.

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1. Purpose and Objectives

GHD Consulting Services Inc. (GHD) has prepared this Stormwater Pollution Prevention Plan (SWPPP) on behalf of Borrego Solar for the Glen Wind Energy Project, a single 4.3 MW wind turbine, located at 411 Reynolds Road, Town of Glen, New York.

This SWPPP has been prepared in compliance with the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001), which is included in Appendix A. The design standards and practices outlined herein are based on guidelines in the New York State Standards and Specifications for Erosion and Sediment Control (NYS Standards) and the New York State Stormwater Management Design Manual.

The objective of the SWPPP is to establish mitigation measures and to minimize the number of pollutants in the stormwater runoff from the project area in order to protect the waters of the United States from the adverse impact of stormwater runoff. The selection of Best Management Practices (BMPs) for this project follows an approach to develop a Site design that regulates stormwater discharges, reduces impacts of stormwater runoff, and provides a maximum level of treatment given the project constraints.

An owner or operator of a construction activity that is eligible for coverage under this general permit must obtain coverage prior to commencement of construction activity. A copy of the Notice of Intent (NOI) can be found in Appendix B. The owner or operator shall submit the NOI electronically to the NYSDEC. Permit coverage shall begin five (5) business days following receipt of the NOI. The NYSDEC shall provide a Letter of Acknowledgment, and it shall be made part of this SWPPP in Appendix C.

The following sections outline the project background and existing Site conditions, the general project requirements, a description of construction activities, the erosion and sedimentation control requirements, post-construction stormwater practices, and maintenance and inspection requirements.

2. Background

2.1 Project Background

Borrego Solar has negotiated a lease agreement with a property owner on the east side of Reynolds Road, County Road 121, in the Town of Glen, Montgomery County, for a single wind turbine project. All permitting of the Site is within the Glen jurisdiction. The standards and procedures for siting of wind projects is outlined in the Town of Glen Land Use Management Ordinance, which generally involved a Site plan review process to the Town Planning Board with issuance of a Special Use Permit (upon approval). The parcel is located within Montgomery County Agricultural District 3.

All project features will be leased, operated, and maintained by Borrego Solar. The project is located on private property and is not located within a regulated jurisdictional municipal separate storm system (MS4); therefore, SPDES permitting will be under the authority of the NYSDEC.

A location map of the Glen Reynolds Road Wind Energy Project is provided as Figure 1.

2.2 Existing Conditions

The property of interest, 411 Reynolds Road, is a privately owned, single parcel of approximately 191 acres in size. Along the property, Reynolds Road travels southeast and turns to the southwest creating a roadway bend at the

property. The Site is a vacant lot along Reynolds Road right-of-way but becomes heavily wooded towards the east and the higher elevations where the turbine is proposed. Several wetlands were delineated on the Site, as well as a stream, that were found to be federal jurisdictional. There is also a former farm road off Reynolds Road with an existing 10-inch culvert crossing at the junction between the start of the stream and the wetlands. The lease area of the Site is limited to the northeast portion of the project, which is also the location of the farm road. Therefore, project impacts to wetlands have been minimized to the extent practical, but a disturbance of 0.25 acres is anticipated, and a joint application for permit is required.

The Site generally drains in three watersheds. The west side will drain towards Reynolds Road, where it splits to the north and south. In the center of the property, the grades will direct any runoff towards the stream and wetlands. Finally, to the far east, the site elevations peek and then drops dramatically to continue east.

The neighboring properties include some isolated rural residences, some farmlands (active and inactive), and some vacant, undisturbed parcels similar to the project parcel.

There is no floodplain on the property.

2.3 Project Description

The project involves the construction of a single wind turbine and associated features and infrastructure. At the time of preparation of this SWPPP, the model anticipated for the project is the Vestas V150, 4.3 MW turbine, which has a tip height of 649 feet. The turbine foundation is anticipated to be a spread footer that will predominately be underground leaving an 18-foot concrete pedestal aboveground. Permanent features of the project shall include a gravel access road off Reynolds Road, a gravel pad around the turbine, a crane pad, and a small run of overhead electrical lines and poles off Reynolds Road, while the remaining electrical lines will be underground. Other temporary features needed during construction include construction staging area, stockpile, blade laydown area, and truck route around turbine. The staging area and truck route will be constructed of gravel, but following the turbine installation, the stone will be removed and the area de-compacted and restored with topsoil and seeding. The remaining areas will remain pervious but will require decompaction and reseeding following turbine construction.

There is no substation or other interconnection features required for the project. The project shall directly connect to the local electrical system.

The project will result in a soil disturbance of 4.26 acres of which 1.09 acres of new impervious area. Erosion and sediment control information is included on the Project Drawings, which are included as Appendix I of the SWPPP.

2.4 Involved Parties

The following are the involved parties for the project concerning stormwater pollution prevention:

Operator: Borrego Solar
Address: 55 Technology Dr, Suite 102, Lowell MA 01851
Contact Person: Brandon Smith
Phone Number: 603-819-9693

Design Engineer: GHD Consulting Services Inc.
Address: 285 Delaware Avenue, Suite 500, Buffalo, NY 14202
Contact Person: David M. Britton
Phone Number: (716) 362-8815

NYSDEC Regional Office: Region 4
Address: 1130 N. Westcott Road, Schenectady NY 12054
Phone Number: (518) 357-2234

2.5 Geology

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

HSG 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.

HSG 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.

HSG 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.

HSG 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 clay pan 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, which are in their natural condition in Group D, are assigned to dual classes.

The project site is mostly Arnot-Angola channery silt loams (AvB), with slopes from 3 percent to 8 percent, which is hydrologic group D and well drained with a deep water table. The turbine foundation will likely encounter bedrock. Other soil types are not present in significant portions of the site. The County Soil Reports are included in Appendix D.

3. Stormwater Pollution Prevention Plan

3.1 Construction Sequence

The project shall be constructed in a single phase of approximately 3 months. The following typical construction sequence will generally be followed:

- Mobilization of construction equipment and materials to the Site.
- Installation of temporary stabilized construction entrance to the Site.
- Contractor shall minimal clearing necessary to install silt fence/silt sock as shown on the Drawings, prior to completion of remaining site clearing.
- Establishment of staging area and concrete washout area.
- Maintenance of erosion and sediment controls shall be ongoing throughout construction.
- Rough grading of access road and replacement culvert crossing with larger pipe and riprap.
- Rough grading of turbine area and crane/laydown areas and stockpiling of materials as needed with perimeter protection.
- Installation of gravel access road, which will replace temporary construction entrance, temporary loop road and crane pad.
- Excavation and construction of turbine foundation and installation grounding and electrical service.
- Backfill of foundation.
- Delivery and assembly of crane and turbine components.

– Installation of poles and overhead electrical connection.
– Removal of temporary staging area and loop road.
– Fine grading and restoration and seeding of all disturbed areas.
– Removal of erosion and sediment control features upon minimum 80% establishment of grass cover and completion of plantings.

3.2 Best Management Practices

As stated above, the project shall be constructed in a single phase of an approximate 3-month period. The project will not require the disturbance of greater than 5 acres at any one time. If at any time that changes, the Contractor must request, in writing, authorization from the Regional Office of the NYSDEC for the disturbance and meet all SPDES Permit requirements. Following authorization for greater than 5 acres of disturbance, when the disturbance drops below the 5-acre threshold, the Contractor must also notify the Regional Office in writing.

The Contractor will be responsible for dust control and removal of any sediment buildup on the adjacent roadway. The Contractor will be required to protect existing and new inlets and ditches throughout construction. All erosion and sediment control measures have been designed in general compliance with the NYS Standards.

The Contractor shall be responsible for installation and maintenance of BMPs on the Site. The Contractor shall sign the certification statements made part of the SWPPP in Appendix E. In addition, any subcontractors will be required to respect and protect these BMPs against disturbance due to their operations, therefore, will be required to sign the SWPPP as well.

The BMPs, which will be incorporated in the construction phase, are detailed on the Project Drawings (Appendix I) and include:

– Stabilized Construction Entrance: Reynolds Road is currently an asphalt roadway. Based on haul route analysis, the roadway may need to be improved and widened, as necessary, to accommodate construction vehicles and minimize sediment transportation off the Site. A stabilized construction entrance shall be installed at the Site entrance from the public roadway. The entrance shall help control sediment transportation by vehicles entering and exiting the Site. The entrance shall be installed in accordance with details and be maintained should sediment build up on the surface, as needed, and until the permanent gravel access road is installed.
– Silt Sock/Fence: As a measure to prevent off-Site sediment transportation to the drainage ditches and pond, silt sock or silt fence shall be installed along the slopes to prevent sediment-laden runoff from exiting the work areas, as shown on the Drawings. Sediment buildup on silt fence or silt sock shall be removed if it reaches 50% of the capacity and any damaged sections shall be replaced.
– Check Dams/Riprap: Stone check dams are intended to control potential sediment along swales and drainage ditches. The Contractor will be required to install stone check dams as shown on Drawings and as needed. The project will require the replacement of the culvert pipe at the start of the stream. The culvert pipe shall end sections and riprap as shown on the details to control erosion and sediment. These measures shall be inspected regularly, and accumulated sediment removed from stones.
– Stockpile Stabilization: Spoil materials from excavation shall be stockpiled for reuse in wetland habitat plantings area or as backfill and excess spoils shall be removed from the Site. Topsoil material may be segregated from backfill and reused for stabilization. At no time shall stockpiled materials be placed in drainage pathways or waterways. The Contractor shall install perimeter protection around all stockpiles.
– Soil Stabilization: The project pervious surfaces around the turbine shall be lawn areas and will be stabilized using topsoil and seeding. Straw mulch may be used to stabilize the areas until grass growth is established. In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within 14 days (7 days if greater than 5 acres disturbed) from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standards, NYS Standards.

All temporary stormwater control measures shall remain in place, and well maintained, until a qualified professional determines that final stabilization has been reached.

3.3 Pollution Prevention Controls

The Contractor and all subcontractors shall be responsible for implementation of pollution prevention controls. Pollution prevention controls shall include:

- Dust Control: Contractors shall incorporate standard practices for the control of dust from construction. Such controls shall include, but not be limited to, stabilized construction entrance, temporary stabilization of inactive areas and stockpiles, Site watering, and vehicle washing. The Contractor will be responsible for designating vehicle wash areas and providing proper facilities for such activities.
- Sanitary Facilities: Contractors shall comply with state and local sanitary regulations. Temporary sanitary facilities shall be provided at the Site throughout the construction phase. They must be utilized by all construction personnel and shall be serviced by a commercial operator.
- Waste Disposal and Construction Debris: All materials used on the Site will be properly stored, handled, and dispensed following applicable label directions. No solid waste materials are allowed to be exposed to or discharged from the Site with stormwater. Each Contractor and his subcontractors shall be responsible for proper containment and disposal of garbage and debris from construction activities. Contractors shall be responsible for coordinating garbage and debris removal or pickup if necessary.
- Concrete Truck Washout: If necessary, a designated truck washout area will be provided within the work area in order to ensure concrete materials are not impacted by stormwater.
- Vehicle Fueling: Temporary on-Site fuel tanks or trucks for construction vehicles shall meet all state and federal regulations and have approved spill containment. Emergency spill containment materials must also be kept on Site and accessible in case of spills.
- Spill Prevention and Control: All Contractors shall incorporate spill prevention planning, secondary containment, and spill cleanup procedures as required by OSHA and NYSDEC for all products present on the Site.
- Hazardous Materials: No hazardous materials are anticipated on the Site or as part of the project. If any hazardous or potentially hazardous waste is found at the Site, it will be properly handled in order to reduce the potential of stormwater impacts.

3.4 Allowable Non-Stormwater Discharges

The following non-stormwater discharges are allowed as indicated in the SPDES Permit:

- Discharges from firefighting activities only when firefighting activities are emergencies/unplanned.
- Waters to which other components have not been added that are used to control dust.
- Uncontaminated discharges from construction dewatering operations.

3.5 Post-Construction Stormwater Practices

The project was analyzed in accordance with the New York State Stormwater Design Manual (SWDM). All calculations were performed using the standard worksheets provided by the NYSDEC and are found in Appendix F. As required by the SWDM, Chapter 3, Stormwater Management Planning, there are six steps to developing a SWPPP.

Step 1: Site Planning

Step 2: Determine Water Quality Treatment Volume (WQv)

Step 3: Apply Runoff Reduction Techniques (RRv)

Step 4: Determine the minimum RRv required

Step 5: Apply Standard Stormwater Management Practices

Step 6: Apply Volume and Peak Rate Control Practices

The project design began with Step 1 and the following criteria was examined:

Preservation of Natural Resources

a. Preservation of Undisturbed Areas – The project is designed to limit disturbance of the property specifically the wetlands. The landowner also identified an exclusion area that no project features are permitted.
b. Preservation of Buffers – The project disturbance has been limited to the extent practical.
c. Reduction of Clearing and Grading – The project will limit clearing and grading as needed to level the necessary area for the turbine and access road.
d. Locating Development in Less Sensitive Areas – The project is located on a privately owned undisturbed parcel.
e. Open Space Design – This does not apply to the project.
f. Soil Restoration – All surfaces within the agricultural district shall be restored in accordance with New York State Department of Agriculture and Markets, Guidelines for Agricultural Mitigation for Wind Power Projects. All surfaces shall be decompacted and restored with topsoil and seed in accordance with Soil Restoration standard from the NYS Standards and Specifications for Erosion and Sediment Control, latest revision.

Reduction in Impervious Cover

a. Roadway Reduction – The access road will be installed to the minimum size needed for the installation and operation of a wind turbine.
b. Sidewalk Reduction – This does not apply to the project.
c. Driveway Reduction – This does not apply to the project.
d. Cul-de-sac Reduction – This does not apply to the project.
e. Building Footprint Reduction – This does not apply to the project. A single wind turbine has a fairly small footprint.
f. Parking Reduction – This does not apply to the project. No on-site parking is provided.

For Step 2, the Water Quality Volume (WQv) is calculated based on the formula is the SWDM, Chapter 4. Then under Step 3, runoff reduction techniques are considered, analyzed, and applied as follows.

Runoff Reduction Techniques

a. Conservation of Natural Areas – The project will only impact areas as needed for project features.
b. Sheet flow to Riparian Buffers or Filter Strips – The project will utilize natural buffer areas and filter strips to provide stormwater treatment for the new impervious areas as shown below.
c. Vegetated Swale – A vegetated swale was incorporated into the project.
d. Tree Planting/Tree Pit – Tree planting is not feasible for a wind turbine project.
e. Disconnection of Rooftop Runoff – This does not apply to the project.
f. Stream Daylighting – The project will limit impact to the on-site stream to the location of an existing culvert.
g. Rain Garden – This practice is not recommended with the C or D soils.
h. Green Roofs – This does not apply to the project.
i. Stormwater Planters – This does apply to the project.
j. Rain Barrels and Cisterns – This does not apply to the project.
k. Porous Pavement – This does not apply to the project.

The following is an analysis of all runoff reduction techniques that supports the above determination for this project. Undisturbed natural areas, such as forested conservation areas and stream buffers or vegetated filter strips and riparian buffers, can be used to treat and control stormwater runoff from some areas of a development project. To meet requirements of sheet flow to riparian buffers or filter strips, the following analysis must be performed:

a. The areas must be undisturbed and protected against soil compaction by heavy equipment.
b. Maximum contributing lengths shall be 150 feet for pervious and 75 feet for impervious.
c. Runoff shall enter as overland sheet flow or a flow spreader shall be supplied.
d. Minimum width shall be 50 feet for slopes of 0% to 8%, 75 feet for 8% to 12%, and 100 feet for slopes 12% to 15%.
e. For HSG D soils, the buffer length should be increased 20%.

The project will utilize the blade laydown area as grass filter strip, which meets these requirements.

Once these techniques are applied to the project in accordance with Chapter 5.3, the impervious area is decreased and the WQv required is calculated at 715 cf.

Step 4 requires the calculation of the minimum Runoff Reduction Volume (RRv), which is the reduction of the total WQv by application of green infrastructure techniques. The filter strip is an area reduction practice and results in 564 cf of RRv. In accordance with the formula in Chapter 4.3 and the soil type D, the minimum RRv for the remaining area is 3 cf.

The vegetated swales in accordance with SWDM provide 210 cf of treated WQv and 15 cf RRv. The filter strip and vegetated swales provide a combined treatment volume of 789 cf and therefore meet the requirement to treat 100% of the WQv. Step 5 will not apply to the project as the above steps meet the WQv and RRv requirements. The NYSDEC green infrastructure worksheets are available in Appendix F.

Finally, Step 6, volume controls for the 1-year, 10-year, and 100-year storm events must be shown to have no impact post-development. This is presented in the SWDM as the Channel Protection Volume (CPv), the Overbank Flood Control Criteria (Qp), and the Extreme Flood Control Criteria (Qf). CPv requires the storage of the 1-year, 24-hour storm event while Qp and Qf are the pre- and post-development 10-year and 10-year storm events respectively. Total runoff volume decreases for the 1-year, 24-hour rain event, from 8,937 cf in the pre-developed condition to 8,451 cf in the post-developed condition. The 10 and 100-year results are shown in the table below.

A pre-construction and post-construction stormwater HydroCAD model was created. The drainage areas are shown on Figures 2 and 3 for existing and proposed conditions. The model results are shown in Appendix F and summarized in the Table 1 below. The project will meet the requirements of the SWDM and SPDES permit.

Table 1 ***Pre and Post Development Peak Flows***

	1-Year (CPv)		10-Year (Qp)		25-Year		100-Year (Qf)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Design Point 1								
Peak Flow (cfs)	2.21	1.53	6.07	4.16	8.06	5.48	11.21	7.54
Design Point 2								
Peak Flow (cfs)	0.56	0.53	1.56	1.31	2.08	1.70	2.89	2.31
Total Site								
Peak Flow (cfs)	**2.77**	**2.06**	**7.63**	**5.47**	**10.14**	**7.18**	**14.10**	**9.85**

3.6 Maintenance

The Contractor is responsible for the condition and maintenance of the Site during construction. This shall include the maintenance of all erosion and sediment controls and pollution prevention measures during construction. The Contractor and their subcontractors shall sign the certification statement as referenced in Appendix E. Maintenance guidelines for each practice shall be in accordance with NYS Standards and as follows.

As discussed in Section 3.2 and the NYS Standards, the silt fence and silt sock must be checked for any damaged or bulges and replaced as necessary. In addition, sediment shall be removed from area adjacent to perimeter protections when it reaches half the capacity. Stone check dams shall be inspected for condition of the stone and sediment accumulation. Additional stone shall be added if needed and any significant sediment or vegetation growth shall be removed if it is affecting the performance of the dams. The stabilized construction entrance must be kept in working condition. If sediment tracking is occurring off the site, the stone shall be cleaned or replaced as needed.

Section 3.3 outlines the pollution prevention measures for construction. If the site construction utilizes a concrete washout area, the area will be checked regularly as part of weekly inspections. As necessary, the area will be cleaned out and concrete materials sent to an appropriate facility for disposal. The site staging area shall also be inspected to ensure all materials and facilities are properly stored and kept in good condition.

Each Contractor and subcontractor shall 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, as defined in the SPDES permit. The trained contractor shall conduct daily inspection of the Site including all BMPs and erosion and sediment controls and perform any maintenance required.

The long-term maintenance of the Site, and all features, is the responsibility of the operator of the wind turbine. Any change in operator does not release any responsibility or commitment to maintain the features. It is anticipated that an operator representative will make periodic inspections of the Site and the project facilities. At that time, the gravel access road will be inspected for any issues, the filter strip area will be inspected for loss of vegetation, and the swales, culverts and riprap shall be inspected and cleaned as needed.

4. Inspection

In accordance with the SPDES permit for stormwater discharges from construction activities, the owner or operator of the Site must ensure that all erosion and sediment control practices, and all post-construction stormwater management practices identified in the SWPPP are maintained in effective operating condition at all times. Borrego, as owner/operator, shall engage a qualified inspector, as required, in the following sections. The Contractor shall engage a trained contractor as defined by the permit throughout construction. The trained contractor shall be responsible for the day-to-day implementation of the SWPPP.

The following sections contain additional information taken directly from the SPDES permit.

4.1 Owner or Operator Maintenance Inspection Requirements

The *owner or operator* shall inspect, in accordance with the requirements in the most current version of the technical standard, NYS Standards, the erosion and sediment control measures identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times.

For construction sites where soil disturbance activities have been temporarily suspended (e.g., winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *owner or operator* can stop conducting the maintenance inspections. The *owner or operator* shall begin conducting the maintenance inspections as soon as soil disturbance activities resume.

For construction sites where soil disturbance activities have been shut down with partial project completion, the *owner or operator* 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.

4.2 Qualified Inspector Requirements

The *owner or operator* shall have a *qualified inspector* conduct Site inspections in conformance with the following requirements:

Note: The *trained contractor* identified cannot conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications in the permit. In order to perform these inspections, the *trained contractor* would have to be one of the following:

– Licensed Professional Engineer.
– Certified Professional in Erosion and Sediment Control (CPESC).
– Registered Landscape Architect.
– 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 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.

Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

– For construction sites where soil disturbance activities are ongoing, the qualified inspector shall conduct a site inspection at least once every 7 calendar days.

- For construction sites where soil disturbance activities are ongoing and the owner or operator has received authorization to disturb greater than 5 acres of soil at any one time, the qualified inspector shall conduct at least two site inspections every 7 calendar days. The two inspections shall be separated by a minimum of 2 full calendar days.
- 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 30 calendar days. The owner or operator shall notify the Regional Office stormwater contact, in writing, prior to reducing the frequency of inspections.
- 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 Region 9 stormwater contact person 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 Notice of Termination (NOT). The owner or operator shall then submit the completed NOT form to the NYS DEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, NY 12233-3505.

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

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

- Date and time of inspection.
- Name and title of person(s) performing inspection.
- A description of the weather and soil conditions (e.g., dry, wet, saturated) at the time of the inspection.
- 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 (e.g., pipes, culverts, ditches, etc.) and overland flow.
- 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.
- Identification of all erosion and sediment control practices that need repair or maintenance.
- Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced.
- Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection.
- 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.
- Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s).

– 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 on Site within 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 7 calendar days of that inspection.

Within 1 business day of the completion of an inspection, the qualified inspector shall notify the owner or operator and appropriate contractor or subcontractor of any corrective actions that need to be taken. The Contractor or subcontractor shall begin implementing the corrective actions within 1 business day of this notification and shall complete the corrective actions in a reasonable timeframe.

All inspection reports shall be signed by the qualified inspector. Pursuant to the permit, the inspection reports shall be maintained on Site with the SWPPP.

A blank example of a weekly inspection report has been included in Appendix G. The NYSDEC shall have the authority to inspect the Site and required documentation at any time during normal business hours.

5. Project Certification and Closeout

Borrego, as the Site operator, and the Contractor shall sign the SWPPP certifications in Appendix E.

Borrego shall submit the NOI to the NYSDEC in order to obtain permit coverage. This will be in the form of a NYSDEC Acknowledgment Letter and made part of the SWPPP in Appendix C. Timelines for submittal of NOI are provided in the SPDES permit.

Upon establishment of final cover, a final inspection shall be conducted by the qualified inspector who will sign off on the final stabilization and post-construction stormwater management practices of the Site on the NOT, which is included in Appendix H. Then, Borrego shall sign and submit the NOT to the NYSDEC for closure of the SPDES permit.

6. Recordkeeping

During Construction: The Contractor shall maintain for the duration of construction and in a secure location on Site, copies of the signed SWPPP, the NOI, the SPDES General Permit, and NYSDEC Acknowledgment Letter. Copies of inspection reports shall be made a part of the SWPPP. These reports shall be kept on Site during construction and be made available to the NYSDEC during inspection. During normal working hours, the documents shall be available for viewing.

Record Retention: The *owner or operator* shall retain a copy of the NOI, MS4 SWPPP Acceptance Form, NYSDEC Acknowledgment Letter, SWPPP, and any inspection reports that were prepared in conjunction with this permit for a period of at least 5 years from the date that the Site achieves final stabilization. This period may be extended by the NYSDEC, in its sole discretion, at any time upon written notification.

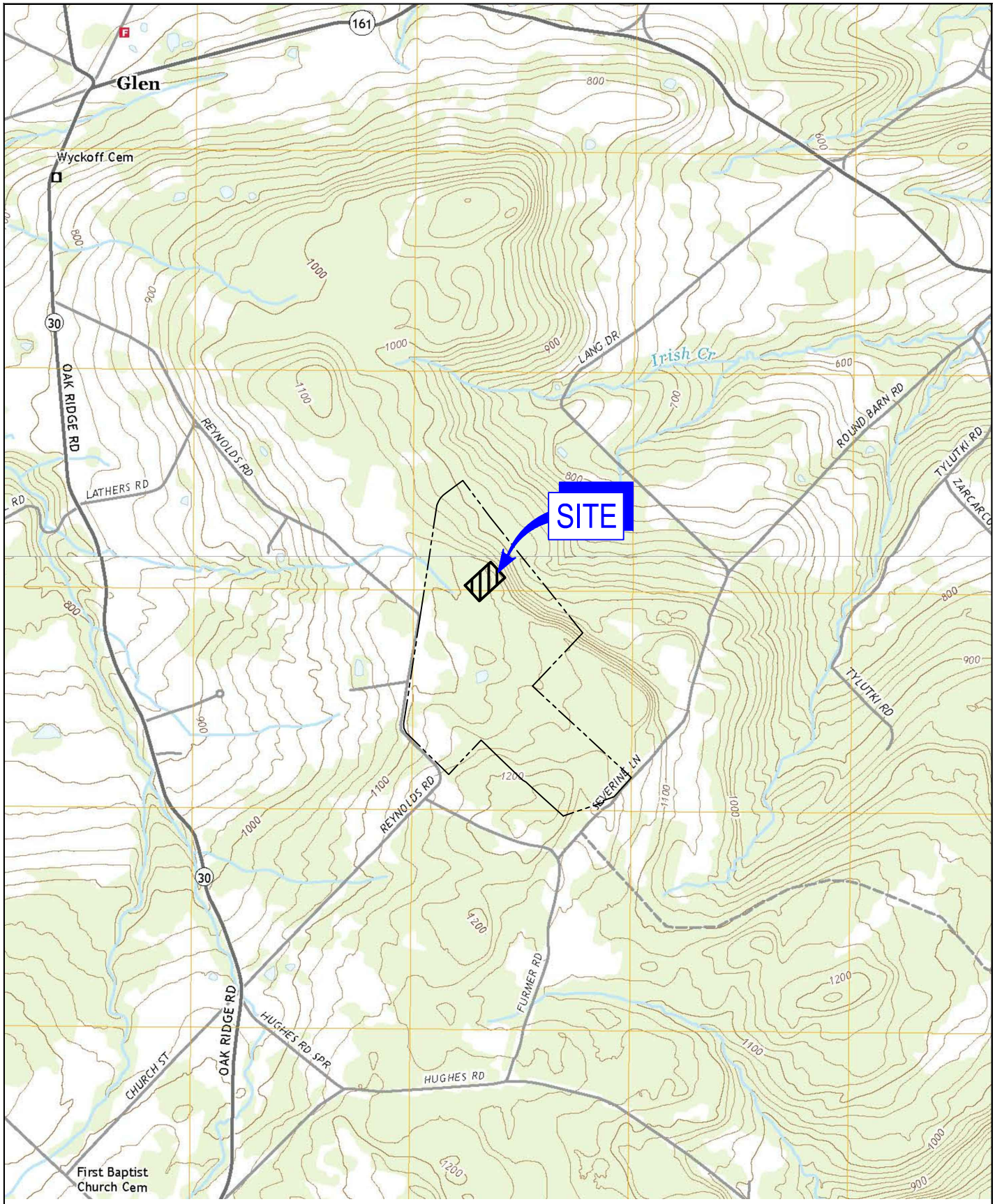
Addresses: With the exception of the NOI and NOT, all written correspondence requested by the NYSDEC, including individual permit applications, shall be sent to the address of the Region 4 Office, Bureau of Water Permits.

7. References

– New York State Standards and Specifications for Erosion and Sediment Control (November 2016).
– New York State Stormwater Management Design Manual (January 2015).

Figure 1

Site Location Map



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, ESPERANCE AND TRIBES HILL, NY 2019

0 2,000'

N

GHD

BORREGO SOLAR
411 REYNOLDS RD

SITE LOCATION MAP

Project No. **11227527**
Date **August 21**

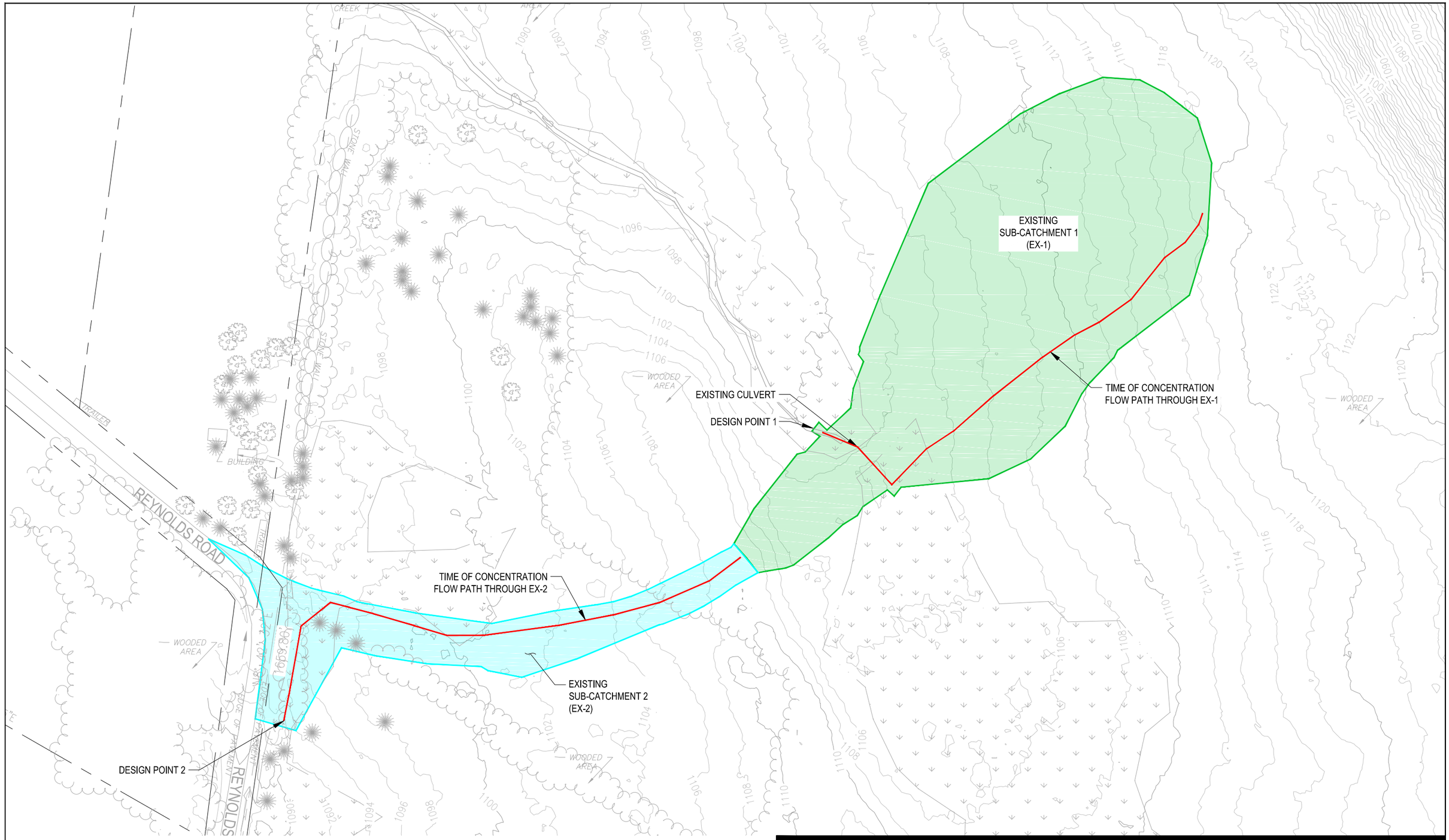
FIGURE 1

Filename: N:\US\Buffalo\Projects\564\11227527\Digital_Design\ACAD 2020\Figures\Reynolds Rd Site Location\11227527-FIG001.dwg
Plot Date: 30 August 2021 9:56 AM

Data Source

Figure 2

Existing Condition Drainage Areas



0 50 100 ft

1" = 100 ft

Coordinate System:
NAD83 NEW YORK STATE PLANES,
EAST ZONE, US FOOT

N

GHD

BORREGO SOLAR
411 REYNOLDS RD

EXISTING CONDITION DRAINAGE AREAS

Project No. **11227527**
Date **April 2022**

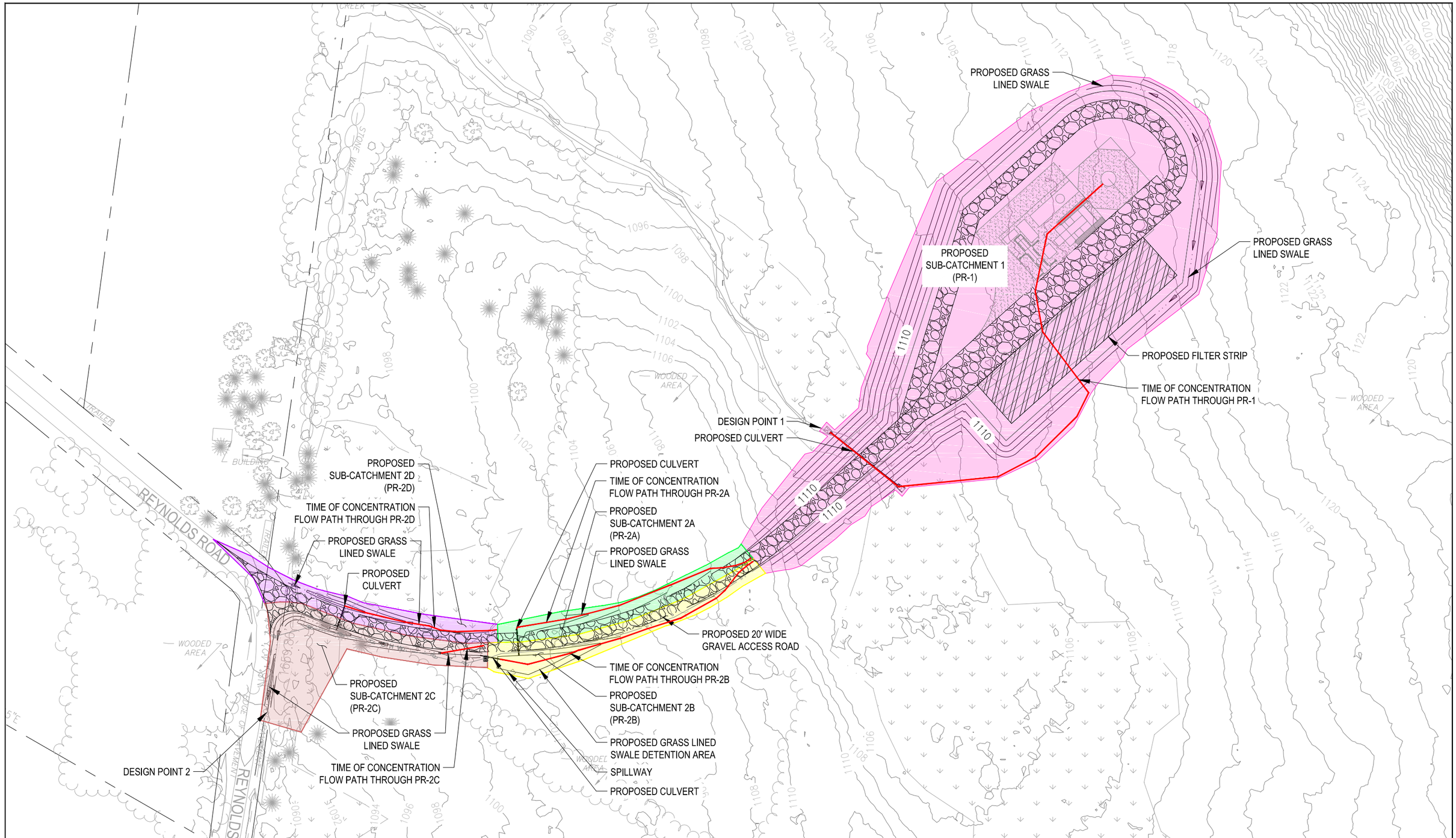
FIGURE 2

Data Source

Filename: C:\US\Buffalo\Projects\564\11227527\Digital_Design\ACAD 2020\Figures\Reynolds Rd SWPPP\11227527-FIG002.dwg
Plot Date: 12 April 2022 3:08 PM

Figure 3

Proposed Condition Drainage Areas



Filename: C:\US\Buffalo\Projects\564\11227527\Digital_Design\ACAD 2020\Figures\Reynolds Rd SWPPP\11227527-FIG003.dwg
Plot Date: 11 April 2022 7:53 AM

Appendix A

SPDES General Permit for Stormwater Discharges from Construction Activities GP-0-20-001

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

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

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

A. Permit Application

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

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

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

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

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

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

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

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

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

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

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

e. **Prohibited *Discharges*.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

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

(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 *discharge*s directly to tidal waters, or fifth order or larger streams.

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

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

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 *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

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

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

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

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

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

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

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

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

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. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

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 <u>not</u> 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 <u>not</u> 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 *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

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

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

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

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

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

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 source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

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

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

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

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

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

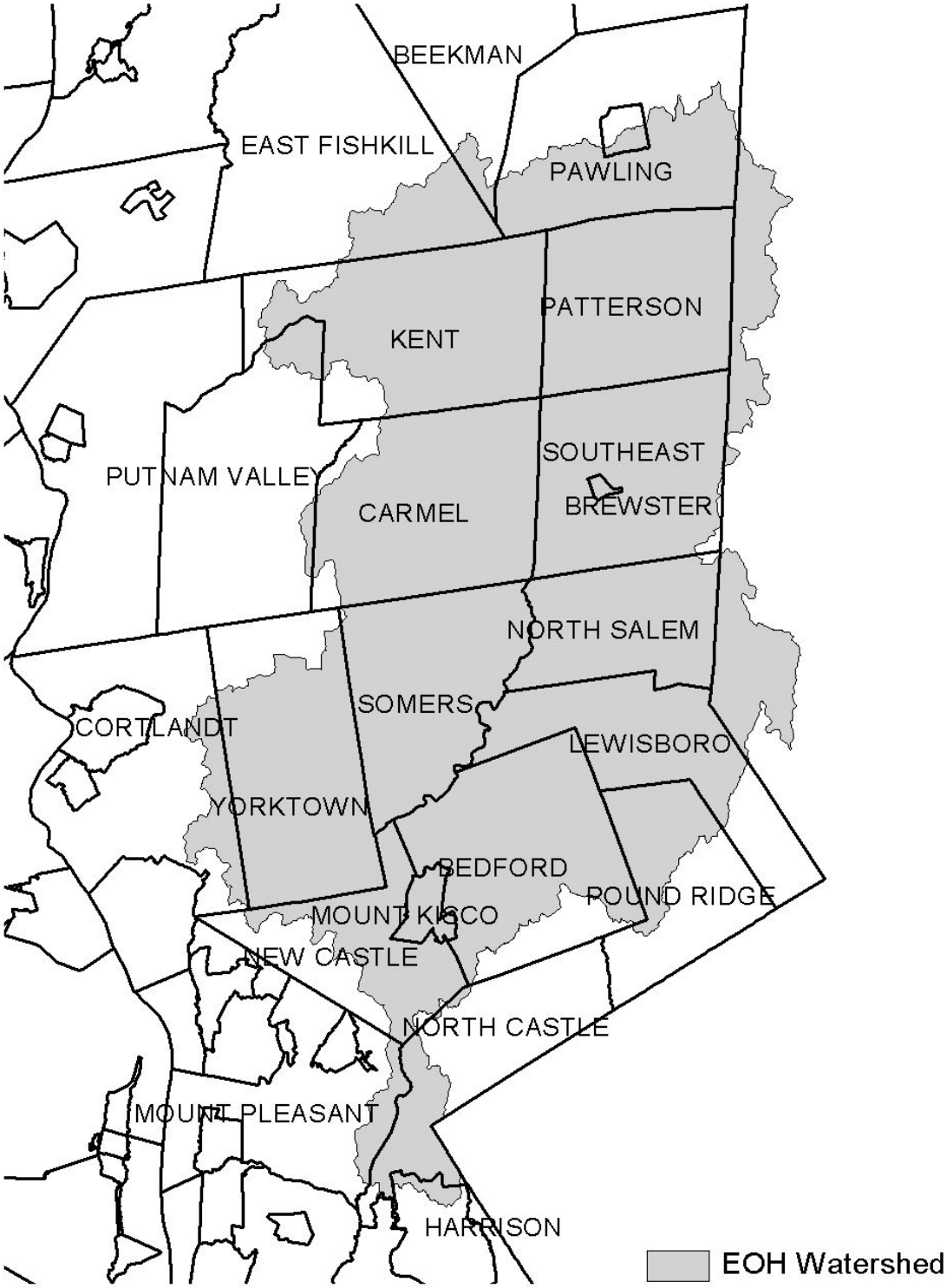


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

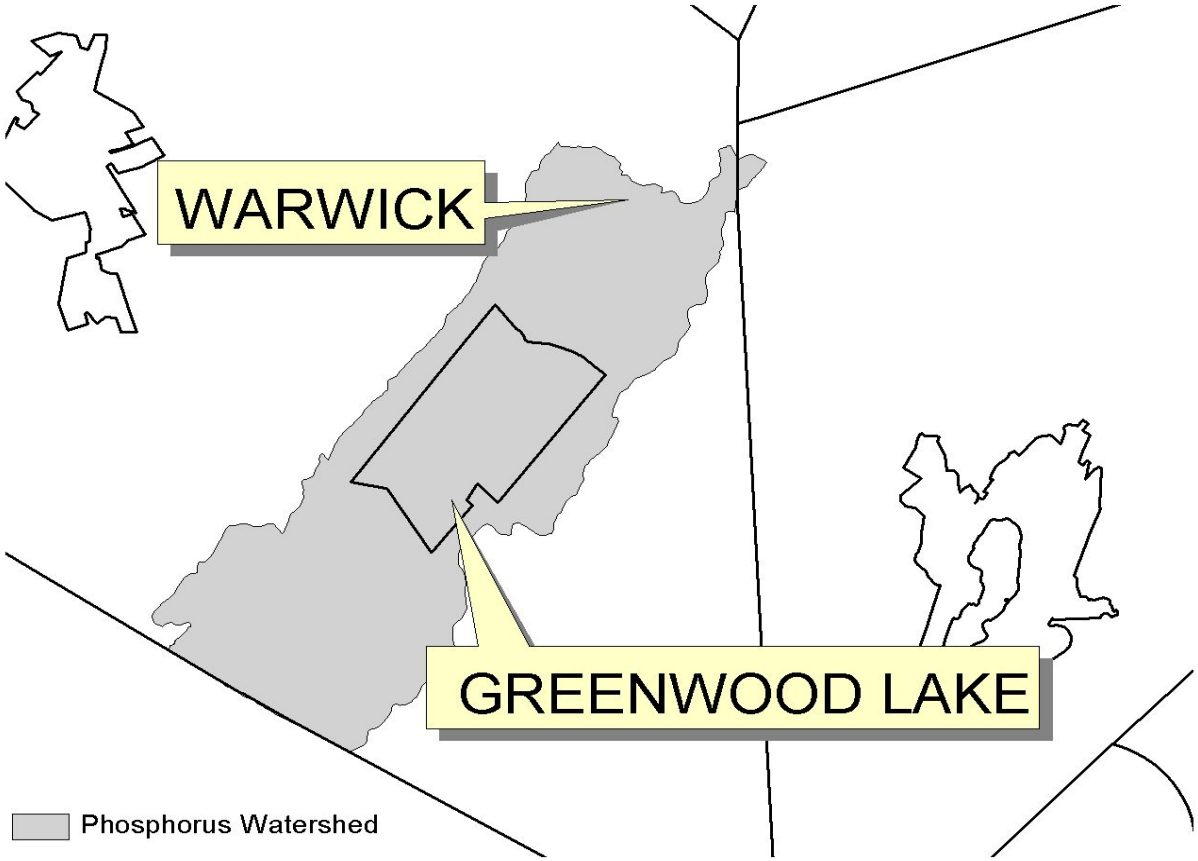


Figure 4 - Oscawana Lake Watershed

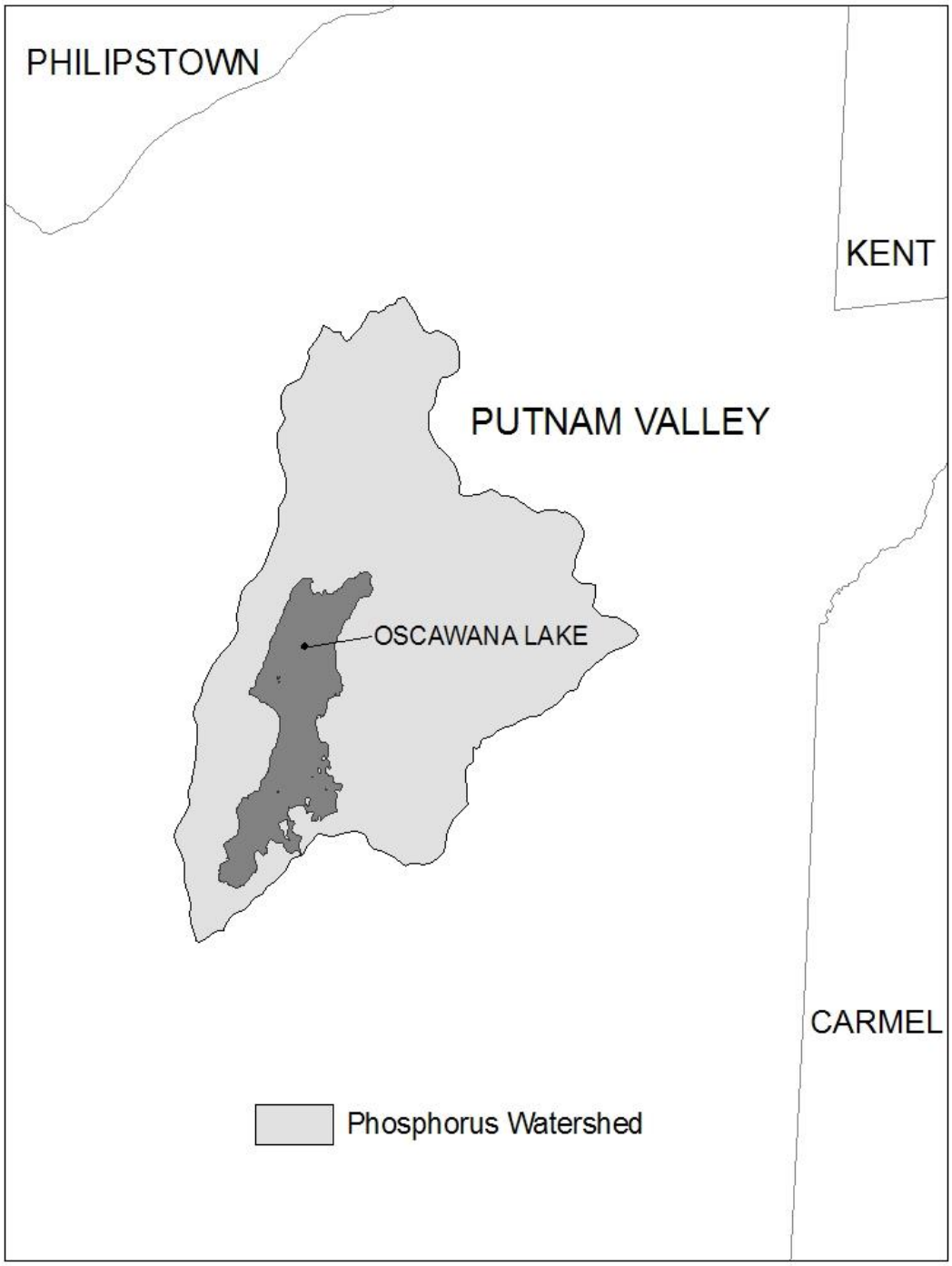
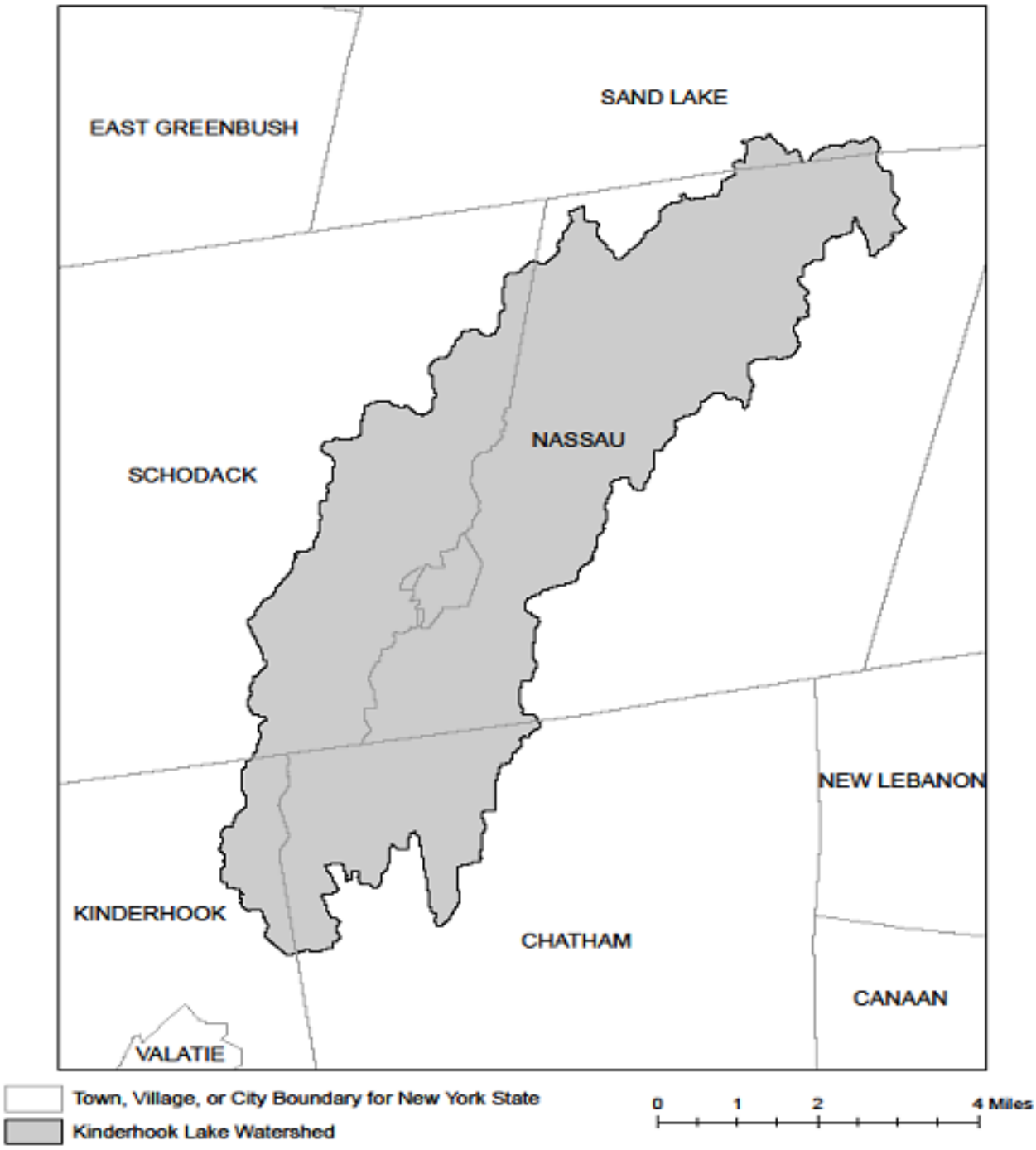


Figure 5 - Kinderhook Lake Watershed



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

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Appendix B

Notice of Intent

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.31

(Submission #: HPB-81WH-2JX20, version 1)

Details

Originally Started By	Camie Jarrell
Submission ID	HPB-81WH-2JX20
Submission Reason	New
Status	Draft
Active Steps	Form Submitted

Form Input

Owner/Operator Information

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

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

Owner/Operator Contact Person First Name
Brandon

Owner/Operator Mailing Address
NONE PROVIDED

City
NONE PROVIDED

State
NONE PROVIDED

Zip
NONE PROVIDED

Phone
6038199693

Email
bsmith@borregosolar.com

Federal Tax ID
NONE PROVIDED

Project Location

Project/Site Name
Reynolds Road Wind Energy Project

Street Address (Not P.O. Box)
411 Reynolds Road

Side of Street
East

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Town of Glen

State
NY

Zip
12072

DEC Region
4

County
MONTGOMERY

Name of Nearest Cross Street
NONE PROVIDED

Distance to Nearest Cross Street (Feet)
NONE PROVIDED

Project In Relation to Cross Street
NONE PROVIDED

Tax Map Numbers Section-Block-Parcel
NONE PROVIDED

Tax Map Numbers
NONE PROVIDED

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
42.87348528278413,-74.32267725733367

Project Details

2. What is the nature of this project?
NONE PROVIDED

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
NONE PROVIDED

Post-Development Future Land Use
NONE PROVIDED

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

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4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
NONE PROVIDED

Total Area to be Disturbed (acres)
NONE PROVIDED

Existing Impervious Area to be Disturbed (acres)
NONE PROVIDED

Future Impervious Area Within Disturbed Area (acres)
NONE PROVIDED

5. Do you plan to disturb more than 5 acres of soil at any one time?
NONE PROVIDED

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

A (%)
NONE PROVIDED

B (%)
NONE PROVIDED

C (%)
NONE PROVIDED

D (%)
NONE PROVIDED

7. Is this a phased project?
NONE PROVIDED

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

Start Date
NONE PROVIDED

End Date
NONE PROVIDED

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
NONE PROVIDED

9a. Type of waterbody identified in question 9?
NONE PROVIDED

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
NONE PROVIDED

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
NONE PROVIDED

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
NONE PROVIDED

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
NONE PROVIDED

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
NONE PROVIDED

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
NONE PROVIDED

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
NONE PROVIDED

16. What is the name of the municipality/entity that owns the separate storm sewer system?
NONE PROVIDED

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
NONE PROVIDED

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
NONE PROVIDED

19. Is this property owned by a state authority, state agency, federal government or local government?
NONE PROVIDED

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
NONE PROVIDED

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
NONE PROVIDED

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
NONE PROVIDED

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
NONE PROVIDED

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
NONE PROVIDED

SWPPP Preparer
NONE PROVIDED

Contact Name (Last, Space, First)
NONE PROVIDED

Mailing Address
NONE PROVIDED

City
NONE PROVIDED

State
NONE PROVIDED

Zip
NONE PROVIDED

Phone
NONE PROVIDED

Email
NONE PROVIDED

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form

3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification
NONE PROVIDED
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
NONE PROVIDED

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
NONE PROVIDED

Biotechnical
NONE PROVIDED

Vegetative Measures
NONE PROVIDED

Permanent Structural
NONE PROVIDED

Other
NONE PROVIDED

Post-Construction Criteria

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

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
NONE PROVIDED

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).
NONE PROVIDED

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
NONE PROVIDED

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
NONE PROVIDED

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
NONE PROVIDED

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
NONE PROVIDED

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
NONE PROVIDED

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

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

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
NONE PROVIDED

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

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
NONE PROVIDED

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
NONE PROVIDED

If Yes, go to question 36.

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

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

CPv Required (acre-feet)
NONE PROVIDED

CPv Provided (acre-feet)
NONE PROVIDED

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

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

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
NONE PROVIDED

Post-Development (CFS)
NONE PROVIDED

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
NONE PROVIDED

Post-Development (CFS)
NONE PROVIDED

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
NONE PROVIDED

If Yes, Identify the entity responsible for the long term Operation and Maintenance
NONE PROVIDED

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
NONE PROVIDED

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Swale (O-1)
NONE PROVIDED

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

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

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
NONE PROVIDED

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
NONE PROVIDED

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
NONE PROVIDED

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
NONE PROVIDED

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
> NONE PROVIDED
> **Comment**
> NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form
> NONE PROVIDED
> **Comment**
> NONE PROVIDED

Status History

	User	Processing Status
8/25/2021 5:27:26 PM	Camie Jarrell	Draft

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted		
Under Review	DAVID GASPER	

Appendix C

NYSDEC Acknowledgement Letter (to be added upon receipt)

Appendix D

County Soil Reports

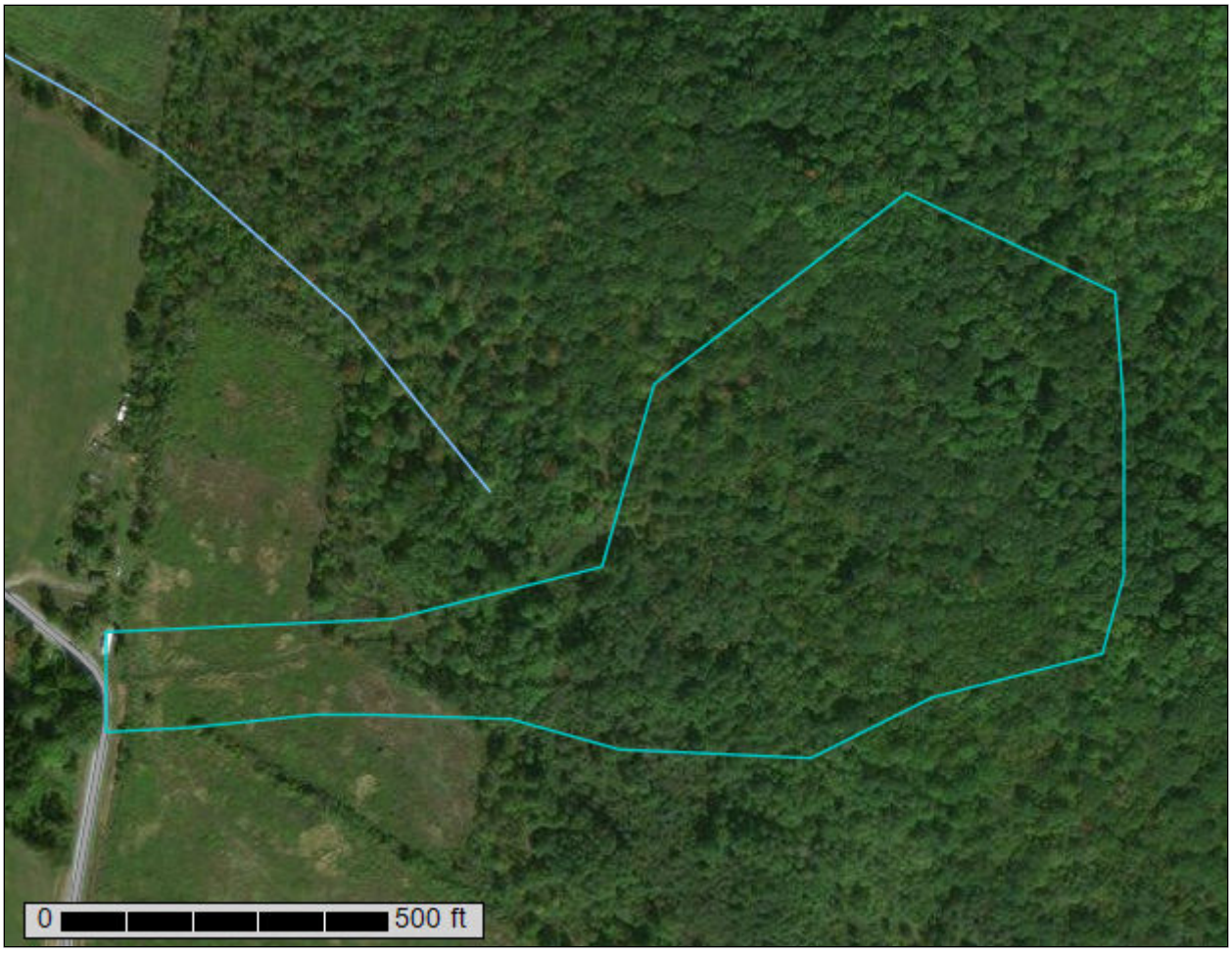
United States Department of Agriculture

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 Montgomery County, New York



August 25, 2021

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.

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

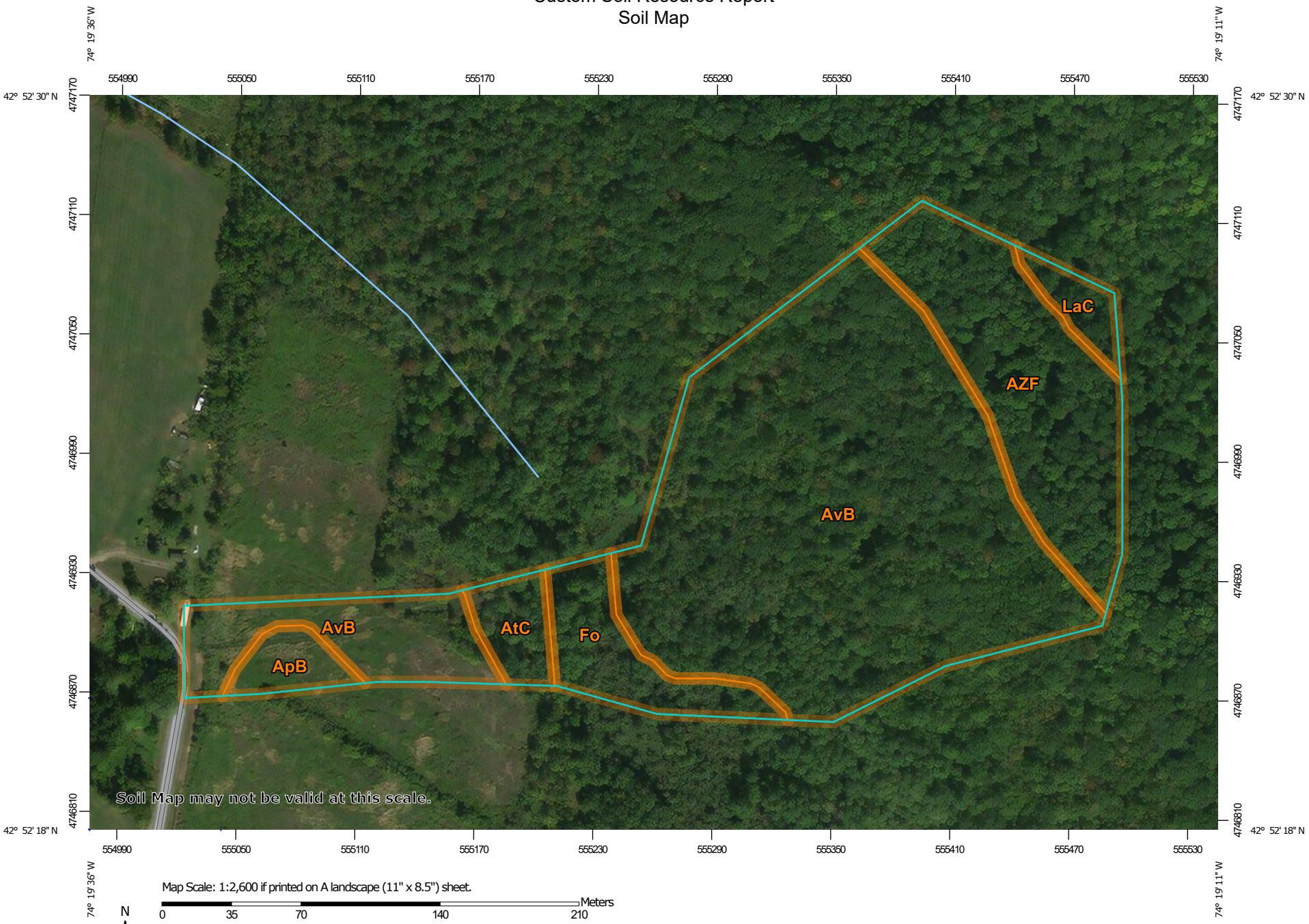
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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



Map Scale: 1:2,600 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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 1:24,000.

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: Montgomery County, New York
Survey Area Data: Version 18, Jun 11, 2020

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

Date(s) aerial images were photographed: Oct 7, 2013—Nov 9, 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
ApB	Appleton silt loam, 3 to 8 percent slopes	0.4	2.6%
AtC	Arnot channery silt loam, 8 to 15 percent slopes, rocky	0.5	3.1%
AvB	Arnot-Angola channery silt loams, 3 to 8 percent slopes	9.9	66.6%
AZF	Arnot-Rock outcrop association, very steep	2.8	18.9%
Fo	Fonda mucky silty clay loam	1.0	6.6%
LaC	Lansing silt loam, 8 to 15 percent slopes	0.3	2.2%
Totals for Area of Interest		**14.8**	**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 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.

Montgomery County, New York

ApB—Appleton silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w5ht
Elevation: 260 to 1,740 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Appleton

Setting

Landform: Drumlins, ridges, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: silt loam
E - 8 to 16 inches: loam
Bt - 16 to 30 inches: gravelly silt loam
C1 - 30 to 54 inches: gravelly loam
C2 - 54 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Conesus

Percent of map unit: 7 percent
Landform: Till plains, drumlins, hills
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Lyons

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Darien

Percent of map unit: 4 percent
Landform: Drainageways, till plains
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Churchville

Percent of map unit: 4 percent
Landform: Till plains, lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, rise, talf
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

AtC—Arnot channery silt loam, 8 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: 9tnq
Elevation: 1,000 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Arnot and similar soils: 75 percent

Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arnot

Setting

Landform: Ridges, hills, benches
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from acid sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 16 inches: channery silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: F140XY023NY - Shallow Till Uplands
Hydric soil rating: No

Minor Components

Lordstown

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

Angola

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

Unnamed soils

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

Manlius

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

Tuller

Percent of map unit: 4 percent
Hydric soil rating: No

Rock outcrop
Percent of map unit: 1 percent
Hydric soil rating: Unranked

AvB—Arnot-Angola channery silt loams, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9tns
Elevation: 620 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Arnot and similar soils: 50 percent
Angola and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arnot

Setting
Landform: Ridges, hills, benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from acid sandstone, siltstone, and shale

Typical profile
H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 16 inches: channery silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: D
Ecological site: F140XY023NY - Shallow Till Uplands
Hydric soil rating: No

Description of Angola

Setting

Landform: Till plains, benches, ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from shale and siltstone

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 24 inches: silty clay loam
R - 24 to 28 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Tuller

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

Hornell

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

Brockport

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

Varick

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

AZF—Arnot-Rock outcrop association, very steep

Map Unit Setting

National map unit symbol: 9tnt
Elevation: 1,000 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Arnot and similar soils: 50 percent
Rock outcrop: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arnot

Setting

Landform: Benches, ridges, hills
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 acid sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 16 inches: channery silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 35 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F140XY023NY - Shallow Till Uplands
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 35 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Minor Components

Lordstown

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

Nassau

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

Tuller

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

Manlius

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

Fo—Fonda mucky silty clay loam

Map Unit Setting

National map unit symbol: 9tpn
Elevation: 50 to 650 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Fonda and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fonda

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey glaciolacustrine deposits

Typical profile

O - 0 to 3 inches: muck
H1 - 3 to 9 inches: mucky silty clay loam
H2 - 9 to 17 inches: silty clay
H3 - 17 to 37 inches: silty clay
H4 - 37 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly 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 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Palms

Percent of map unit: 5 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Rhinebeck

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

Hudson

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

Churchville

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

LaC—Lansing silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w3mh
Elevation: 330 to 2,130 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lansing and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lansing

Setting

Landform: Till plains, drumlins, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: silt loam
E - 8 to 13 inches: gravelly silt loam
Bt/E - 13 to 21 inches: gravelly silt loam
Bt1 - 21 to 28 inches: gravelly silt loam
Bt2 - 28 to 39 inches: gravelly silt loam
C - 39 to 79 inches: gravelly loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B
Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Conesus

Percent of map unit: 8 percent
Landform: Till plains, drumlins, hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Kendaia

Percent of map unit: 3 percent
Landform: Till plains, drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Appleton

Percent of map unit: 2 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Danley

Percent of map unit: 1 percent
Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Wassaic

Percent of map unit: 1 percent
Landform: Till plains, benches, ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

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Appendix E

Stormwater Pollution Prevention Plan Certifications

STORMWATER POLLUTION PREVENTION PLAN
411 REYNOLDS ROAD WIND PROJECT, TOWN OF GLEN
BORREGO SOLAR

Owner/Operator's Certification Statement

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the 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 understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

_____
Owner/Operator's Name

_____
Address

_____
Phone Number

_____
Owner/Operator's Representative Name and Title

_____
Representative Signature

_____
Date

STORMWATER POLLUTION PREVENTION PLAN
411 REYNOLDS ROAD WIND PROJECT, TOWN OF GLEN
BORREGO SOLAR
Contractor's Certification Statement

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the 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 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."

_____

Contractor's Name

_____

Address

_____

Phone Number

_____

Contractor's Representative Name and Title

_____ _____

Representative Signature Date

Identify the specific elements of the SWPPP the contractor/subcontractor is responsible for:

_____
_____
_____
_____
_____
_____
_____

STORMWATER POLLUTION PREVENTION PLAN
411 REYNOLDS ROAD WIND PROJECT, TOWN OF GLEN
BORREGO SOLAR

Subcontractor's Certification Statement

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the 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 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."

_____

Subcontractor's Name

_____

Address

_____

Phone Number

_____

Subcontractor's Representative Name and Title

_____ _____

Representative Signature Date

Identify the specific elements of the SWPPP the contractor/subcontractor is responsible for:

_____
_____
_____
_____
_____
_____
_____

*Copy this page as needed for additional subcontractors

Appendix F

Stormwater Calculations and Modeling Results

Version 1.8
Last Updated: 11/09/2015

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

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:	1 & 2	
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	3.02	0.01	0%	0.05	564	Filter Strip
2	0.15	0.00	0%	0.05	27	Vegetated Swale
3	0.19	0.00	0%	0.05	34	Vegetated Swale
4	0.32	0.00	0%	0.05	58	Vegetated Swale
5	0.17	0.00	0%	0.05	31	Vegetated Swale
6						
7						
8						
9						
10						
Subtotal (1-30)	3.85	0.01	0%	0.05	**715**	**Subtotal 1**
Total	3.85	0.01	0%	0.05	**715**	**Initial WQv**	**0.02**	**af**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
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	3.02	0.01	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**3.02**	**0.01**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*		
"<<Initial WQv"	3.85	0.01	0%	0.05	715		
Subtract Area	-3.02	-0.01					
WQv adjusted after Area Reductions	**0.83**	**0.00**	0%	0.05	151		
Disconnection of Rooftops		0.00					
Adjusted WQv after Area Reduction and Rooftop Disconnect	0.83	0.00	0%	0.05	**151**	**0.00**	**af**
WQv reduced by Area Reduction techniques					564	**0.01**	**af**

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/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	3.02	0.01		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.83	0.00	15	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	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				
	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		→	3.02	0.01	564	
Totals by Volume Reduction		→	0.83	0.00	15	
Totals by Standard SMP w/RRV		→	0.00	0.00	0	0
Totals by WQv detention in Swales		→				1240
Totals by Standard SMP		→	0.00	0.00		0
Totals (Area + Volume + all SMPs)		→	3.85	0.01	580	1,240

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C		30%
D	**3.85**	20%
Total Area	3.85	
Calculate the Minimum RRv		
S =	**0.20**	
Impervious =	0.01	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**3**	***ft3***
	0.00	af

Filter Strip

Design Point:	1 & 2

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	3.02	0.01	0.00	0.05	564.47	1.00	Filter Strip

Design Elements			
Is another area based practice applied to this area?	*No*	*Y/N*	
Amended Soils & Dense Turf Cover?	*Yes*	*Y/N*	
Is area protected from compaction from heavy equipment during construction?	*Yes*	*Y/N*	
Small Area of Impervious Area & close to source?	*Yes*	*Y/N*	
Composte Amendments?	*Yes*	*Y/N*	
Boundary Spreader?	*Yes*	*Y/N*	*Gravel Diaphram at top*
Boundary Zone?	*Yes*	*Y/N*	*25 feet of level grass*
Specify how sheet flow will be ensured.	Gravel Diaphragm		*level spreader shall be used for buffer slopes ranging from 3-15%*
Average contributing slope	0.5	*%*	*3% maximum unless a level spreader is*
Slope of first 10 feet of Filter Strip	0.5	*%*	*2% maximum*
Overall Slope	1	*%*	*8% maximum*
Contributing Length of Pervious Areas (PC)	140	*ft*	*150 ft maximum*
Contributing Length of Impervious areas	10	*ft*	*75 ft maximum*
Maximum PC Contributing Length for combination of PC & IC	140	*ft*	
Soil Group (HSG)	D		
Filter Strip Width	60	*ft*	*50 ft minimum for slopes 0-8%* *75 ft minimum for slopes 8-12%* *100 ft minimum for slopes 12-15%* *HSG C or D increase by 15-20%*
Are All Criteria in Section 5.3.2 (fitler strips) met?	*Yes*		

Area Reduction Adjustments		
Subtract	**3.02**	***Acres from total Area***
Subtract	**0.01**	***Acres from total Impervious Area***

Vegetated Swale Worksheet

Design Point:	1 & 2

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	0.15	0.00	0.00	0.05	27.23	1.00	Vegetated Swale

Enter Soil Infiltration Rate			
Soil Infiltration Rate	*0.50*	*in/hour*	*Okay*

Calculate Peak WQv			
Modified CN	77	*Note: Value is modified curve number using Appendix B.2 - Water Quality Peak Flow Calculation of the New York State Stormwater Management Design Manual*	
Ia	0.590		
Ia/P	0.590		
Tc (hours)	0.28	*practice*	
qu	400	*Note: qu value is taken from TR-55 (either Exhibit 4-II (Type II Rainfall Distribution) or Exhibit 4-III (Type III Rainfall Distribution) depending on the location in the State*	
Qp	0.00	*cfs*	
Q10	0.39	*cfs*	*From TR-55*

Enter Swale Dimensions			
Bottom Width	2	*ft*	*Minimum of 2 ft but no greater than 6 ft*
Side Slopes	3	*:1*	*Okay*
Channel Height	3	*ft*	
Flow Depth	0.03	*ft*	*Okay*
Longitudinal Slope	2.0%		*Between .5% and 4% (1.5-2.5% Preferred)*
Swale Length	100.00	*ft*	
Mannings Coef.	0.03		*Use variable n values corresponding to flow depths (from .15 down to .03) (APPENDIX L)*

Calculated Swale Dimensions						
Top Width	2.18		Q	0.0		
Area	0.06	*ft^2*	Velocity	0.60	*fps*	
Wetted Perimeter	2.19	*ft*	Detention Time	2.79	*minutes*	

Determine Required Length Of Channel		
Required Length	100.00	*ft*
Length Provided	100.00	*ft*
Q10 Velocity	1.48	*fps*
Q10 flow depth	1.30	*inches*
Q10 freeboard	22.70	*inches*

Determine Runoff Reduction					
Soil Group	D	Percent Reduction	0.10		
Is the Vegetated Swale contributing flow to another practice?		Yes	Select Practice	Other/Standard SMP	
Runoff Reduction		**3**	***ft3***		

Vegetated Swale Worksheet

Design Point:	1 & 2

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**
3	0.19	0.00	0.00	0.05	34.49	1.00	Vegetated Swale

Enter Soil Infiltration Rate				
Soil Infiltration Rate	*0.50*	*in/hour*	*Okay*	
Calculate Peak WQv				
Modified CN	77	*Note: Value is modified curve number using Appendix B.2 - Water Quality Peak Flow Calculation of the New York State Stormwater Management Design Manual*		
Ia	0.590			
Ia/P	0.590			
Tc (hours)	0.28	*practice*		
qu	150	*Note: qu value is taken from TR-55 (either Exhibit 4-II (Type II Rainfall Distribution) or Exhibit 4-III (Type III Rainfall Distribution) depending on the location in the State*		
Qp	0.00	*cfs*		
Q10	0.45	*cfs*	*From TR-55*	
Enter Swale Dimensions				
Bottom Width	2	*ft*	*Minimum of 2 ft but no greater than 6 ft*	
Side Slopes	3	*:1*	*Okay*	
Channel Height	2	*ft*		
Flow Depth	0.03	*ft*	*Okay*	
Longitudinal Slope	0.5%		*Between .5% and 4% (1.5-2.5% Preferred)*	
Swale Length	120.00	*ft*		
Mannings Coef.	0.03		*Use variable n values corresponding to flow depths (from .15 down to .03) (APPENDIX L)*	

Calculated Swale Dimensions						
Top Width	2.18		Q	0.0		
Area	0.06	*ft^2*	Velocity	0.33	*fps*	
Wetted Perimeter	2.19	*ft*	Detention Time	6.08	*minutes*	

Determine Required Length Of Channel		
Required Length	120.00	*ft*
Length Provided	120.00	*ft*
Q10 Velocity	0.91	*fps*
Q10 flow depth	2.30	*inches*
Q10 freeboard	21.70	*inches*

Determine Runoff Reduction					
Soil Group	D	Percent Reduction	0.10		
Is the Vegetated Swale contributing flow to another practice?		Yes	Select Practice	Other/Standard SMP	
Runoff Reduction		**3**	***ft3***		

Vegetated Swale Worksheet

Design Point:	1 & 2

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**
4	0.32	0.00	0.00	0.05	58.08	1.00	Vegetated Swale

Enter Soil Infiltration Rate				
Soil Infiltration Rate	*0.50*	*in/hour*	*Okay*	
Calculate Peak WQv				
Modified CN	77	*Note: Value is modified curve number using Appendix B.2 - Water Quality Peak Flow Calculation of the New York State Stormwater Management Design Manual*		
Ia	0.590			
Ia/P	0.590			
Tc (hours)	0.12	*practice*		
qu	90	*Note: qu value is taken from TR-55 (either Exhibit 4-II (Type II Rainfall Distribution) or Exhibit 4-III (Type III Rainfall Distribution) depending on the location in the State*		
Qp	0.00	*cfs*		
Q10	0.97	*cfs*	*From TR-55*	
Enter Swale Dimensions				
Bottom Width	2	*ft*	*Minimum of 2 ft but no greater than 6 ft*	
Side Slopes	3	*:1*	*Okay*	
Channel Height	2	*ft*		
Flow Depth	0.03	*ft*	*Okay*	
Longitudinal Slope	2.0%		*Between .5% and 4% (1.5-2.5% Preferred)*	
Swale Length	333.00	*ft*		
Mannings Coef.	0.03		*Use variable n values corresponding to flow depths (from .15 down to .03) (APPENDIX L)*	

Calculated Swale Dimensions						
Top Width	2.18		Q	0.0		
Area	0.06	*ft^2*	Velocity	0.66	*fps*	
Wetted Perimeter	2.19	*ft*	Detention Time	8.44	*minutes*	

Determine Required Length Of Channel		
Required Length	333.00	*ft*
Length Provided	333.00	*ft*
Q10 Velocity	2.02	*fps*
Q10 flow depth	2.20	*inches*
Q10 freeboard	21.80	*inches*

Determine Runoff Reduction					
Soil Group	D	Percent Reduction	0.10		
Is the Vegetated Swale contributing flow to another practice?		No	Select Practice	N/A	
Runoff Reduction		**6**	***ft3***		

Vegetated Swale Worksheet

Design Point:	1 & 2

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**
5	0.17	0.00	0.00	0.05	30.86	1.00	Vegetated Swale

Enter Soil Infiltration Rate				
Soil Infiltration Rate	*0.50*	*in/hour*	*Okay*	
Calculate Peak WQv				
Modified CN	77	*Note: Value is modified curve number using Appendix B.2 - Water Quality Peak Flow Calculation of the New York State Stormwater Management Design Manual*		
Ia	0.590			
Ia/P	0.590			
Tc (hours)	0.21	*practice*		
qu	130	*Note: qu value is taken from TR-55 (either Exhibit 4-II (Type II Rainfall Distribution) or Exhibit 4-III (Type III Rainfall Distribution) depending on the location in the State*		
Qp	0.00	*cfs*		
Q10	0.48	*cfs*	*From TR-55*	
Enter Swale Dimensions				
Bottom Width	2	*ft*	*Minimum of 2 ft but no greater than 6 ft*	
Side Slopes	3	*:1*	*Okay*	
Channel Height	2	*ft*		
Flow Depth	0.03	*ft*	*Okay*	
Longitudinal Slope	4.0%		*Between .5% and 4% (1.5-2.5% Preferred)*	
Swale Length	162.00	*ft*		
Mannings Coef.	0.03		*Use variable n values corresponding to flow depths (from .15 down to .03) (APPENDIX L)*	

Calculated Swale Dimensions						
Top Width	2.18		Q	0.1		
Area	0.06	*ft^2*	Velocity	0.93	*fps*	
Wetted Perimeter	2.19	*ft*	Detention Time	2.90	*minutes*	

Determine Required Length Of Channel		
Required Length	162.00	*ft*
Length Provided	162.00	*ft*
Q10 Velocity	2.09	*fps*
Q10 flow depth	1.20	*inches*
Q10 freeboard	22.80	*inches*

Determine Runoff Reduction					
Soil Group	D	Percent Reduction	0.10		
Is the vegetated swale contributing flow to another practice?			Select Practice		
Runoff Reduction		**3**	***ft3***		

Subcat Reach Pond Link

Routing Diagram for 411 Reynolds EX
Prepared by GHD, Printed 4/8/2022

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.850	80	>75% Grass cover, Good, HSG D (EX-1, EX-2)
3.850	**80**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EX-1: EX-1 Runoff Area=3.020 ac 0.00% Impervious Runoff Depth=0.64"
Flow Length=610' Tc=17.0 min CN=80 Runoff=2.21 cfs 0.162 af

Subcatchment EX-2: EX-2 Runoff Area=0.830 ac 0.00% Impervious Runoff Depth=0.64"
Flow Length=615' Tc=19.2 min CN=80 Runoff=0.56 cfs 0.044 af

Link 8L: Design Point 1 Inflow=2.21 cfs 0.162 af
Primary=2.21 cfs 0.162 af

Link 9L: Design Point 2 Inflow=0.56 cfs 0.044 af
Primary=0.56 cfs 0.044 af

Total Runoff Area = 3.850 ac Runoff Volume = 0.206 af Average Runoff Depth = 0.64"
100.00% Pervious = 3.850 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: EX-1

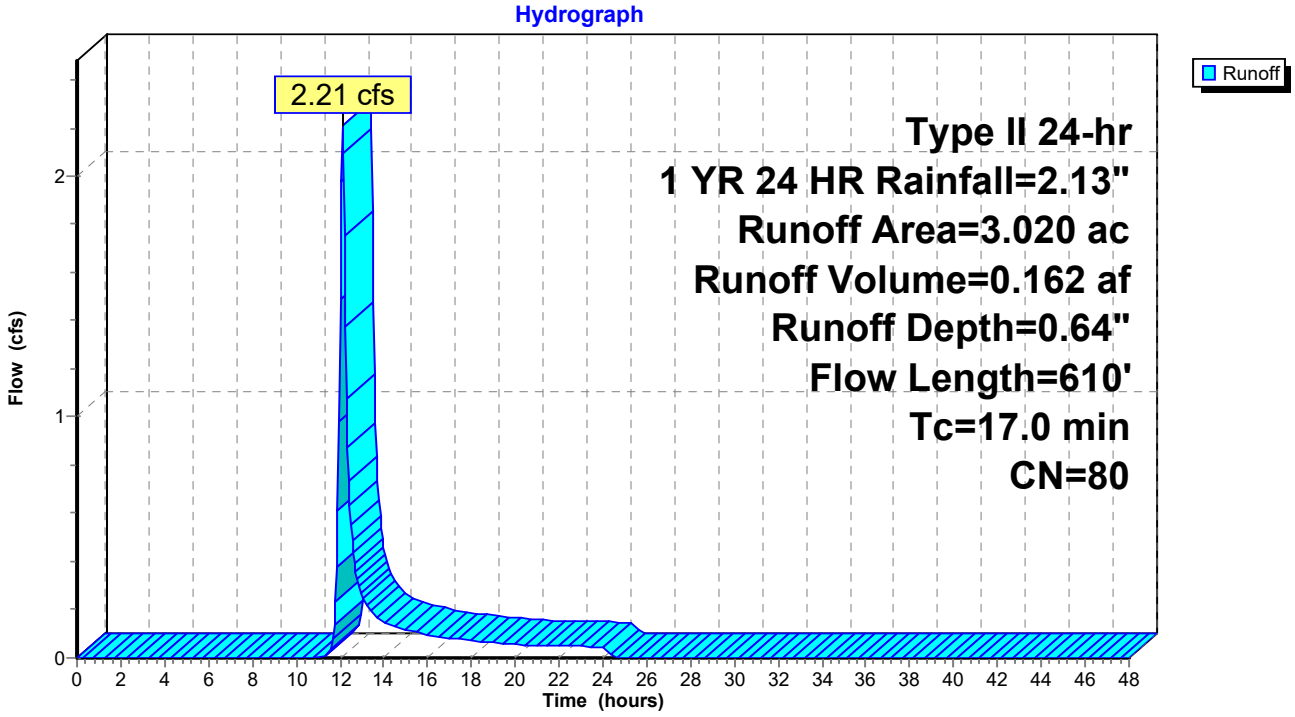
Runoff = 2.21 cfs @ 12.11 hrs, Volume= 0.162 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR 24 HR Rainfall=2.13"

Area (ac)	CN	Description
3.020	80	>75% Grass cover, Good, HSG D
3.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
4.2	350	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.5	60	0.0050	0.28		**Shallow Concentrated Flow, Swamp** Kv= 4.0 fps
0.5	100	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
17.0	610	Total			

Subcatchment EX-1: EX-1



Summary for Subcatchment EX-2: EX-2

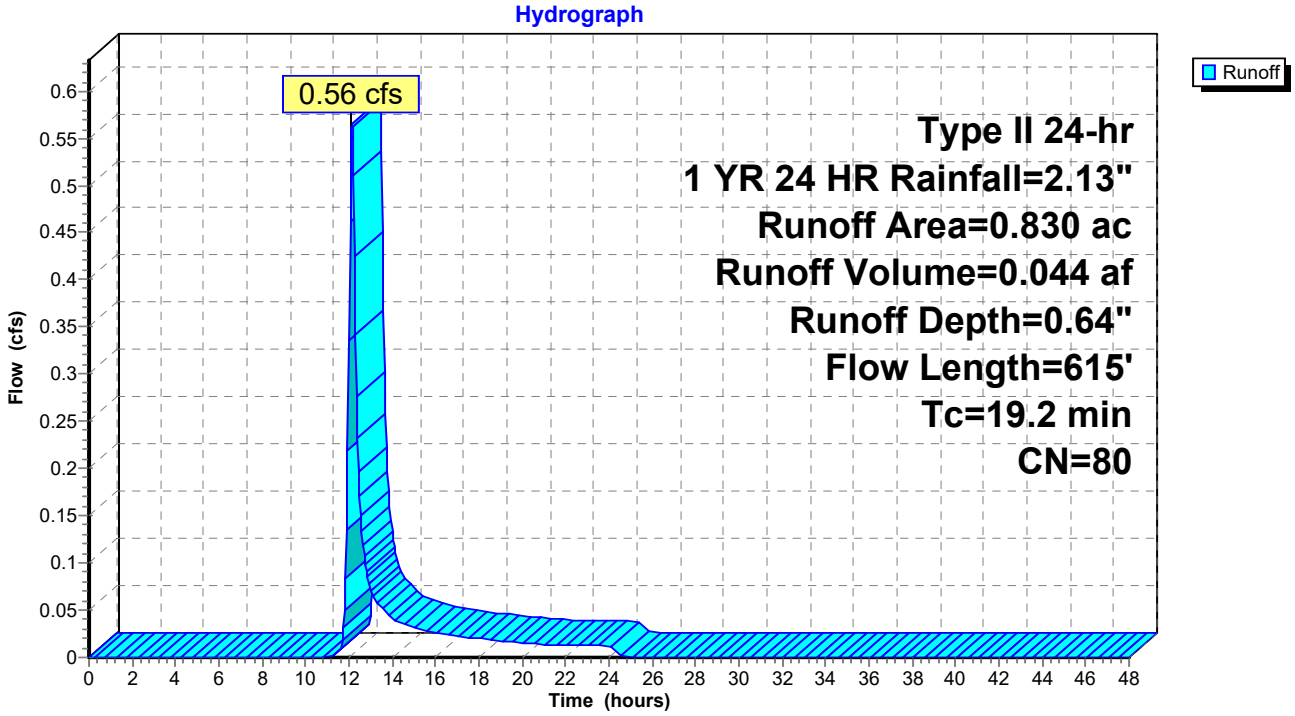
Runoff = 0.56 cfs @ 12.13 hrs, Volume= 0.044 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR 24 HR Rainfall=2.13"

Area (ac)	CN	Description
0.830	80	>75% Grass cover, Good, HSG D
0.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0150	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
5.2	265	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	30	0.0050	0.35		**Shallow Concentrated Flow, Wetland** Kv= 5.0 fps
5.2	270	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.2	615	Total			

Subcatchment EX-2: EX-2

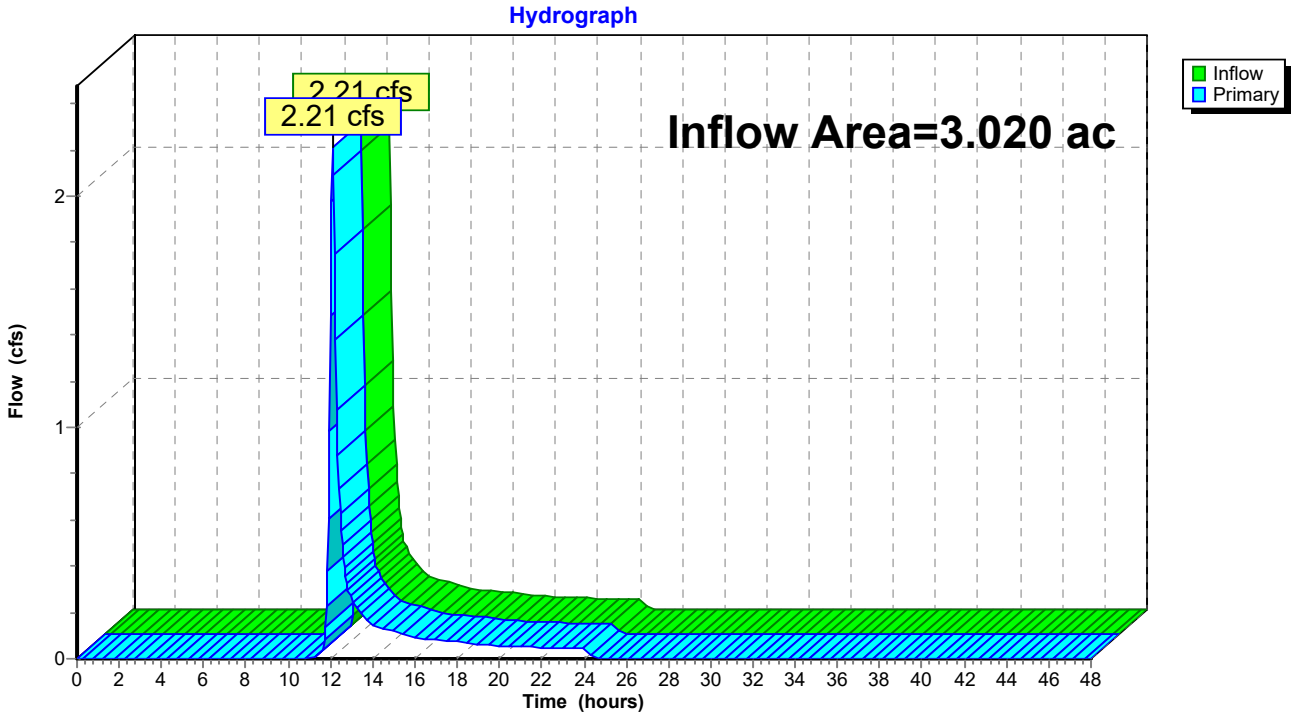


Summary for Link 8L: Design Point 1

Inflow Area = 3.020 ac, 0.00% Impervious, Inflow Depth = 0.64" for 1 YR 24 HR event
Inflow = 2.21 cfs @ 12.11 hrs, Volume= 0.162 af
Primary = 2.21 cfs @ 12.11 hrs, Volume= 0.162 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 8L: Design Point 1

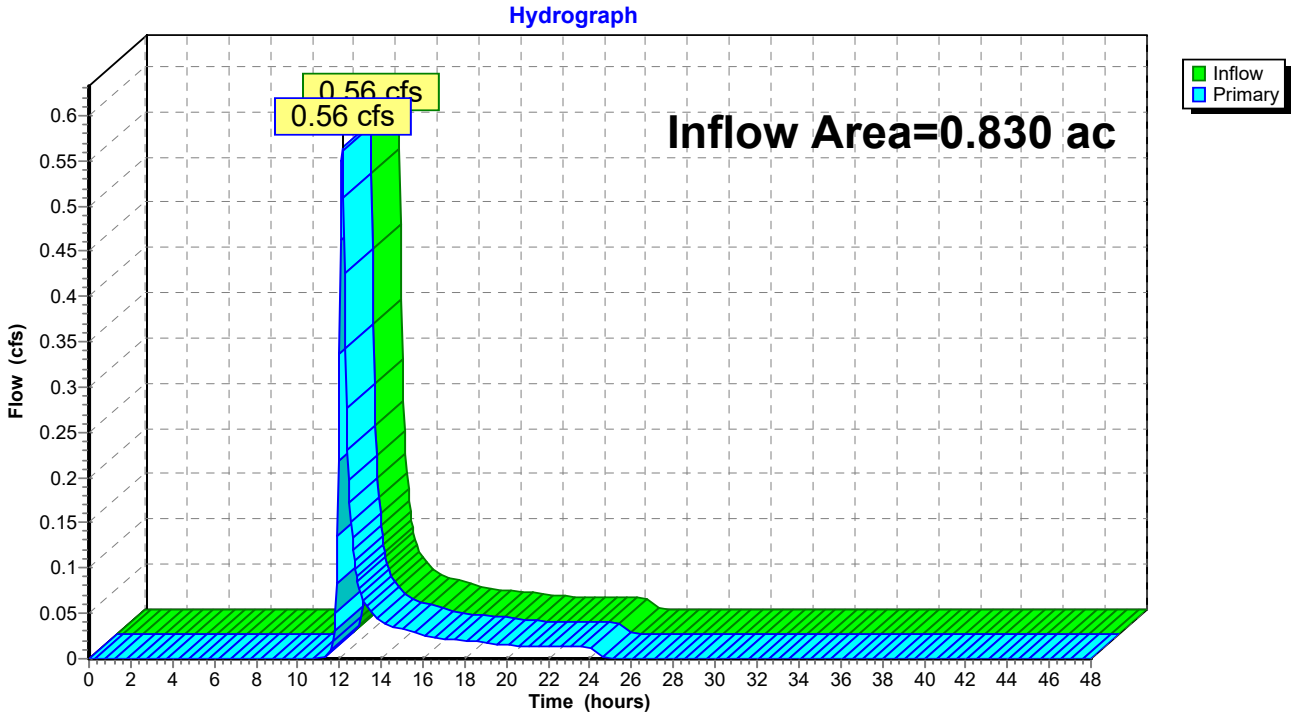


Summary for Link 9L: Design Point 2

Inflow Area = 0.830 ac, 0.00% Impervious, Inflow Depth = 0.64" for 1 YR 24 HR event
Inflow = 0.56 cfs @ 12.13 hrs, Volume= 0.044 af
Primary = 0.56 cfs @ 12.13 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 9L: Design Point 2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EX-1: EX-1 Runoff Area=3.020 ac 0.00% Impervious Runoff Depth=1.67"
Flow Length=610' Tc=17.0 min CN=80 Runoff=6.07 cfs 0.420 af

Subcatchment EX-2: EX-2 Runoff Area=0.830 ac 0.00% Impervious Runoff Depth=1.67"
Flow Length=615' Tc=19.2 min CN=80 Runoff=1.56 cfs 0.115 af

Link 8L: Design Point 1 Inflow=6.07 cfs 0.420 af
Primary=6.07 cfs 0.420 af

Link 9L: Design Point 2 Inflow=1.56 cfs 0.115 af
Primary=1.56 cfs 0.115 af

Total Runoff Area = 3.850 ac Runoff Volume = 0.535 af Average Runoff Depth = 1.67"
100.00% Pervious = 3.850 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: EX-1

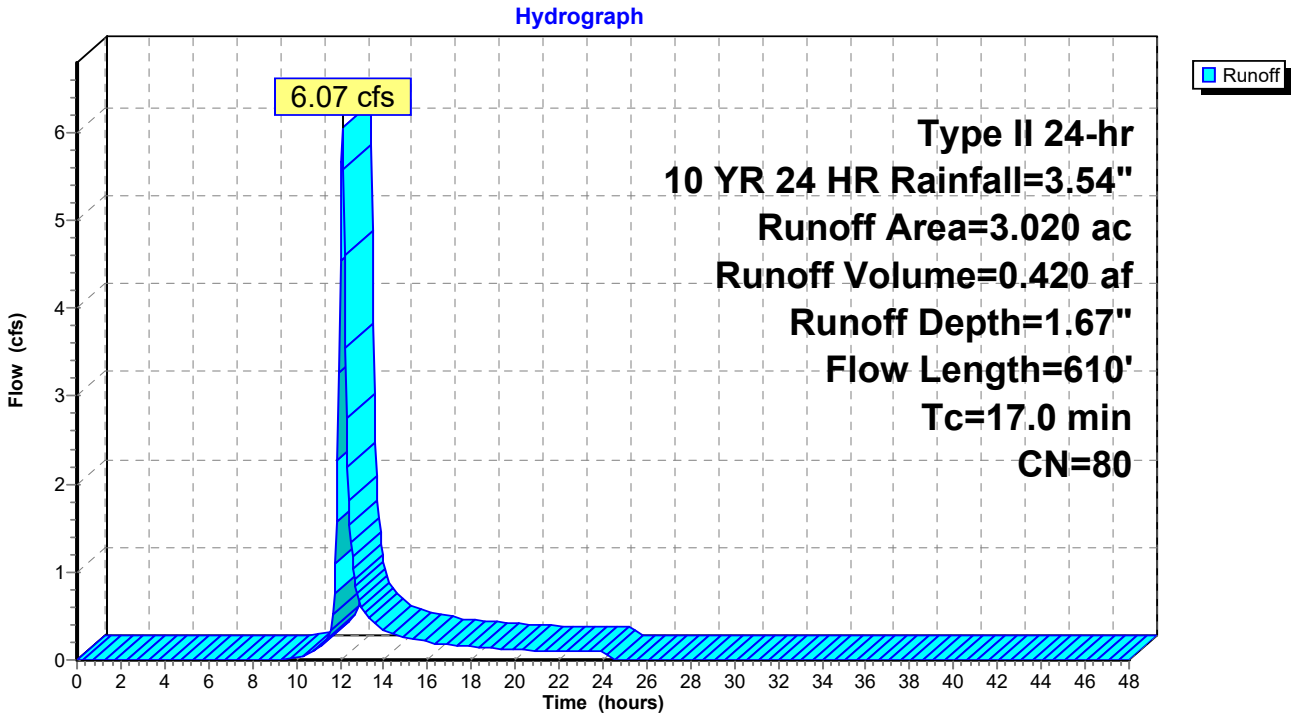
Runoff = 6.07 cfs @ 12.10 hrs, Volume= 0.420 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR 24 HR Rainfall=3.54"

Area (ac)	CN	Description
3.020	80	>75% Grass cover, Good, HSG D
3.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
4.2	350	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.5	60	0.0050	0.28		**Shallow Concentrated Flow, Swamp** Kv= 4.0 fps
0.5	100	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
17.0	610	Total			

Subcatchment EX-1: EX-1



Summary for Subcatchment EX-2: EX-2

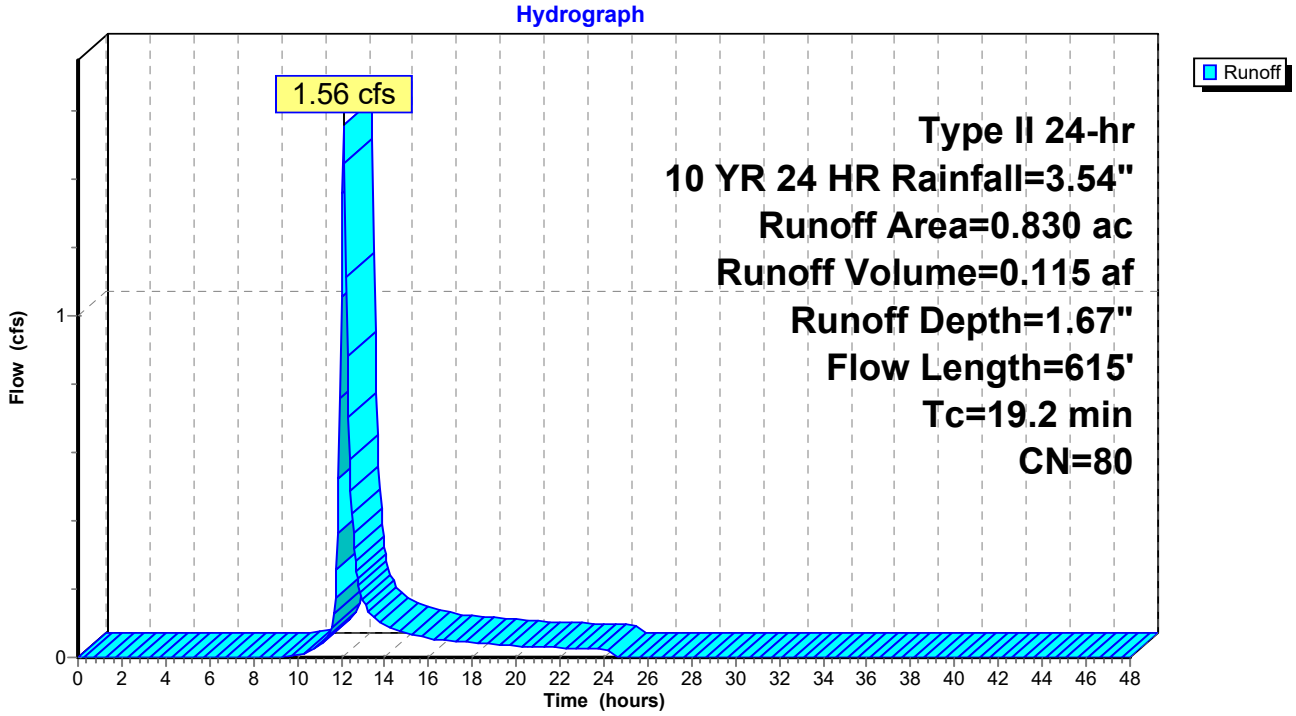
Runoff = 1.56 cfs @ 12.12 hrs, Volume= 0.115 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR 24 HR Rainfall=3.54"

Area (ac)	CN	Description
0.830	80	>75% Grass cover, Good, HSG D
0.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0150	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
5.2	265	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	30	0.0050	0.35		**Shallow Concentrated Flow, Wetland** Kv= 5.0 fps
5.2	270	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.2	615	Total			

Subcatchment EX-2: EX-2

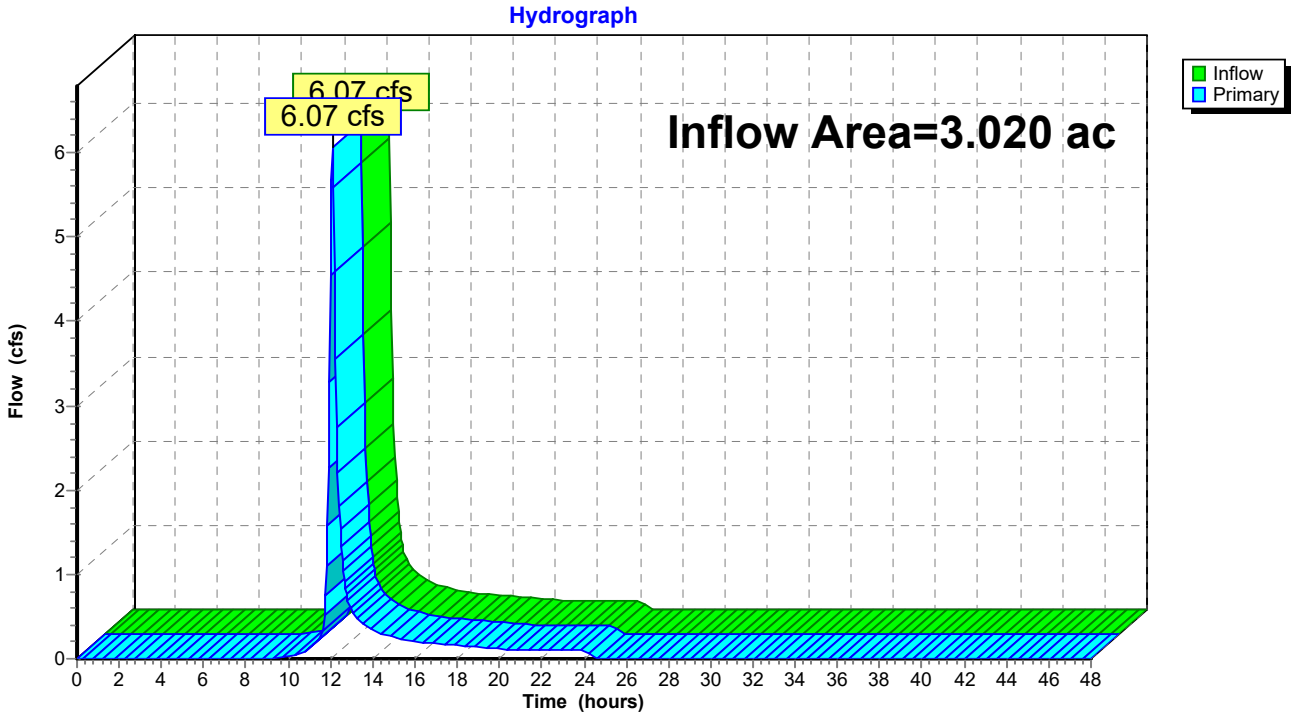


Summary for Link 8L: Design Point 1

Inflow Area = 3.020 ac, 0.00% Impervious, Inflow Depth = 1.67" for 10 YR 24 HR event
Inflow = 6.07 cfs @ 12.10 hrs, Volume= 0.420 af
Primary = 6.07 cfs @ 12.10 hrs, Volume= 0.420 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 8L: Design Point 1

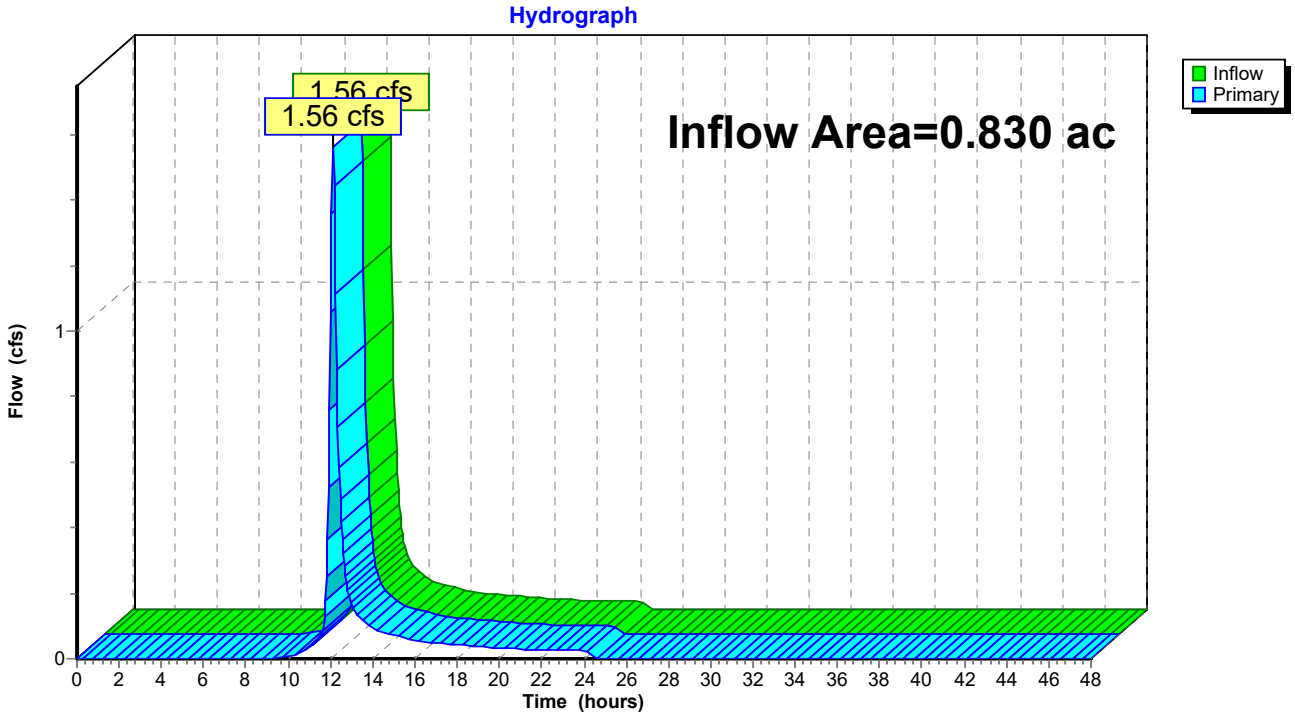


Summary for Link 9L: Design Point 2

Inflow Area = 0.830 ac, 0.00% Impervious, Inflow Depth = 1.67" for 10 YR 24 HR event
Inflow = 1.56 cfs @ 12.12 hrs, Volume= 0.115 af
Primary = 1.56 cfs @ 12.12 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 9L: Design Point 2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EX-1: EX-1 Runoff Area=3.020 ac 0.00% Impervious Runoff Depth=2.21"
Flow Length=610' Tc=17.0 min CN=80 Runoff=8.06 cfs 0.556 af

Subcatchment EX-2: EX-2 Runoff Area=0.830 ac 0.00% Impervious Runoff Depth=2.21"
Flow Length=615' Tc=19.2 min CN=80 Runoff=2.08 cfs 0.153 af

Link 8L: Design Point 1 Inflow=8.06 cfs 0.556 af
Primary=8.06 cfs 0.556 af

Link 9L: Design Point 2 Inflow=2.08 cfs 0.153 af
Primary=2.08 cfs 0.153 af

Total Runoff Area = 3.850 ac Runoff Volume = 0.708 af Average Runoff Depth = 2.21"
100.00% Pervious = 3.850 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: EX-1

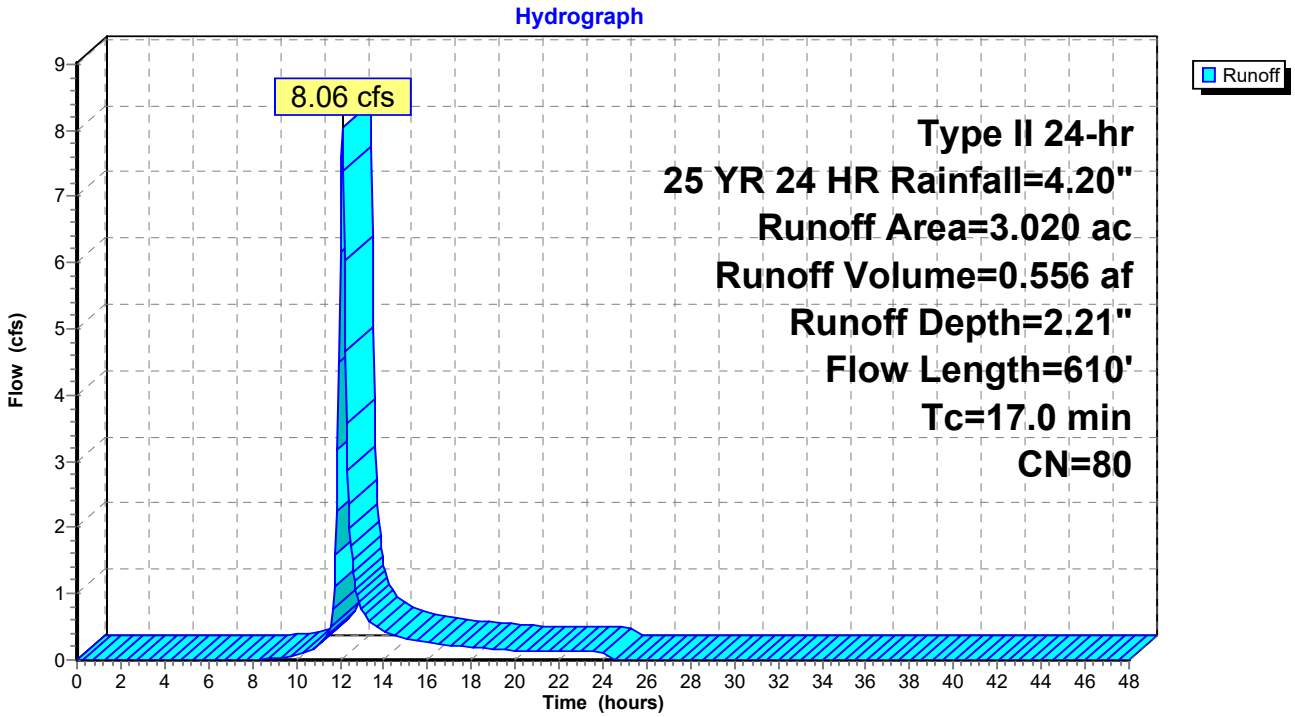
Runoff = 8.06 cfs @ 12.10 hrs, Volume= 0.556 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YR 24 HR Rainfall=4.20"

Area (ac)	CN	Description
3.020	80	>75% Grass cover, Good, HSG D
3.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
4.2	350	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.5	60	0.0050	0.28		**Shallow Concentrated Flow, Swamp** Kv= 4.0 fps
0.5	100	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
17.0	610	Total			

Subcatchment EX-1: EX-1



Summary for Subcatchment EX-2: EX-2

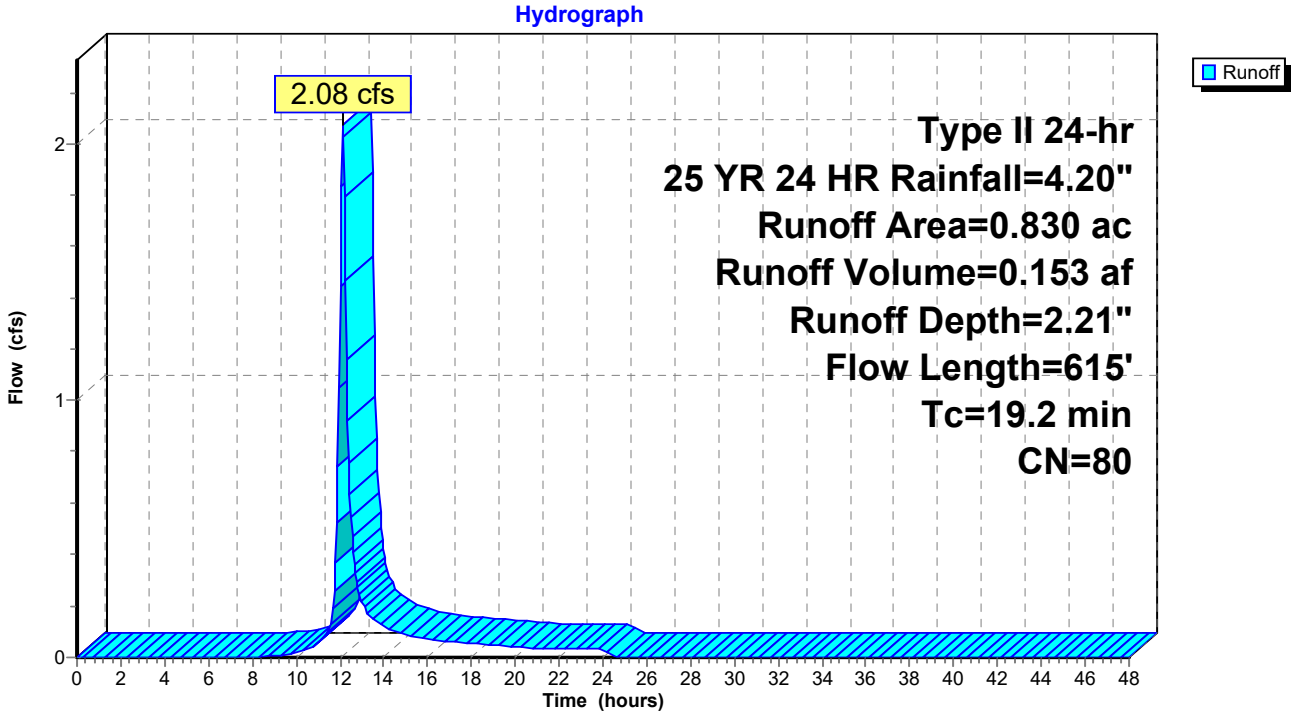
Runoff = 2.08 cfs @ 12.12 hrs, Volume= 0.153 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YR 24 HR Rainfall=4.20"

Area (ac)	CN	Description
0.830	80	>75% Grass cover, Good, HSG D
0.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0150	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
5.2	265	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	30	0.0050	0.35		**Shallow Concentrated Flow, Wetland** Kv= 5.0 fps
5.2	270	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.2	615	Total			

Subcatchment EX-2: EX-2

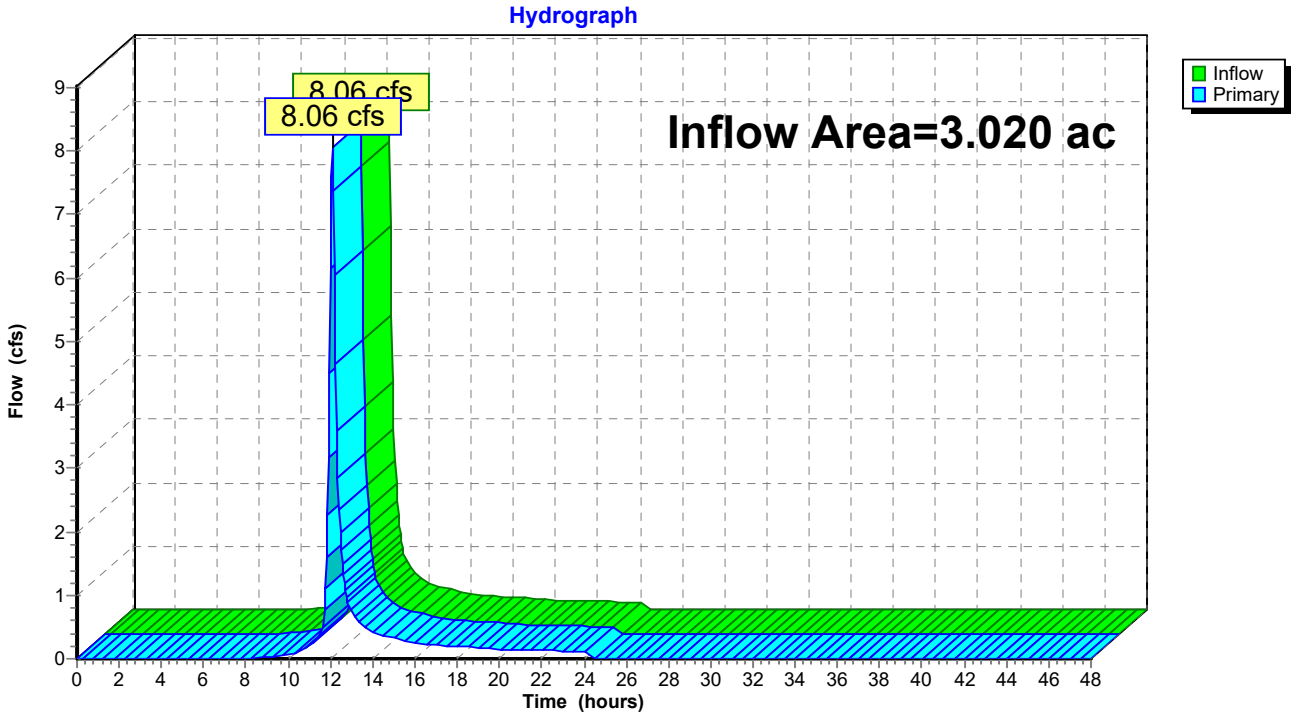


Summary for Link 8L: Design Point 1

Inflow Area = 3.020 ac, 0.00% Impervious, Inflow Depth = 2.21" for 25 YR 24 HR event
Inflow = 8.06 cfs @ 12.10 hrs, Volume= 0.556 af
Primary = 8.06 cfs @ 12.10 hrs, Volume= 0.556 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 8L: Design Point 1

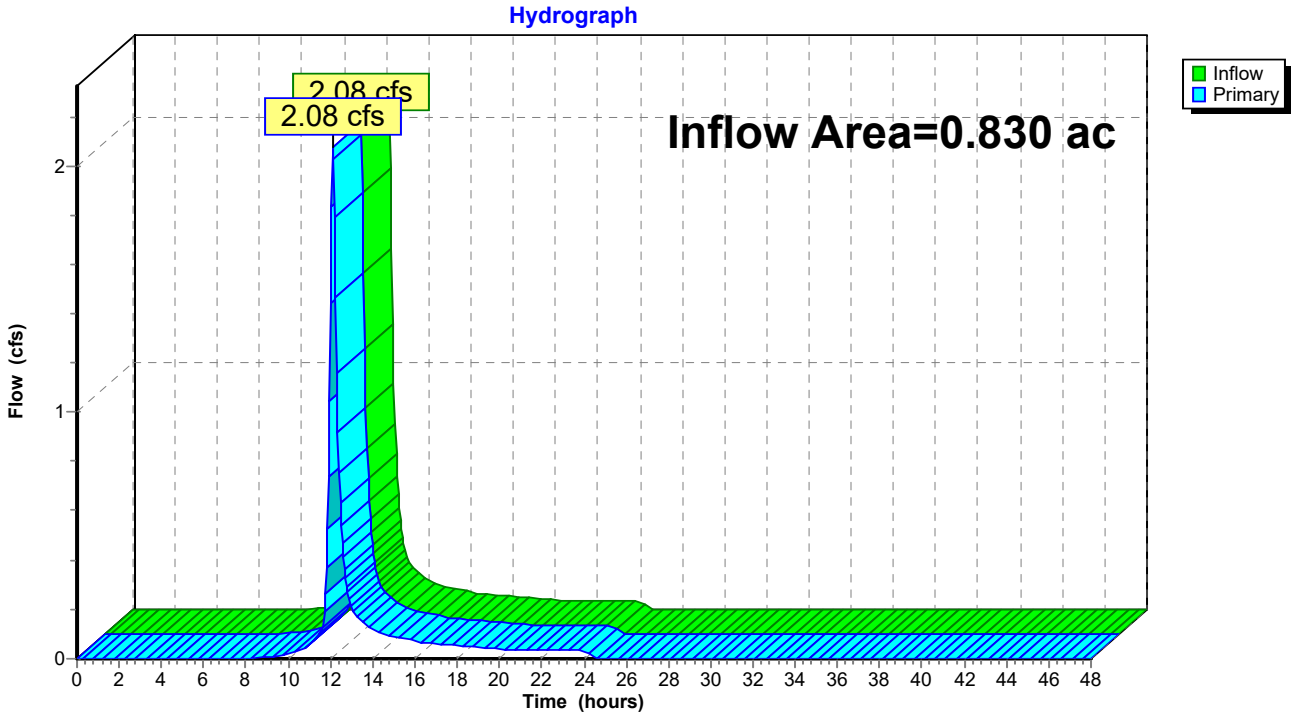


Summary for Link 9L: Design Point 2

Inflow Area = 0.830 ac, 0.00% Impervious, Inflow Depth = 2.21" for 25 YR 24 HR event
Inflow = 2.08 cfs @ 12.12 hrs, Volume= 0.153 af
Primary = 2.08 cfs @ 12.12 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 9L: Design Point 2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EX-1: EX-1 Runoff Area=3.020 ac 0.00% Impervious Runoff Depth=3.08"
Flow Length=610' Tc=17.0 min CN=80 Runoff=11.21 cfs 0.774 af

Subcatchment EX-2: EX-2 Runoff Area=0.830 ac 0.00% Impervious Runoff Depth=3.08"
Flow Length=615' Tc=19.2 min CN=80 Runoff=2.89 cfs 0.213 af

Link 8L: Design Point 1 Inflow=11.21 cfs 0.774 af
Primary=11.21 cfs 0.774 af

Link 9L: Design Point 2 Inflow=2.89 cfs 0.213 af
Primary=2.89 cfs 0.213 af

Total Runoff Area = 3.850 ac Runoff Volume = 0.987 af Average Runoff Depth = 3.08"
100.00% Pervious = 3.850 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: EX-1

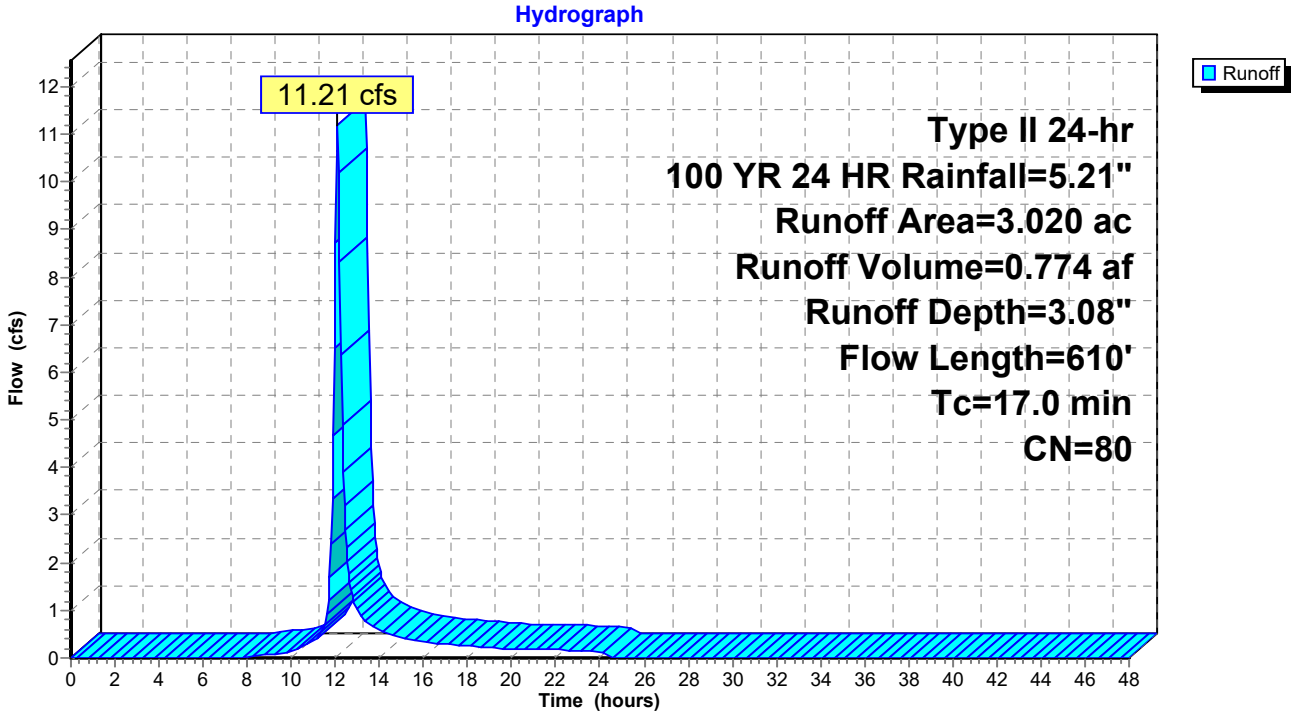
Runoff = 11.21 cfs @ 12.09 hrs, Volume= 0.774 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR 24 HR Rainfall=5.21"

Area (ac)	CN	Description
3.020	80	>75% Grass cover, Good, HSG D
3.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
4.2	350	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.5	60	0.0050	0.28		**Shallow Concentrated Flow, Swamp** Kv= 4.0 fps
0.5	100	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
17.0	610	Total			

Subcatchment EX-1: EX-1



Summary for Subcatchment EX-2: EX-2

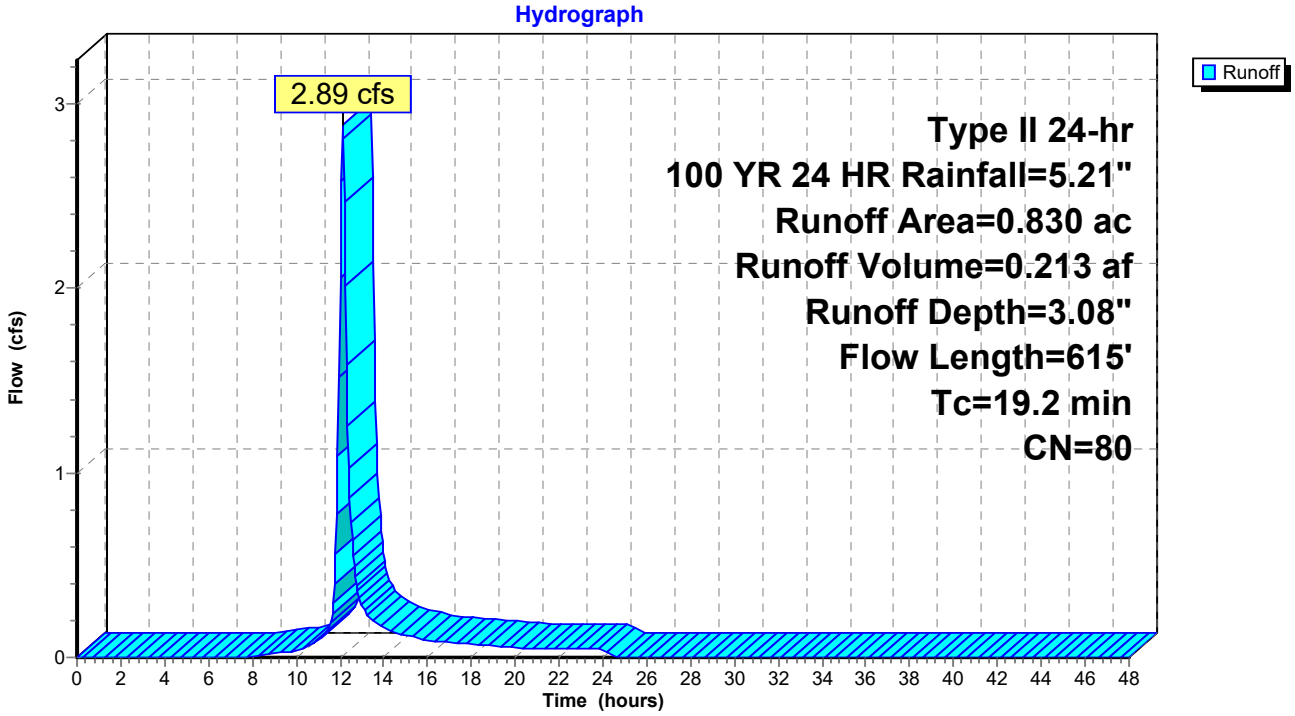
Runoff = 2.89 cfs @ 12.12 hrs, Volume= 0.213 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR 24 HR Rainfall=5.21"

Area (ac)	CN	Description
0.830	80	>75% Grass cover, Good, HSG D
0.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0150	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
5.2	265	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	30	0.0050	0.35		**Shallow Concentrated Flow, Wetland** Kv= 5.0 fps
5.2	270	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.2	615	Total			

Subcatchment EX-2: EX-2

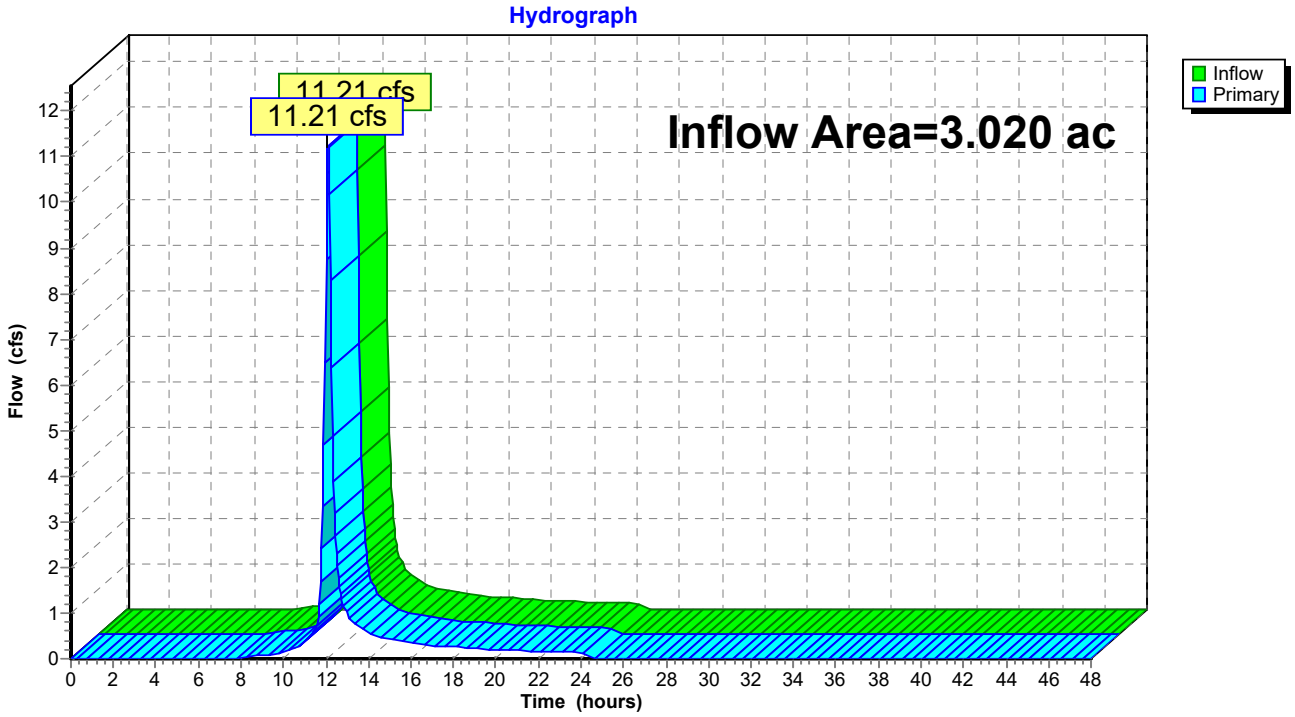


Summary for Link 8L: Design Point 1

Inflow Area = 3.020 ac, 0.00% Impervious, Inflow Depth = 3.08" for 100 YR 24 HR event
Inflow = 11.21 cfs @ 12.09 hrs, Volume= 0.774 af
Primary = 11.21 cfs @ 12.09 hrs, Volume= 0.774 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 8L: Design Point 1

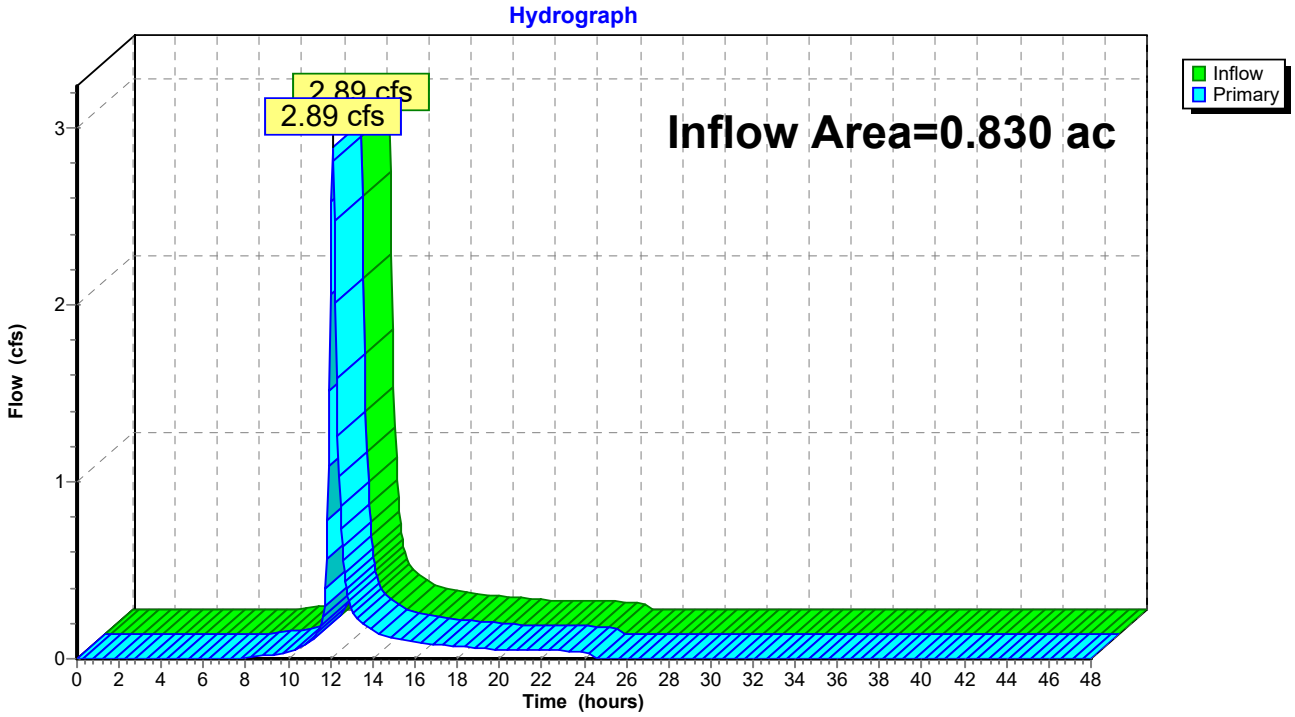


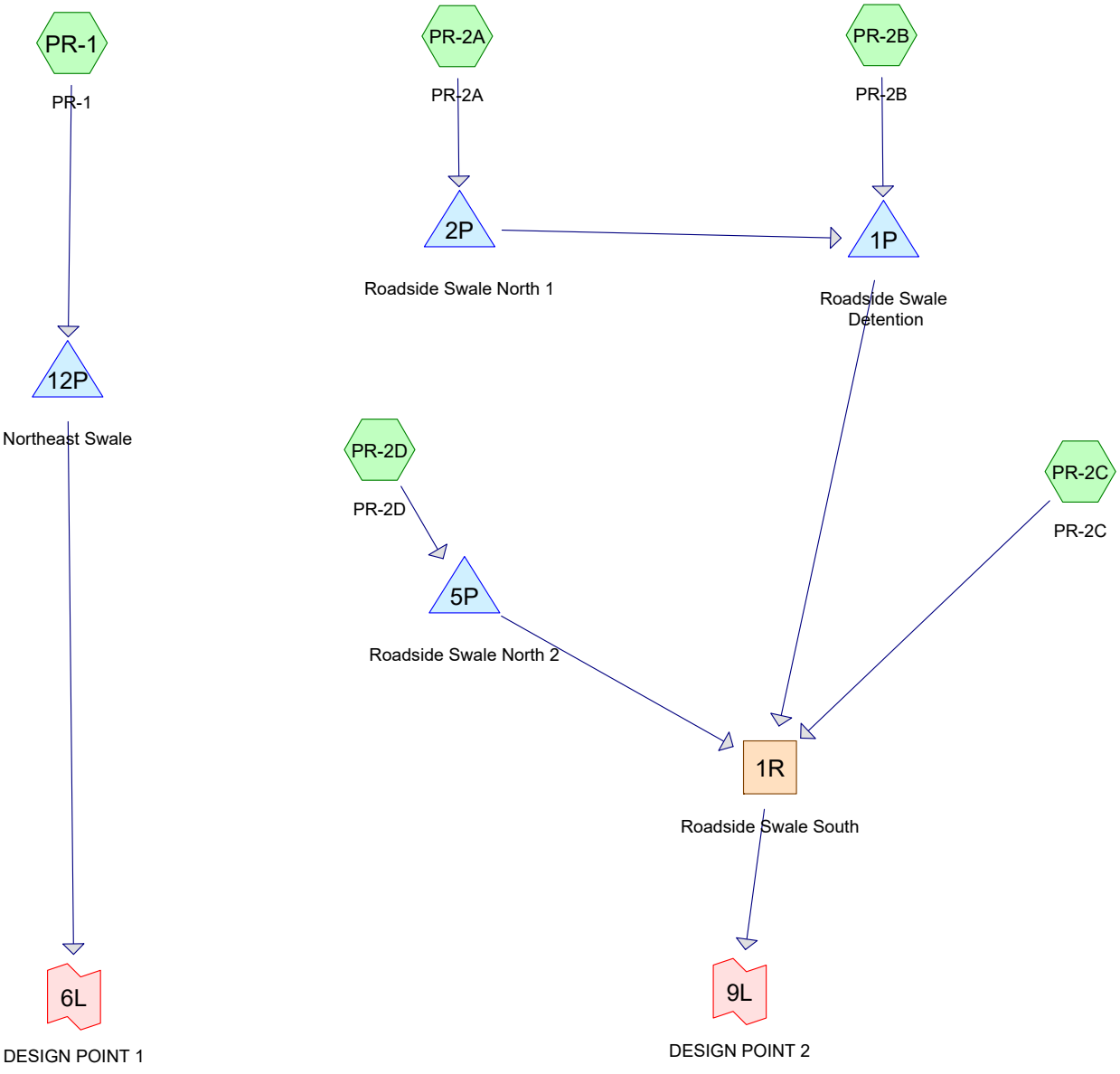
Summary for Link 9L: Design Point 2

Inflow Area = 0.830 ac, 0.00% Impervious, Inflow Depth = 3.08" for 100 YR 24 HR event
Inflow = 2.89 cfs @ 12.12 hrs, Volume= 0.213 af
Primary = 2.89 cfs @ 12.12 hrs, Volume= 0.213 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 9L: Design Point 2





Subcat Reach Pond Link

Routing Diagram for 411 Reynolds PR - Option 2
Prepared by GHD, Printed 4/13/2022

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.115	80	>75% Grass cover, Good, HSG D (PR-1, PR-2A, PR-2B, PR-2C, PR-2D)
0.730	91	Gravel roads, HSG D (PR-1, PR-2A, PR-2B, PR-2C, PR-2D)
0.005	98	Impervious (PR-1)
3.850	**82**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment PR-1: PR-1 Runoff Area=3.010 ac 0.17% Impervious Runoff Depth=0.74"
Flow Length=515' Tc=35.4 min CN=82 Runoff=1.61 cfs 0.185 af

Subcatchment PR-2A: PR-2A Runoff Area=0.160 ac 0.00% Impervious Runoff Depth=0.89"
Flow Length=300' Tc=16.5 min CN=85 Runoff=0.17 cfs 0.012 af

Subcatchment PR-2B: PR-2B Runoff Area=0.190 ac 0.00% Impervious Runoff Depth=0.84"
Flow Length=330' Tc=17.0 min CN=84 Runoff=0.19 cfs 0.013 af

Subcatchment PR-2C: PR-2C Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=0.74"
Flow Length=50' Slope=0.0150 '/' Tc=7.4 min CN=82 Runoff=0.39 cfs 0.020 af

Subcatchment PR-2D: PR-2D Runoff Area=0.170 ac 0.00% Impervious Runoff Depth=0.95"
Flow Length=200' Tc=12.8 min CN=86 Runoff=0.22 cfs 0.013 af

Reach 1R: Roadside Swale South Avg. Flow Depth=0.15' Max Vel=1.46 fps Inflow=0.57 cfs 0.033 af
n=0.030 L=286.0' S=0.0140 '/' Capacity=99.40 cfs Outflow=0.53 cfs 0.033 af

Pond 1P: Roadside Swale Detention Peak Elev=1,099.07' Storage=760 cf Inflow=0.19 cfs 0.017 af
Outflow=0.00 cfs 0.000 af

Pond 2P: Roadside Swale North 1 Peak Elev=1,100.66' Storage=355 cf Inflow=0.17 cfs 0.012 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0033 '/' Outflow=0.01 cfs 0.004 af

Pond 5P: Roadside Swale North 2 Peak Elev=1,093.29' Storage=22 cf Inflow=0.22 cfs 0.013 af
8.0" Round Culvert n=0.012 L=30.0' S=0.0067 '/' Outflow=0.22 cfs 0.013 af

Pond 12P: Northeast Swale Peak Elev=1,107.25' Storage=1,401 cf Inflow=1.61 cfs 0.185 af
Outflow=1.53 cfs 0.161 af

Link 6L: DESIGN POINT 1 Inflow=1.53 cfs 0.161 af
Primary=1.53 cfs 0.161 af

Link 9L: DESIGN POINT 2 Inflow=0.53 cfs 0.033 af
Primary=0.53 cfs 0.033 af

Total Runoff Area = 3.850 ac Runoff Volume = 0.243 af Average Runoff Depth = 0.76"
99.87% Pervious = 3.845 ac 0.13% Impervious = 0.005 ac

Summary for Subcatchment PR-1: PR-1

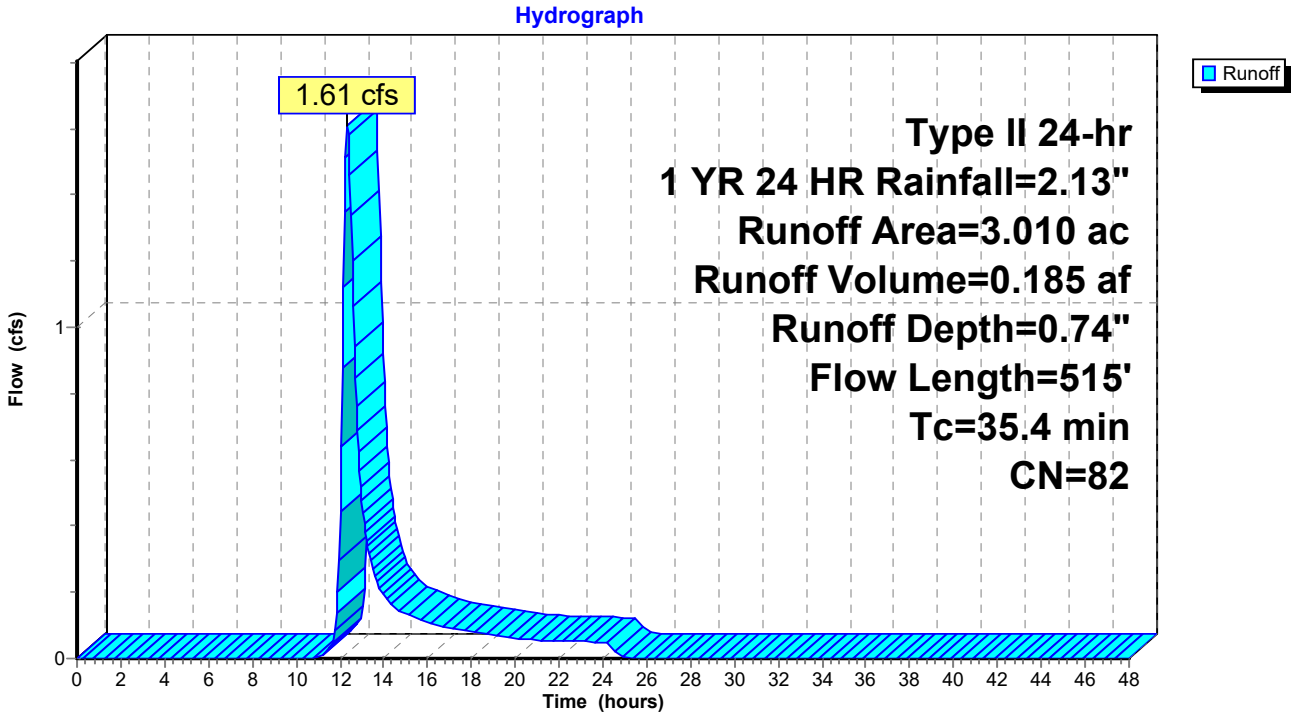
Runoff = 1.61 cfs @ 12.33 hrs, Volume= 0.185 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR 24 HR Rainfall=2.13"

	Area (ac)	CN	Description
*	0.005	98	Impervious
	0.440	91	Gravel roads, HSG D
	2.565	80	>75% Grass cover, Good, HSG D
	3.010	82	Weighted Average
	3.005		99.83% Pervious Area
	0.005		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.3	140	0.0050	0.09		**Sheet Flow, Sheet flow from impervious across filter strip** Grass: Short n= 0.150 P2= 2.30"
5.4	225	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.2	55	0.0050	0.28		**Shallow Concentrated Flow, Swamp** Kv= 4.0 fps
0.5	95	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
35.4	515	Total			

Subcatchment PR-1: PR-1



Summary for Subcatchment PR-2A: PR-2A

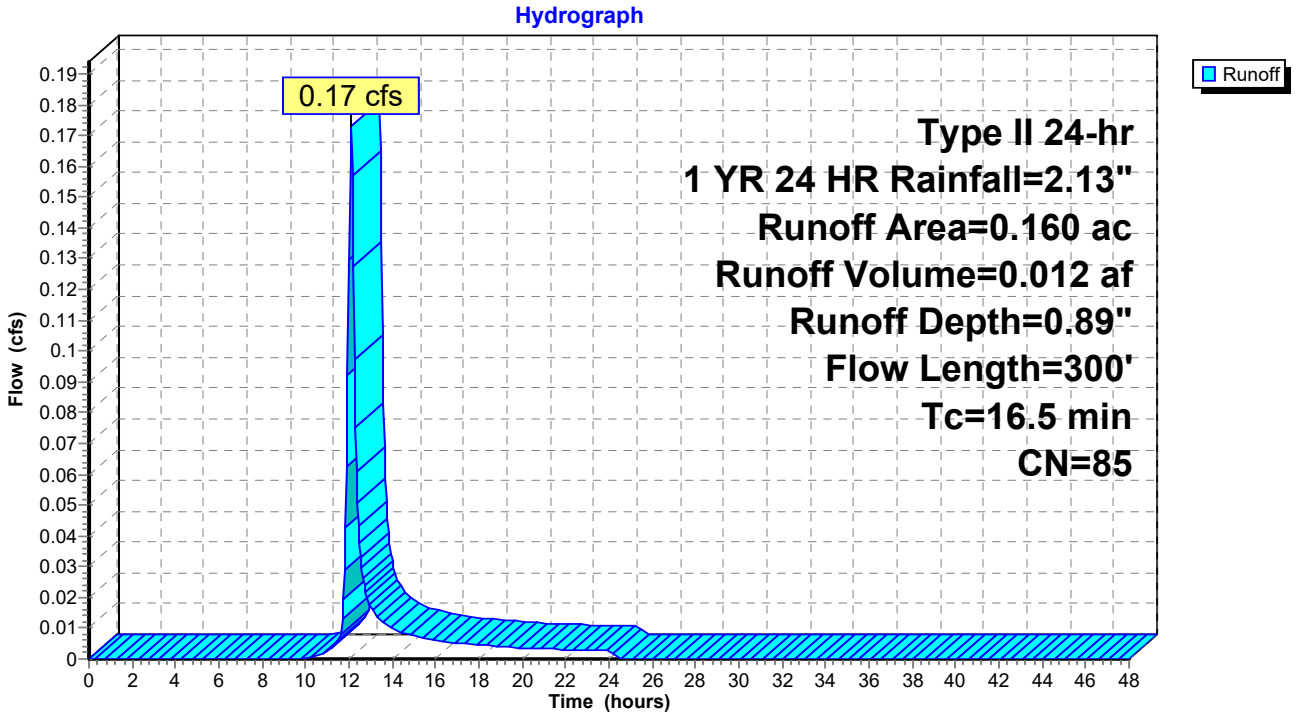
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.012 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR 24 HR Rainfall=2.13"

	Area (ac)	CN	Description
*	0.070	91	Gravel roads, HSG D
	0.090	80	>75% Grass cover, Good, HSG D
	0.160	85	Weighted Average
	0.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0150	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
1.9	100	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	70	0.0400	0.80		**Shallow Concentrated Flow, Swale Lined with riprap** Kv= 4.0 fps
0.1	30	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
16.5	300	Total			

Subcatchment PR-2A: PR-2A



Summary for Subcatchment PR-2B: PR-2B

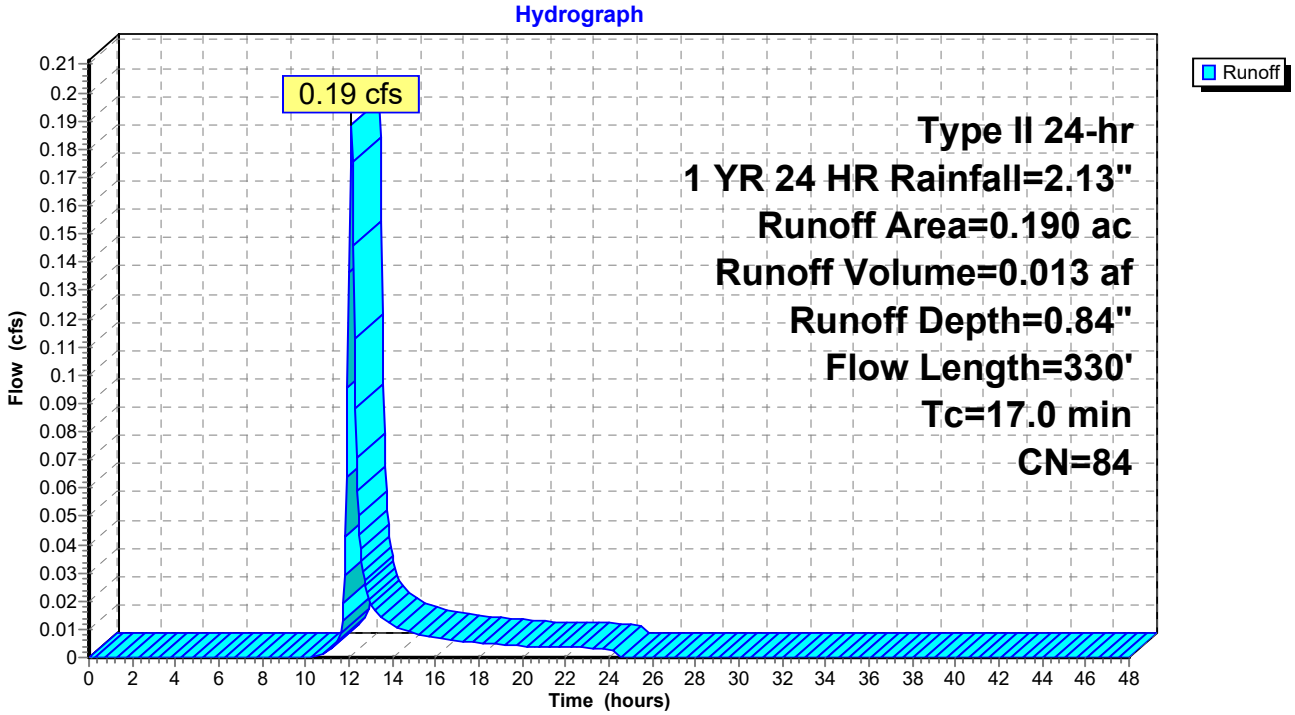
Runoff = 0.19 cfs @ 12.10 hrs, Volume= 0.013 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR 24 HR Rainfall=2.13"

	Area (ac)	CN	Description
*	0.070	91	Gravel roads, HSG D
	0.120	80	>75% Grass cover, Good, HSG D
	0.190	84	Weighted Average
	0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0150	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
2.1	110	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	100	0.0050	0.91	8.86	**Trap/Vee/Rect Channel Flow,** Bot.W=18.00' D=0.50' Z= 3.0 '/' Top.W=21.00' n= 0.069 Riprap, 6-inch
0.1	20	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
17.0	330	Total			

Subcatchment PR-2B: PR-2B



Summary for Subcatchment PR-2C: PR-2C

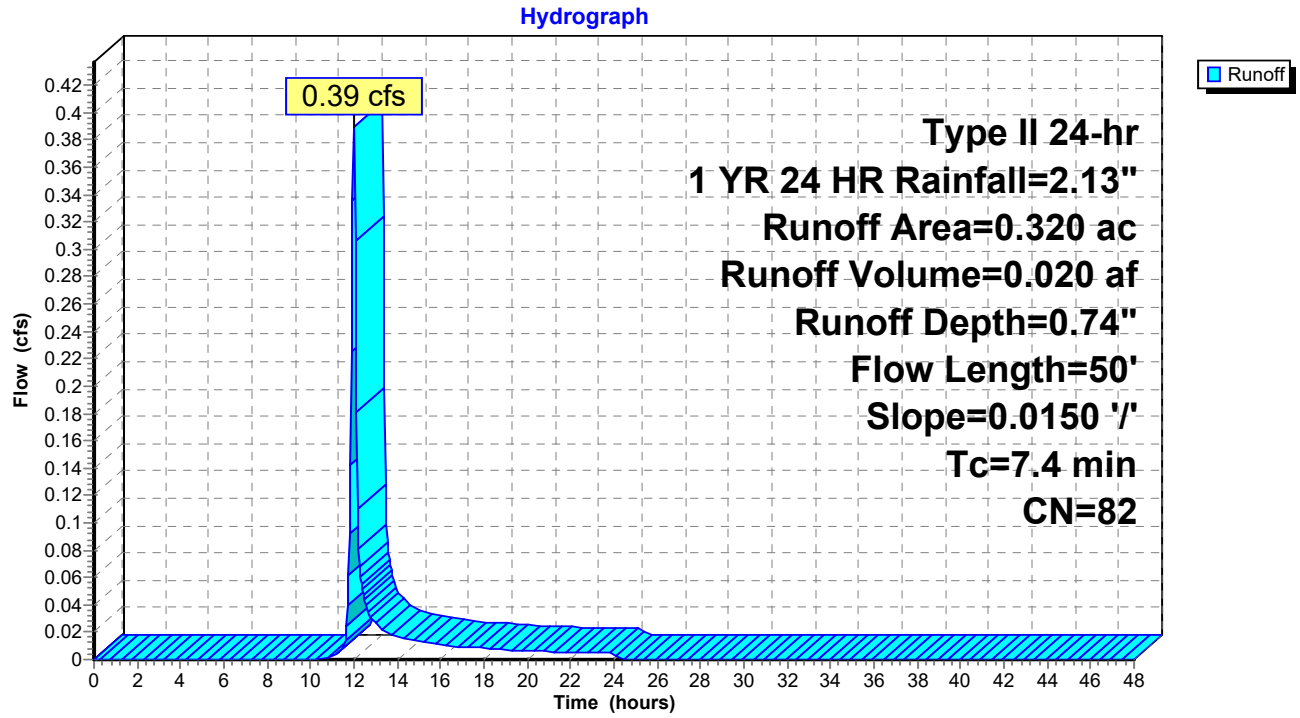
Runoff = 0.39 cfs @ 11.99 hrs, Volume= 0.020 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR 24 HR Rainfall=2.13"

	Area (ac)	CN	Description
*	0.060	91	Gravel roads, HSG D
	0.260	80	>75% Grass cover, Good, HSG D
	0.320	82	Weighted Average
	0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0150	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"

Subcatchment PR-2C: PR-2C



Summary for Subcatchment PR-2D: PR-2D

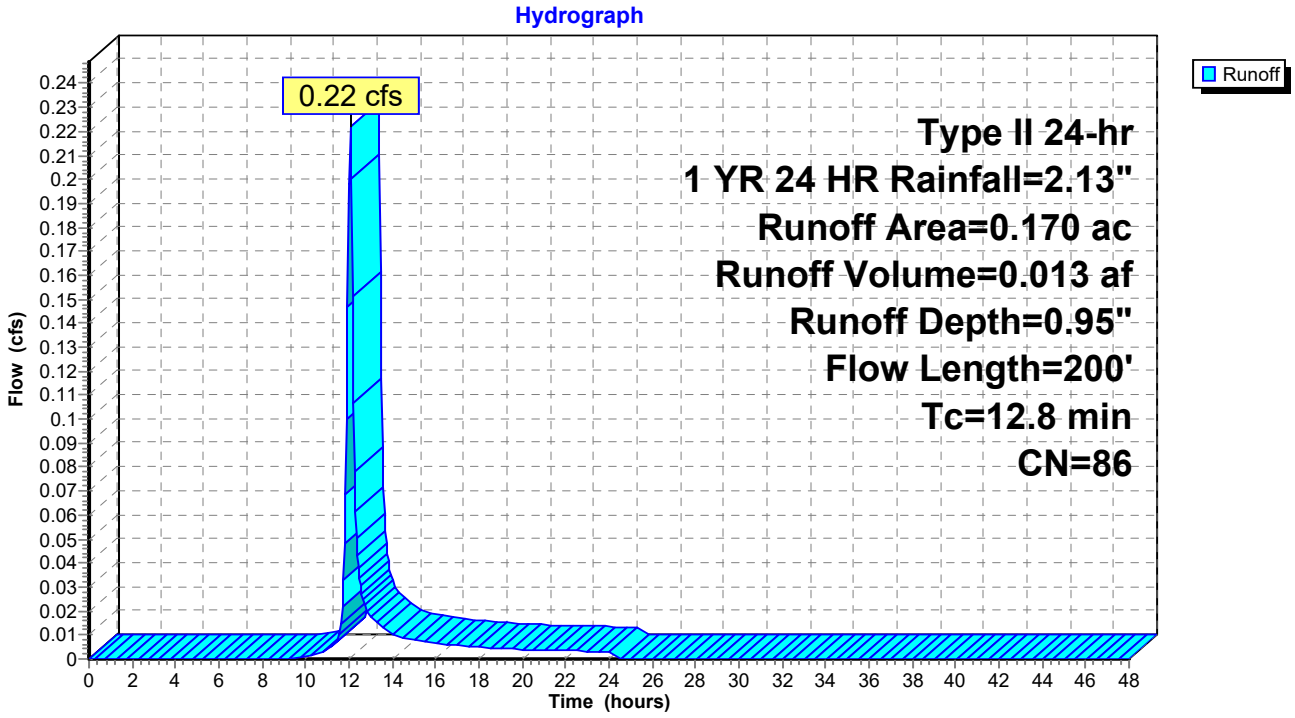
Runoff = 0.22 cfs @ 12.05 hrs, Volume= 0.013 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR 24 HR Rainfall=2.13"

	Area (ac)	CN	Description
*	0.090	91	Gravel roads, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.170	86	Weighted Average
	0.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	20	0.0050	0.04		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.30"
2.4	50	0.0050	0.35		**Shallow Concentrated Flow, Wetland** Woodland Kv= 5.0 fps
2.1	100	0.0400	0.80		**Shallow Concentrated Flow, Swale Lined with riprap** Kv= 4.0 fps
0.2	30	0.0050	2.65	0.93	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
12.8	200	Total			

Subcatchment PR-2D: PR-2D



Summary for Reach 1R: Roadside Swale South

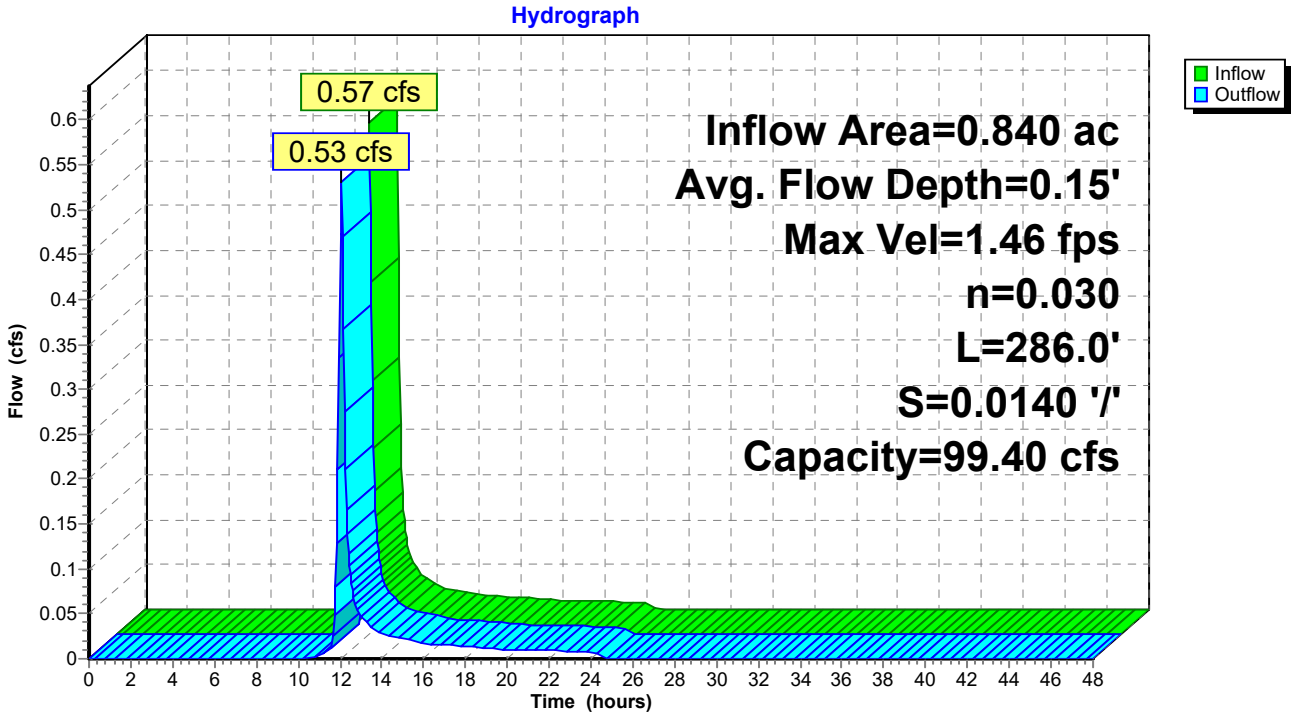
Inflow Area = 0.840 ac, 0.00% Impervious, Inflow Depth = 0.47" for 1 YR 24 HR event
Inflow = 0.57 cfs @ 12.01 hrs, Volume= 0.033 af
Outflow = 0.53 cfs @ 12.05 hrs, Volume= 0.033 af, Atten= 7%, Lag= 2.4 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.46 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 10.0 min

Peak Storage= 104 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 99.40 cfs

2.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 286.0' Slope= 0.0140 '/'
Inlet Invert= 1,096.00', Outlet Invert= 1,092.00'

Reach 1R: Roadside Swale South



Summary for Pond 1P: Roadside Swale Detention

Inflow Area = 0.350 ac, 0.00% Impervious, Inflow Depth = 0.60" for 1 YR 24 HR event
Inflow = 0.19 cfs @ 12.10 hrs, Volume= 0.017 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,099.07' @ 48.00 hrs Surf.Area= 827 sf Storage= 760 cf

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

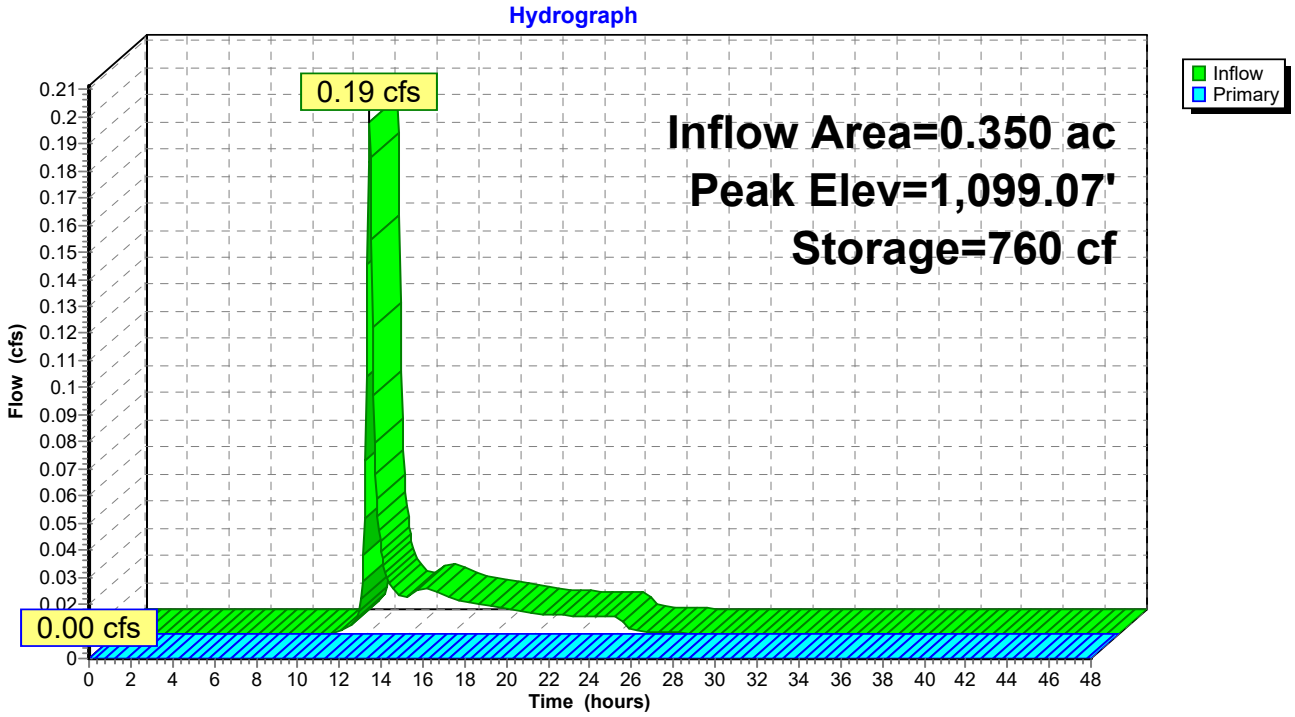
Volume	Invert	Avail.Storage	Storage Description
#1	1,098.00'	5,328 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,098.00	600	0	0
1,099.00	800	700	700
1,100.00	1,165	983	1,683
1,101.00	1,813	1,489	3,172
1,102.00	2,500	2,157	5,328

Device	Routing	Invert	Outlet Devices
#1	Primary	1,099.50'	**6.0" Round Culvert** L= 20.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,099.50' / 1,099.40' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Primary	1,101.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,098.00' (Free Discharge)
1=Culvert (Controls 0.00 cfs)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: Roadside Swale Detention



Summary for Pond 2P: Roadside Swale North 1

Inflow Area = 0.160 ac, 0.00% Impervious, Inflow Depth = 0.89" for 1 YR 24 HR event
Inflow = 0.17 cfs @ 12.09 hrs, Volume= 0.012 af
Outflow = 0.01 cfs @ 14.92 hrs, Volume= 0.004 af, Atten= 96%, Lag= 169.6 min
Primary = 0.01 cfs @ 14.92 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,100.66' @ 14.92 hrs Surf.Area= 351 sf Storage= 355 cf

Plug-Flow detention time= 405.5 min calculated for 0.004 af (35% of inflow)
Center-of-Mass det. time= 270.5 min (1,122.7 - 852.3)

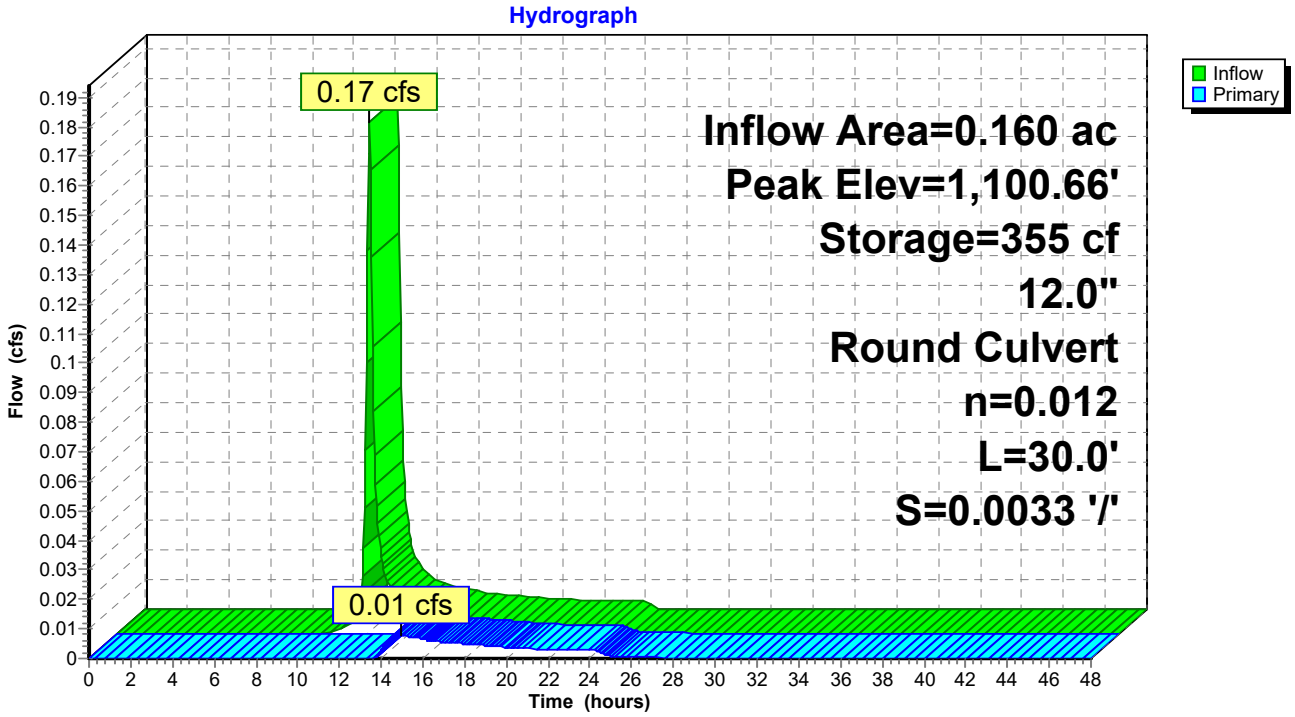
Volume	Invert	Avail.Storage	Storage Description
#1	1,099.00'	984 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,099.00	50	0	0
1,100.00	259	155	155
1,101.00	400	330	484
1,102.00	600	500	984

Device	Routing	Invert	Outlet Devices
#1	Primary	1,100.60'	**12.0" Round Culvert** L= 30.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,100.60' / 1,100.50' S= 0.0033 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 14.92 hrs HW=1,100.66' (Free Discharge)
1=Culvert (Barrel Controls 0.01 cfs @ 0.66 fps)

Pond 2P: Roadside Swale North 1



Summary for Pond 5P: Roadside Swale North 2

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 0.95" for 1 YR 24 HR event
Inflow = 0.22 cfs @ 12.05 hrs, Volume= 0.013 af
Outflow = 0.22 cfs @ 12.07 hrs, Volume= 0.013 af, Atten= 2%, Lag= 1.2 min
Primary = 0.22 cfs @ 12.07 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,093.29' @ 12.07 hrs Surf.Area= 90 sf Storage= 22 cf

Plug-Flow detention time= 4.5 min calculated for 0.013 af (100% of inflow)
Center-of-Mass det. time= 4.5 min (849.2 - 844.7)

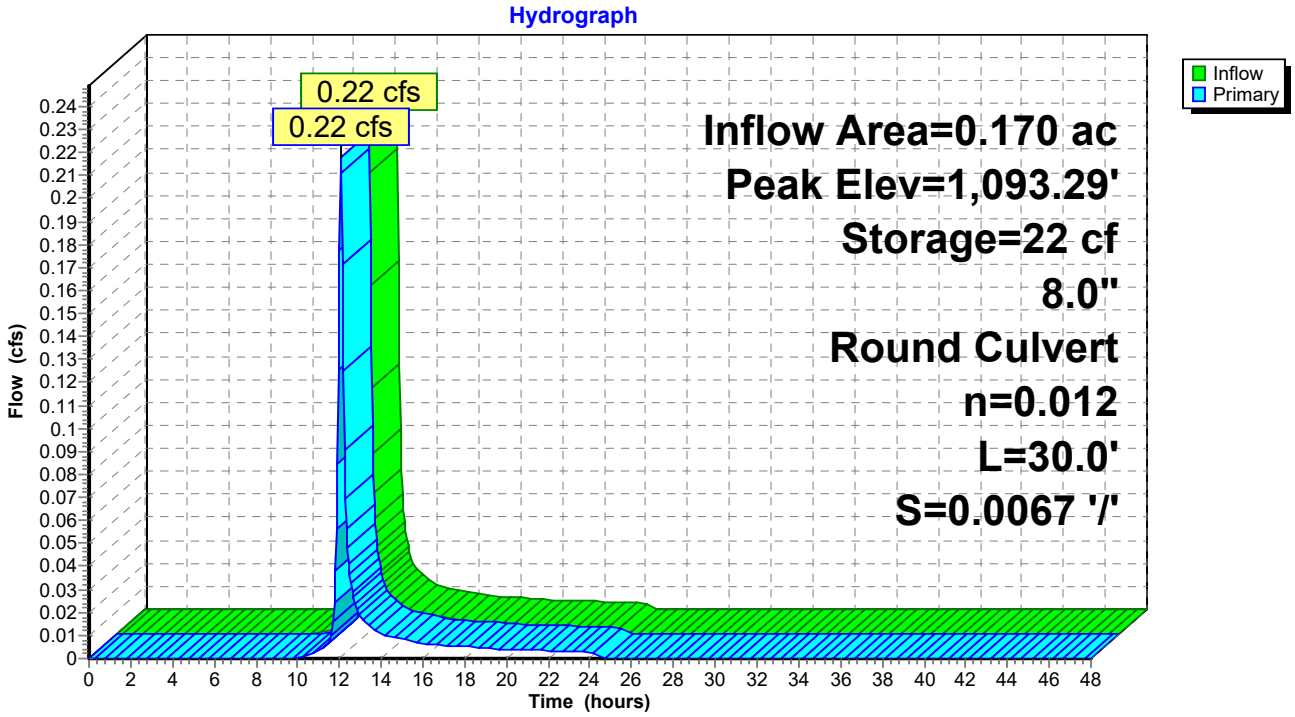
Volume	Invert	Avail.Storage	Storage Description
#1	1,093.00'	3,716 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,093.00	60	0	0
1,094.00	162	111	111
1,095.00	500	331	442
1,096.00	1,097	799	1,241
1,097.00	1,200	1,149	2,389
1,098.00	1,453	1,327	3,716

Device	Routing	Invert	Outlet Devices
#1	Primary	1,093.00'	**8.0" Round Culvert** L= 30.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,093.00' / 1,092.80' S= 0.0067 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.21 cfs @ 12.07 hrs HW=1,093.29' (Free Discharge)
1=Culvert (Barrel Controls 0.21 cfs @ 2.15 fps)

Pond 5P: Roadside Swale North 2



Summary for Pond 12P: Northeast Swale

Inflow Area = 3.010 ac, 0.17% Impervious, Inflow Depth = 0.74" for 1 YR 24 HR event
Inflow = 1.61 cfs @ 12.33 hrs, Volume= 0.185 af
Outflow = 1.53 cfs @ 12.42 hrs, Volume= 0.161 af, Atten= 5%, Lag= 5.6 min
Primary = 1.53 cfs @ 12.42 hrs, Volume= 0.161 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,107.25' @ 12.42 hrs Surf.Area= 1,677 sf Storage= 1,401 cf

Plug-Flow detention time= 92.3 min calculated for 0.161 af (87% of inflow)
Center-of-Mass det. time= 30.3 min (912.4 - 882.1)

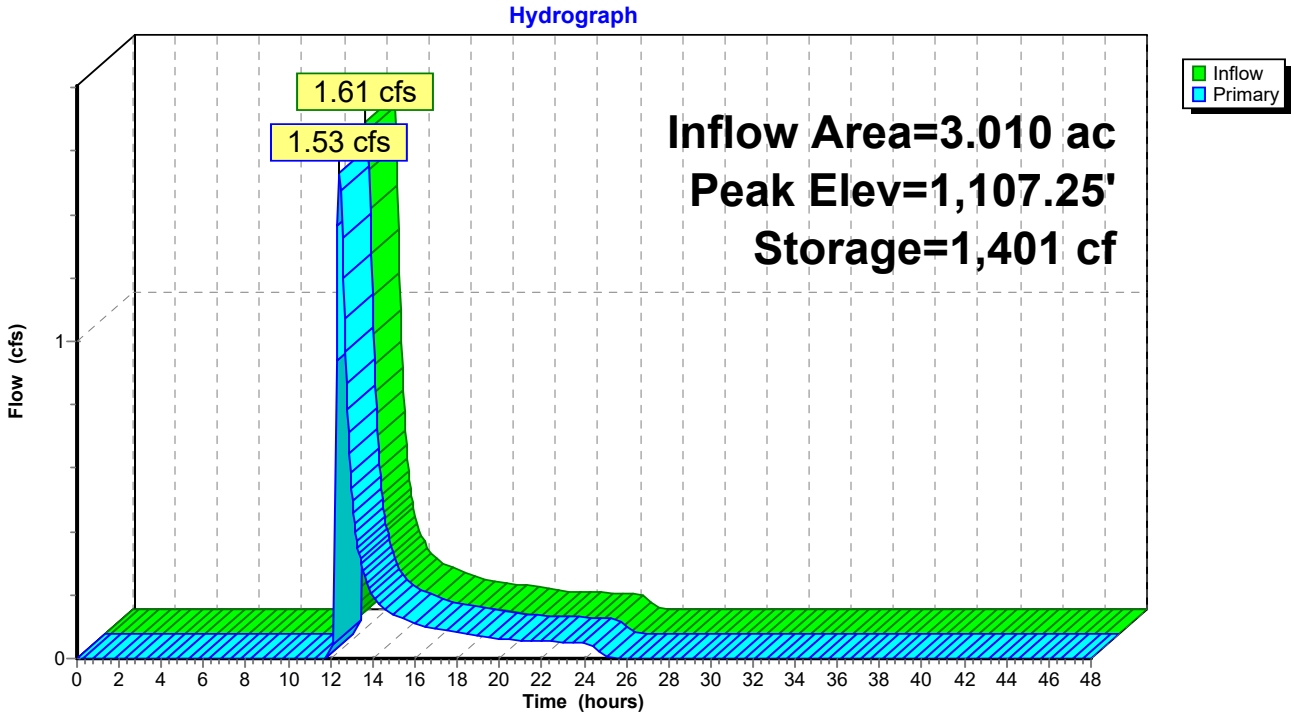
Volume	Invert	Avail.Storage	Storage Description
#1	1,106.00'	5,714 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,106.00	628	0	0
1,107.00	1,400	1,014	1,014
1,108.00	2,500	1,950	2,964
1,109.00	3,000	2,750	5,714

Device	Routing	Invert	Outlet Devices
#1	Primary	1,107.00'	**5.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.51 cfs @ 12.42 hrs HW=1,107.25' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 1.51 cfs @ 1.21 fps)

Pond 12P: Northeast Swale

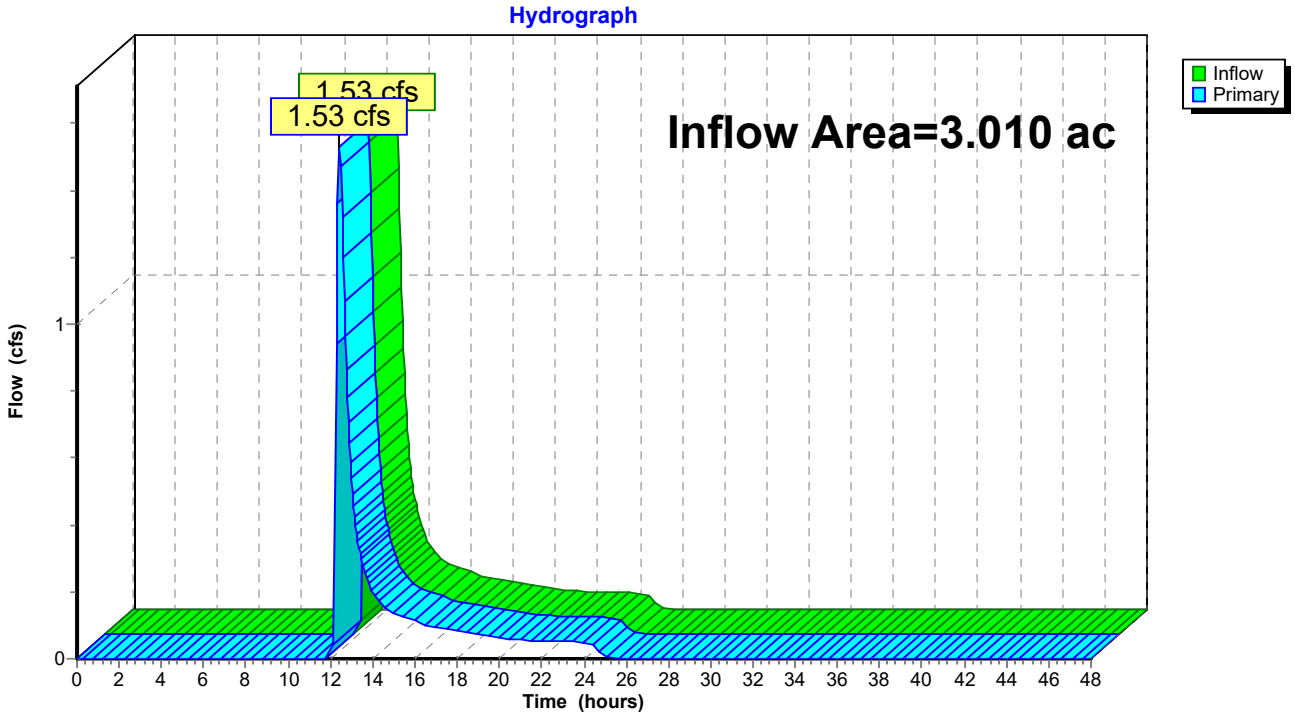


Summary for Link 6L: DESIGN POINT 1

Inflow Area = 3.010 ac, 0.17% Impervious, Inflow Depth = 0.64" for 1 YR 24 HR event
Inflow = 1.53 cfs @ 12.42 hrs, Volume= 0.161 af
Primary = 1.53 cfs @ 12.42 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 6L: DESIGN POINT 1

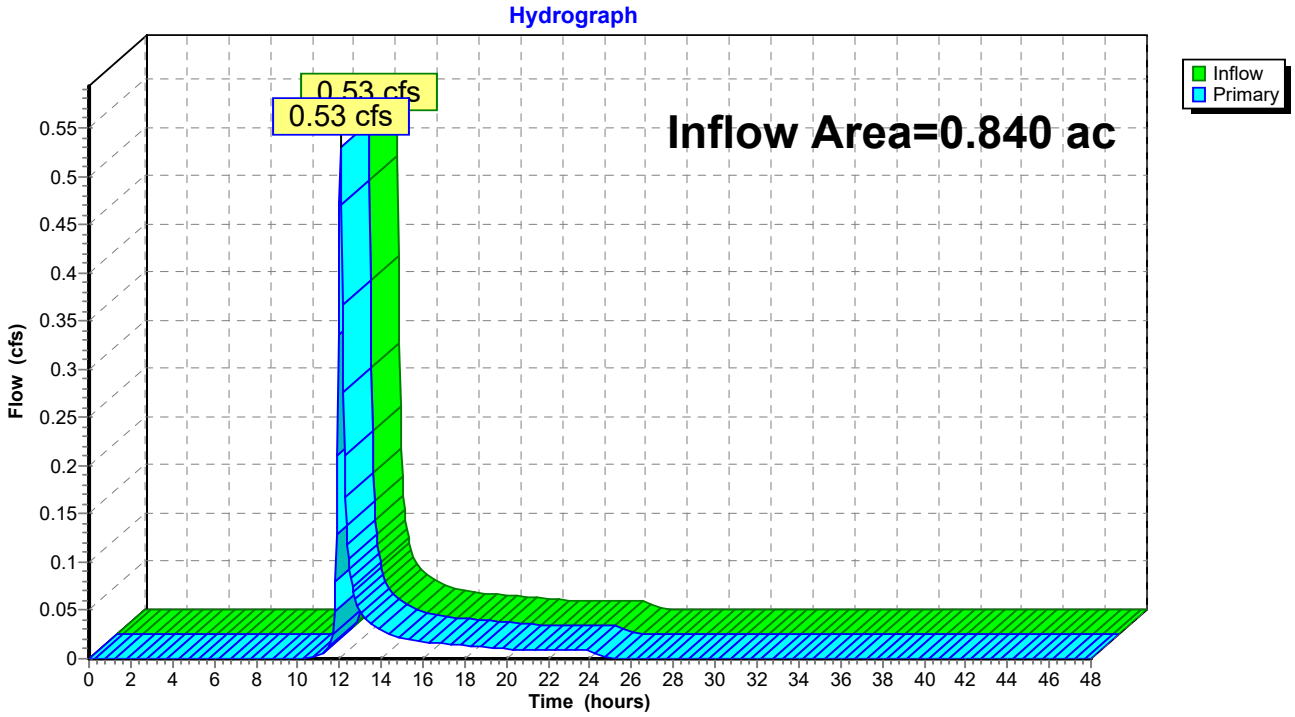


Summary for Link 9L: DESIGN POINT 2

Inflow Area = 0.840 ac, 0.00% Impervious, Inflow Depth = 0.47" for 1 YR 24 HR event
Inflow = 0.53 cfs @ 12.05 hrs, Volume= 0.033 af
Primary = 0.53 cfs @ 12.05 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 9L: DESIGN POINT 2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment PR-1: PR-1 Runoff Area=3.010 ac 0.17% Impervious Runoff Depth=1.82"
Flow Length=515' Tc=35.4 min CN=82 Runoff=4.22 cfs 0.455 af

Subcatchment PR-2A: PR-2A Runoff Area=0.160 ac 0.00% Impervious Runoff Depth=2.05"
Flow Length=300' Tc=16.5 min CN=85 Runoff=0.40 cfs 0.027 af

Subcatchment PR-2B: PR-2B Runoff Area=0.190 ac 0.00% Impervious Runoff Depth=1.97"
Flow Length=330' Tc=17.0 min CN=84 Runoff=0.45 cfs 0.031 af

Subcatchment PR-2C: PR-2C Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=1.82"
Flow Length=50' Slope=0.0150 '/' Tc=7.4 min CN=82 Runoff=0.97 cfs 0.048 af

Subcatchment PR-2D: PR-2D Runoff Area=0.170 ac 0.00% Impervious Runoff Depth=2.13"
Flow Length=200' Tc=12.8 min CN=86 Runoff=0.50 cfs 0.030 af

Reach 1R: Roadside Swale South Avg. Flow Depth=0.25' Max Vel=1.93 fps Inflow=1.38 cfs 0.103 af
n=0.030 L=286.0' S=0.0140 '/' Capacity=99.40 cfs Outflow=1.31 cfs 0.103 af

Pond 1P: Roadside Swale Detention Peak Elev=1,099.66' Storage=1,304 cf Inflow=0.60 cfs 0.051 af
Outflow=0.05 cfs 0.025 af

Pond 2P: Roadside Swale North 1 Peak Elev=1,100.92' Storage=451 cf Inflow=0.40 cfs 0.027 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0033 '/' Outflow=0.26 cfs 0.020 af

Pond 5P: Roadside Swale North 2 Peak Elev=1,093.47' Storage=40 cf Inflow=0.50 cfs 0.030 af
8.0" Round Culvert n=0.012 L=30.0' S=0.0067 '/' Outflow=0.49 cfs 0.030 af

Pond 12P: Northeast Swale Peak Elev=1,107.47' Storage=1,791 cf Inflow=4.22 cfs 0.455 af
Outflow=4.16 cfs 0.432 af

Link 6L: DESIGN POINT 1 Inflow=4.16 cfs 0.432 af
Primary=4.16 cfs 0.432 af

Link 9L: DESIGN POINT 2 Inflow=1.31 cfs 0.103 af
Primary=1.31 cfs 0.103 af

Total Runoff Area = 3.850 ac Runoff Volume = 0.593 af Average Runoff Depth = 1.85"
99.87% Pervious = 3.845 ac 0.13% Impervious = 0.005 ac

Summary for Subcatchment PR-1: PR-1

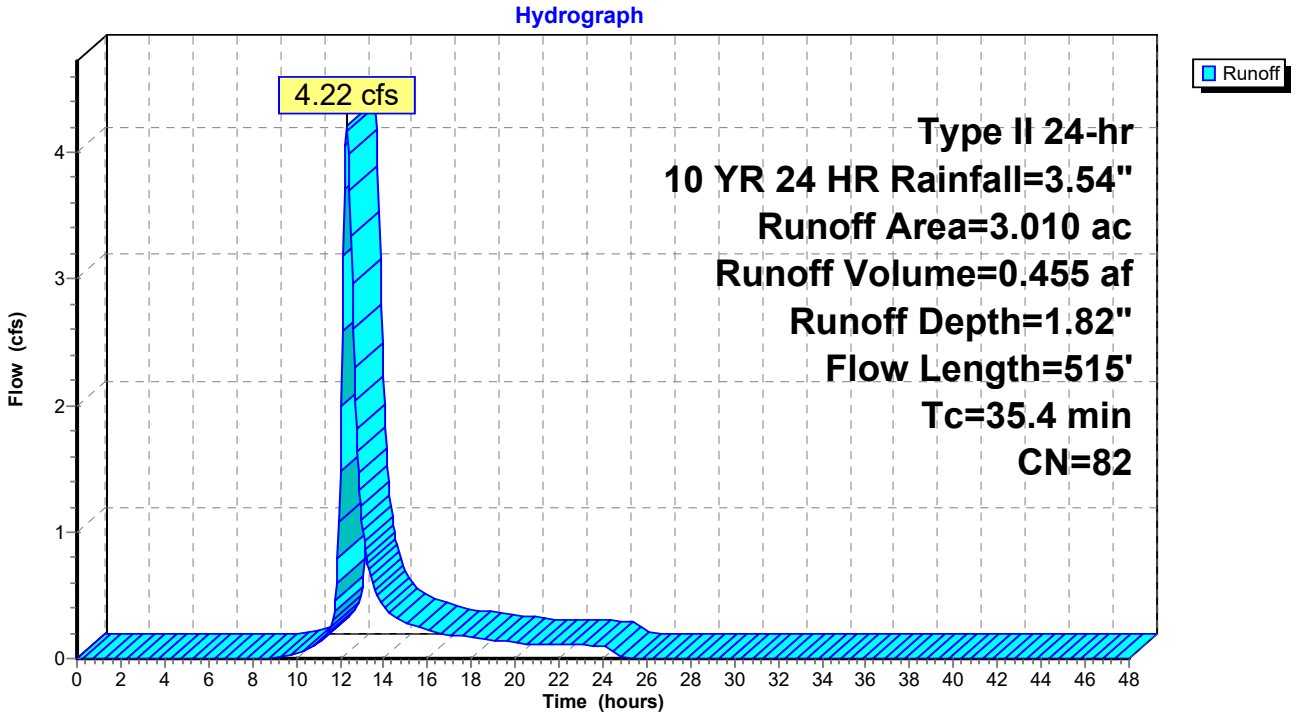
Runoff = 4.22 cfs @ 12.31 hrs, Volume= 0.455 af, Depth= 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR 24 HR Rainfall=3.54"

	Area (ac)	CN	Description
*	0.005	98	Impervious
	0.440	91	Gravel roads, HSG D
	2.565	80	>75% Grass cover, Good, HSG D
	3.010	82	Weighted Average
	3.005		99.83% Pervious Area
	0.005		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.3	140	0.0050	0.09		**Sheet Flow, Sheet flow from impervious across filter strip** Grass: Short n= 0.150 P2= 2.30"
5.4	225	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.2	55	0.0050	0.28		**Shallow Concentrated Flow, Swamp** Kv= 4.0 fps
0.5	95	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
35.4	515	Total			

Subcatchment PR-1: PR-1



Summary for Subcatchment PR-2A: PR-2A

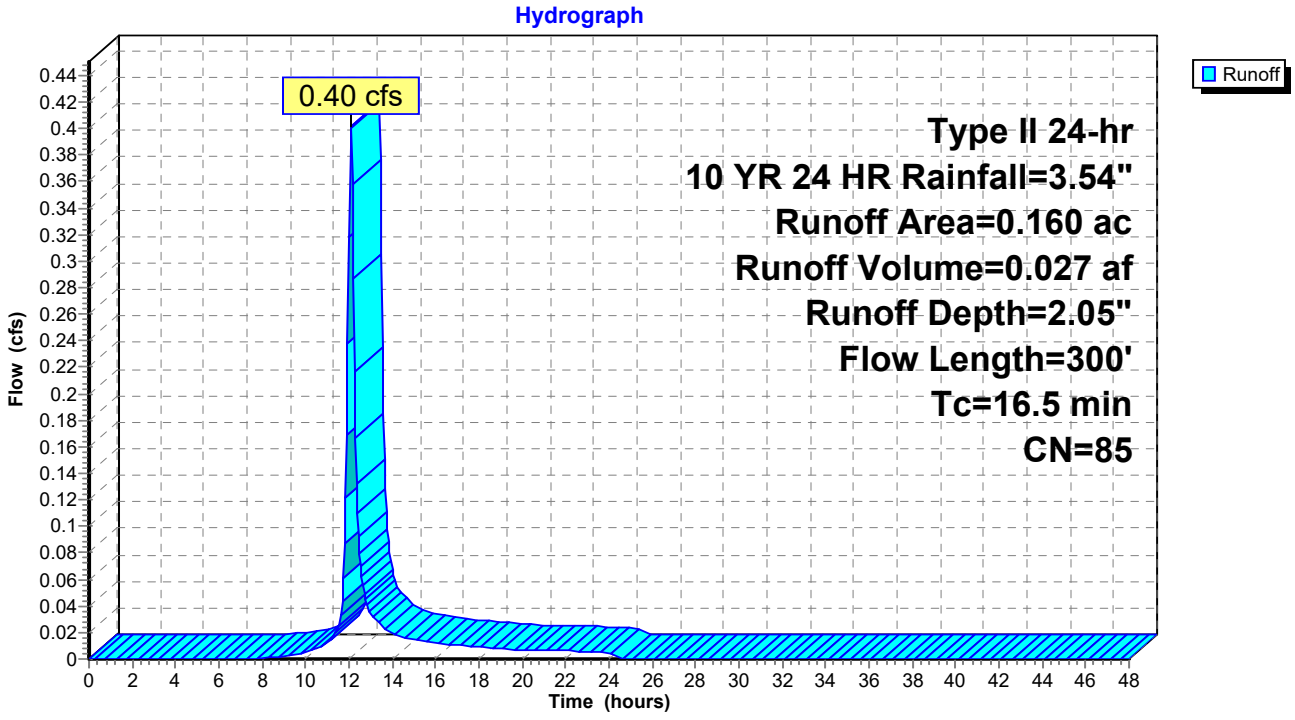
Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.027 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR 24 HR Rainfall=3.54"

	Area (ac)	CN	Description
*	0.070	91	Gravel roads, HSG D
	0.090	80	>75% Grass cover, Good, HSG D
	0.160	85	Weighted Average
	0.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0150	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
1.9	100	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	70	0.0400	0.80		**Shallow Concentrated Flow, Swale Lined with riprap** Kv= 4.0 fps
0.1	30	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
16.5	300	Total			

Subcatchment PR-2A: PR-2A



Summary for Subcatchment PR-2B: PR-2B

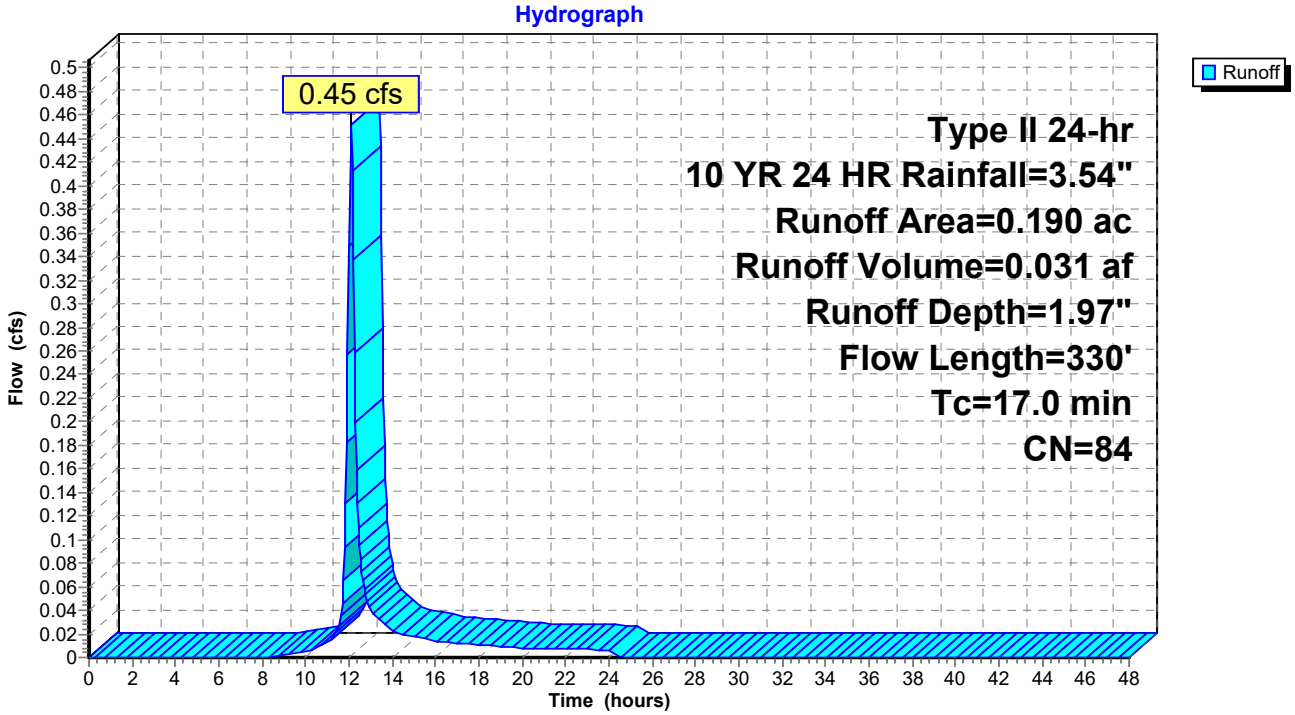
Runoff = 0.45 cfs @ 12.09 hrs, Volume= 0.031 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR 24 HR Rainfall=3.54"

	Area (ac)	CN	Description
*	0.070	91	Gravel roads, HSG D
	0.120	80	>75% Grass cover, Good, HSG D
	0.190	84	Weighted Average
	0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0150	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
2.1	110	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	100	0.0050	0.91	8.86	**Trap/Vee/Rect Channel Flow,** Bot.W=18.00' D=0.50' Z= 3.0 '/' Top.W=21.00' n= 0.069 Riprap, 6-inch
0.1	20	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
17.0	330	Total			

Subcatchment PR-2B: PR-2B



Summary for Subcatchment PR-2C: PR-2C

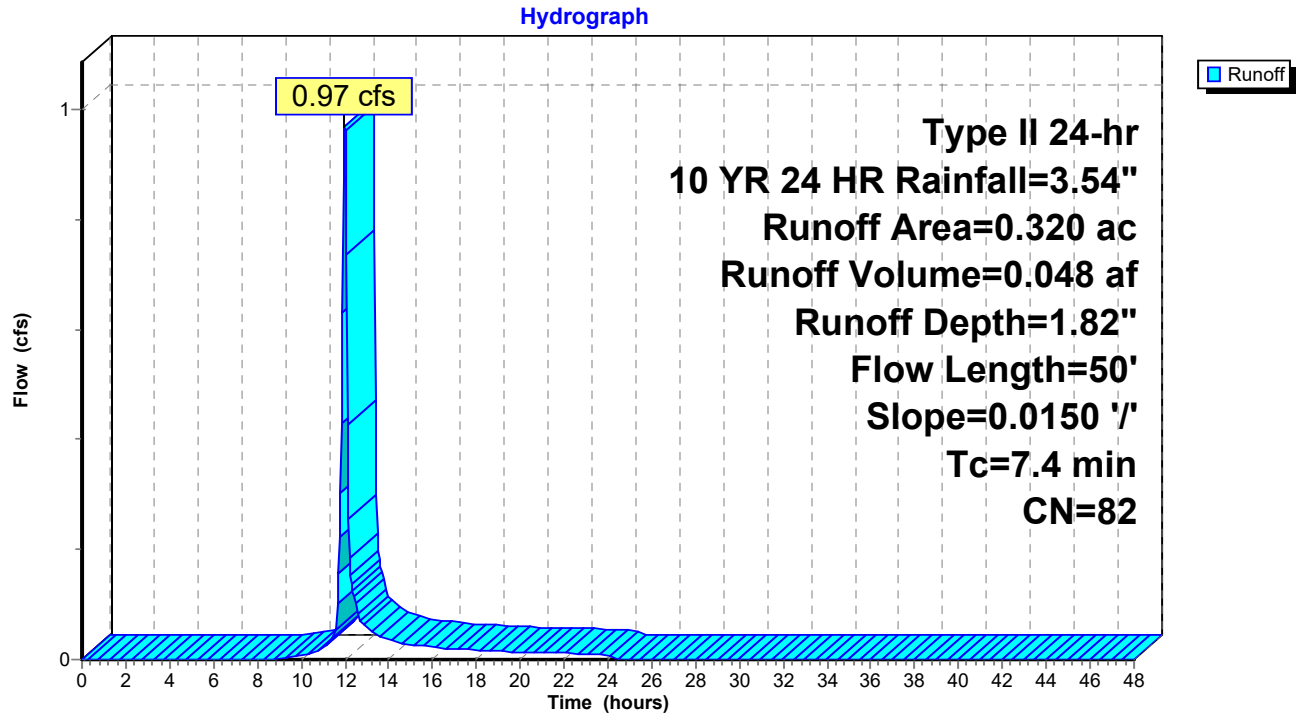
Runoff = 0.97 cfs @ 11.99 hrs, Volume= 0.048 af, Depth= 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR 24 HR Rainfall=3.54"

	Area (ac)	CN	Description
*	0.060	91	Gravel roads, HSG D
	0.260	80	>75% Grass cover, Good, HSG D
	0.320	82	Weighted Average
	0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0150	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"

Subcatchment PR-2C: PR-2C



Summary for Subcatchment PR-2D: PR-2D

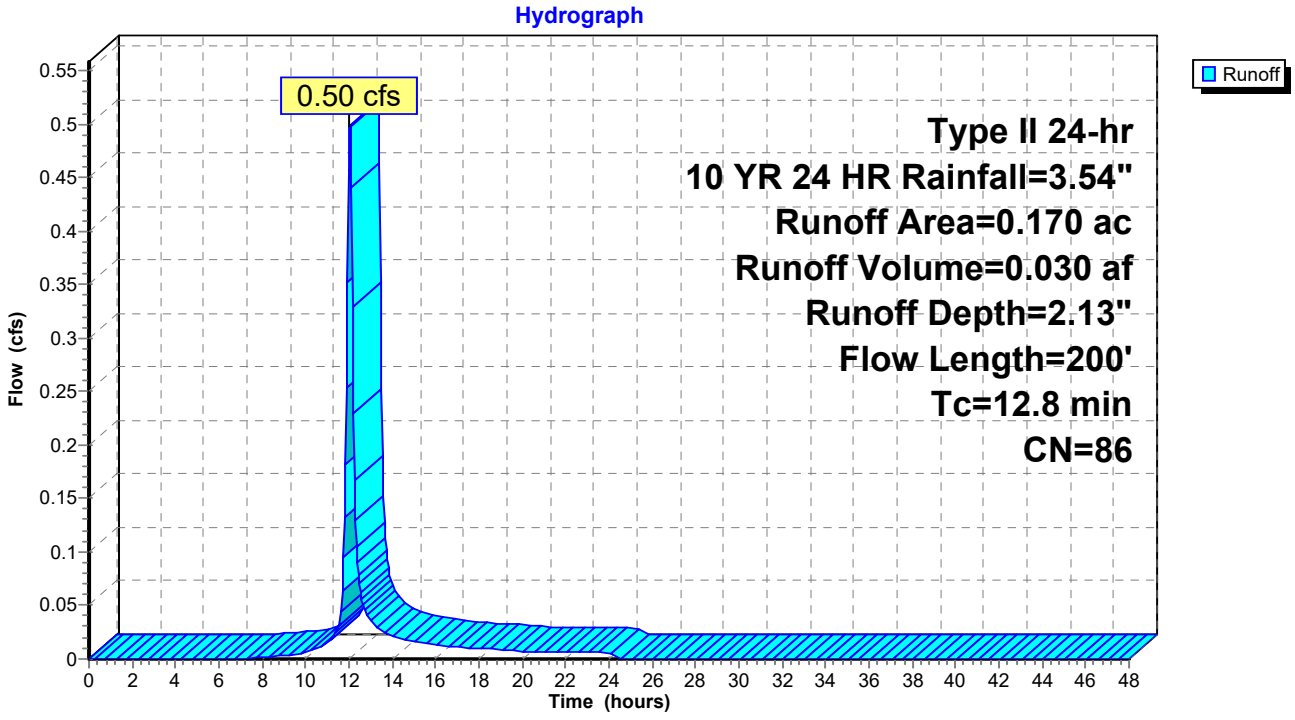
Runoff = 0.50 cfs @ 12.05 hrs, Volume= 0.030 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR 24 HR Rainfall=3.54"

	Area (ac)	CN	Description
*	0.090	91	Gravel roads, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.170	86	Weighted Average
	0.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	20	0.0050	0.04		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.30"
2.4	50	0.0050	0.35		**Shallow Concentrated Flow, Wetland** Woodland Kv= 5.0 fps
2.1	100	0.0400	0.80		**Shallow Concentrated Flow, Swale Lined with riprap** Kv= 4.0 fps
0.2	30	0.0050	2.65	0.93	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
12.8	200	Total			

Subcatchment PR-2D: PR-2D



Summary for Reach 1R: Roadside Swale South

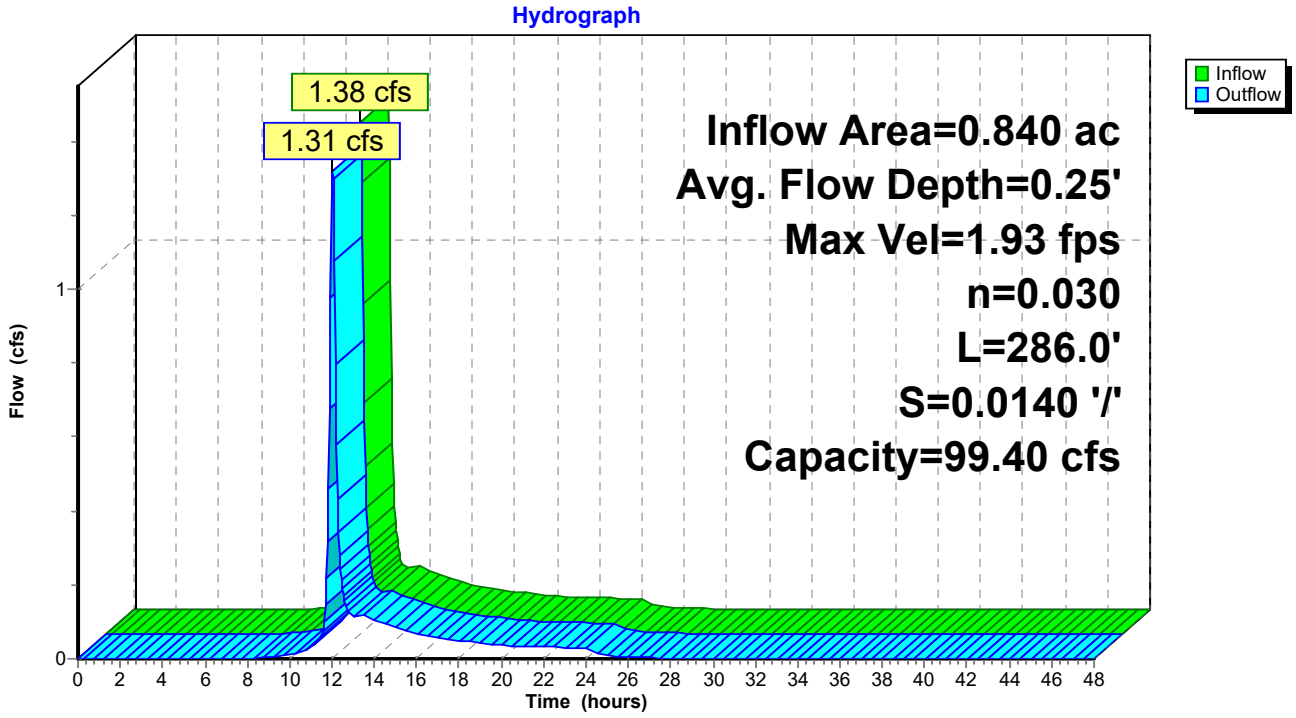
Inflow Area = 0.840 ac, 0.00% Impervious, Inflow Depth = 1.47" for 10 YR 24 HR event
Inflow = 1.38 cfs @ 12.00 hrs, Volume= 0.103 af
Outflow = 1.31 cfs @ 12.03 hrs, Volume= 0.103 af, Atten= 5%, Lag= 1.8 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.93 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.52 fps, Avg. Travel Time= 9.3 min

Peak Storage= 194 cf @ 12.03 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 99.40 cfs

2.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 286.0' Slope= 0.0140 '/'
Inlet Invert= 1,096.00', Outlet Invert= 1,092.00'

Reach 1R: Roadside Swale South



Summary for Pond 1P: Roadside Swale Detention

Inflow Area = 0.350 ac, 0.00% Impervious, Inflow Depth = 1.74" for 10 YR 24 HR event
Inflow = 0.60 cfs @ 12.17 hrs, Volume= 0.051 af
Outflow = 0.05 cfs @ 13.82 hrs, Volume= 0.025 af, Atten= 92%, Lag= 98.5 min
Primary = 0.05 cfs @ 13.82 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,099.66' @ 13.82 hrs Surf.Area= 1,040 sf Storage= 1,304 cf

Plug-Flow detention time= 362.8 min calculated for 0.024 af (48% of inflow)
Center-of-Mass det. time= 227.7 min (1,087.8 - 860.1)

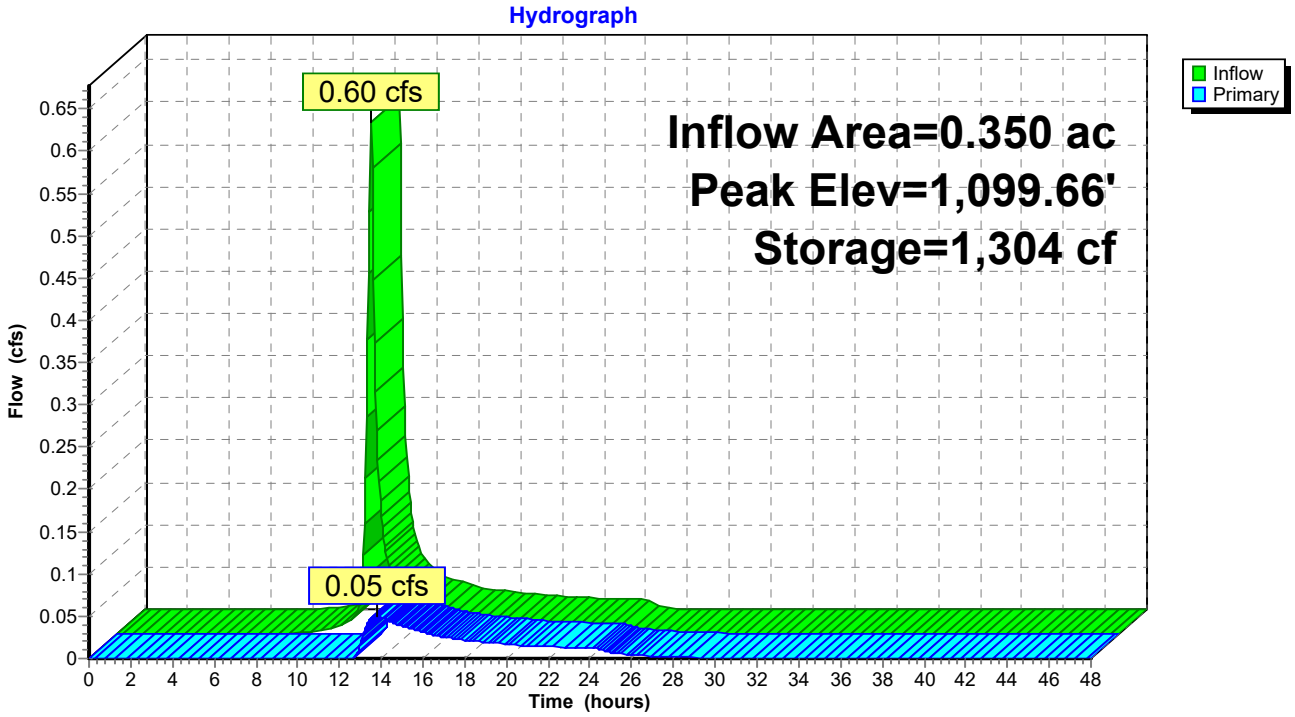
Volume	Invert	Avail.Storage	Storage Description
#1	1,098.00'	5,328 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,098.00	600	0	0
1,099.00	800	700	700
1,100.00	1,165	983	1,683
1,101.00	1,813	1,489	3,172
1,102.00	2,500	2,157	5,328

Device	Routing	Invert	Outlet Devices
#1	Primary	1,099.50'	**6.0" Round Culvert** L= 20.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,099.50' / 1,099.40' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Primary	1,101.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.05 cfs @ 13.82 hrs HW=1,099.66' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.05 cfs @ 1.39 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Roadside Swale Detention



Summary for Pond 2P: Roadside Swale North 1

Inflow Area = 0.160 ac, 0.00% Impervious, Inflow Depth = 2.05" for 10 YR 24 HR event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 0.027 af
Outflow = 0.26 cfs @ 12.22 hrs, Volume= 0.020 af, Atten= 35%, Lag= 8.2 min
Primary = 0.26 cfs @ 12.22 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,100.92' @ 12.22 hrs Surf.Area= 388 sf Storage= 451 cf

Plug-Flow detention time= 175.4 min calculated for 0.020 af (72% of inflow)
Center-of-Mass det. time= 76.3 min (904.6 - 828.3)

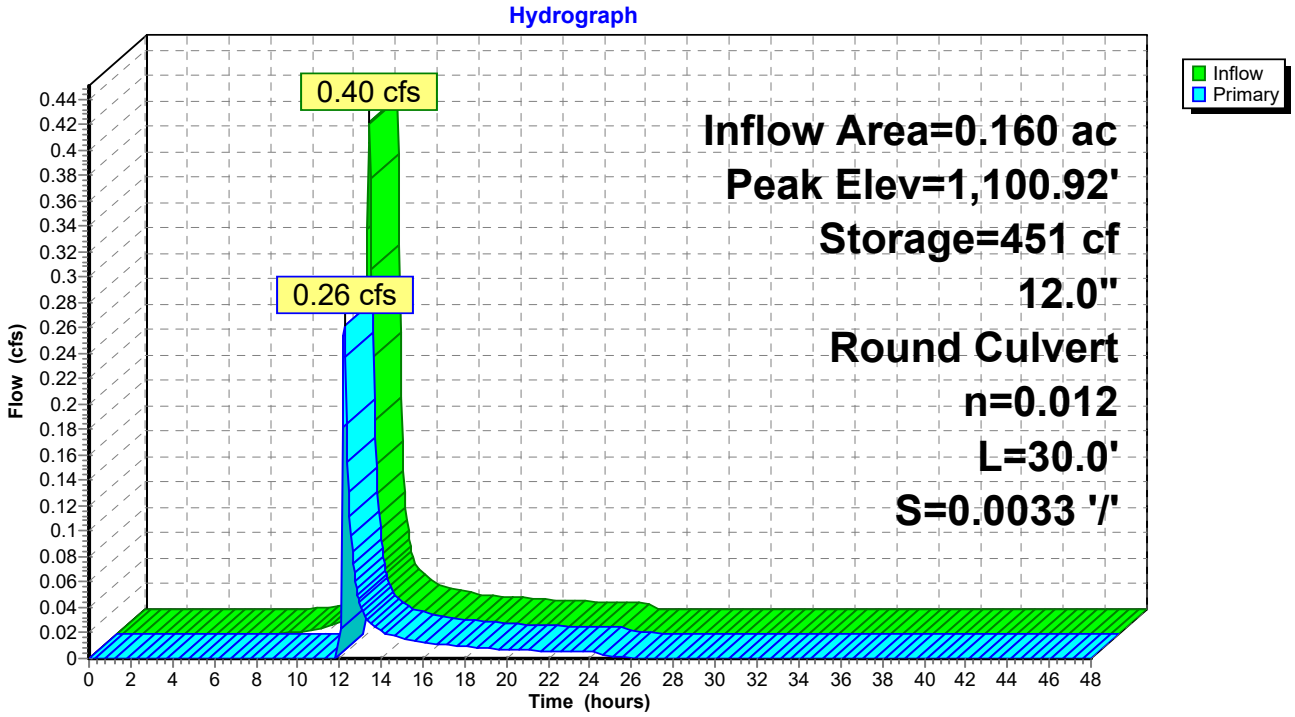
Volume	Invert	Avail.Storage	Storage Description
#1	1,099.00'	984 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,099.00	50	0	0
1,100.00	259	155	155
1,101.00	400	330	484
1,102.00	600	500	984

Device	Routing	Invert	Outlet Devices
#1	Primary	1,100.60'	**12.0" Round Culvert** L= 30.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,100.60' / 1,100.50' S= 0.0033 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.22 hrs HW=1,100.91' (Free Discharge)
1=Culvert (Barrel Controls 0.25 cfs @ 1.82 fps)

Pond 2P: Roadside Swale North 1



Summary for Pond 5P: Roadside Swale North 2

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 2.13" for 10 YR 24 HR event
Inflow = 0.50 cfs @ 12.05 hrs, Volume= 0.030 af
Outflow = 0.49 cfs @ 12.06 hrs, Volume= 0.030 af, Atten= 2%, Lag= 1.0 min
Primary = 0.49 cfs @ 12.06 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,093.47' @ 12.06 hrs Surf.Area= 108 sf Storage= 40 cf

Plug-Flow detention time= 3.5 min calculated for 0.030 af (100% of inflow)
Center-of-Mass det. time= 3.5 min (825.0 - 821.5)

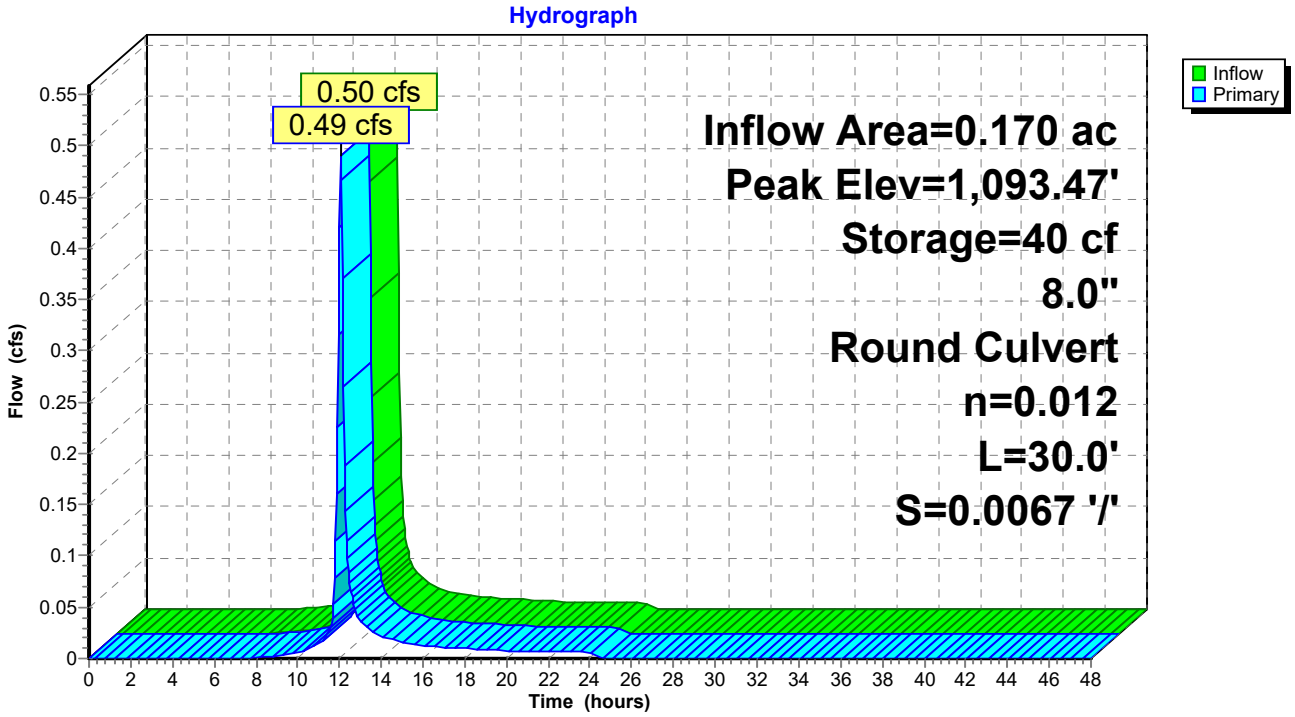
Volume	Invert	Avail.Storage	Storage Description
#1	1,093.00'	3,716 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,093.00	60	0	0
1,094.00	162	111	111
1,095.00	500	331	442
1,096.00	1,097	799	1,241
1,097.00	1,200	1,149	2,389
1,098.00	1,453	1,327	3,716

Device	Routing	Invert	Outlet Devices
#1	Primary	1,093.00'	**8.0" Round Culvert** L= 30.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,093.00' / 1,092.80' S= 0.0067 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.48 cfs @ 12.06 hrs HW=1,093.47' (Free Discharge)
1=Culvert (Barrel Controls 0.48 cfs @ 2.60 fps)

Pond 5P: Roadside Swale North 2



Summary for Pond 12P: Northeast Swale

Inflow Area = 3.010 ac, 0.17% Impervious, Inflow Depth = 1.82" for 10 YR 24 HR event
Inflow = 4.22 cfs @ 12.31 hrs, Volume= 0.455 af
Outflow = 4.16 cfs @ 12.35 hrs, Volume= 0.432 af, Atten= 1%, Lag= 2.5 min
Primary = 4.16 cfs @ 12.35 hrs, Volume= 0.432 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,107.47' @ 12.35 hrs Surf.Area= 1,916 sf Storage= 1,791 cf

Plug-Flow detention time= 44.1 min calculated for 0.432 af (95% of inflow)
Center-of-Mass det. time= 15.6 min (871.1 - 855.5)

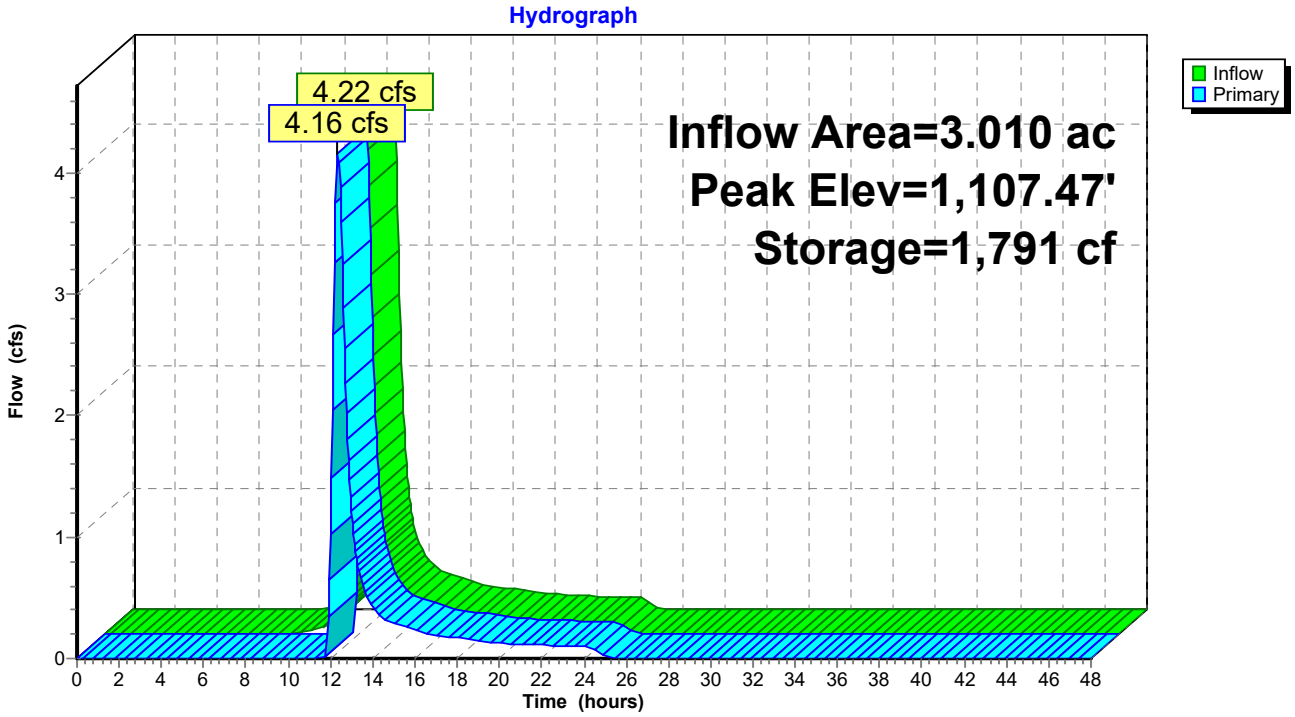
Volume	Invert	Avail.Storage	Storage Description
#1	1,106.00'	5,714 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,106.00	628	0	0
1,107.00	1,400	1,014	1,014
1,108.00	2,500	1,950	2,964
1,109.00	3,000	2,750	5,714

Device	Routing	Invert	Outlet Devices
#1	Primary	1,107.00'	**5.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=4.15 cfs @ 12.35 hrs HW=1,107.47' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 4.15 cfs @ 1.77 fps)

Pond 12P: Northeast Swale

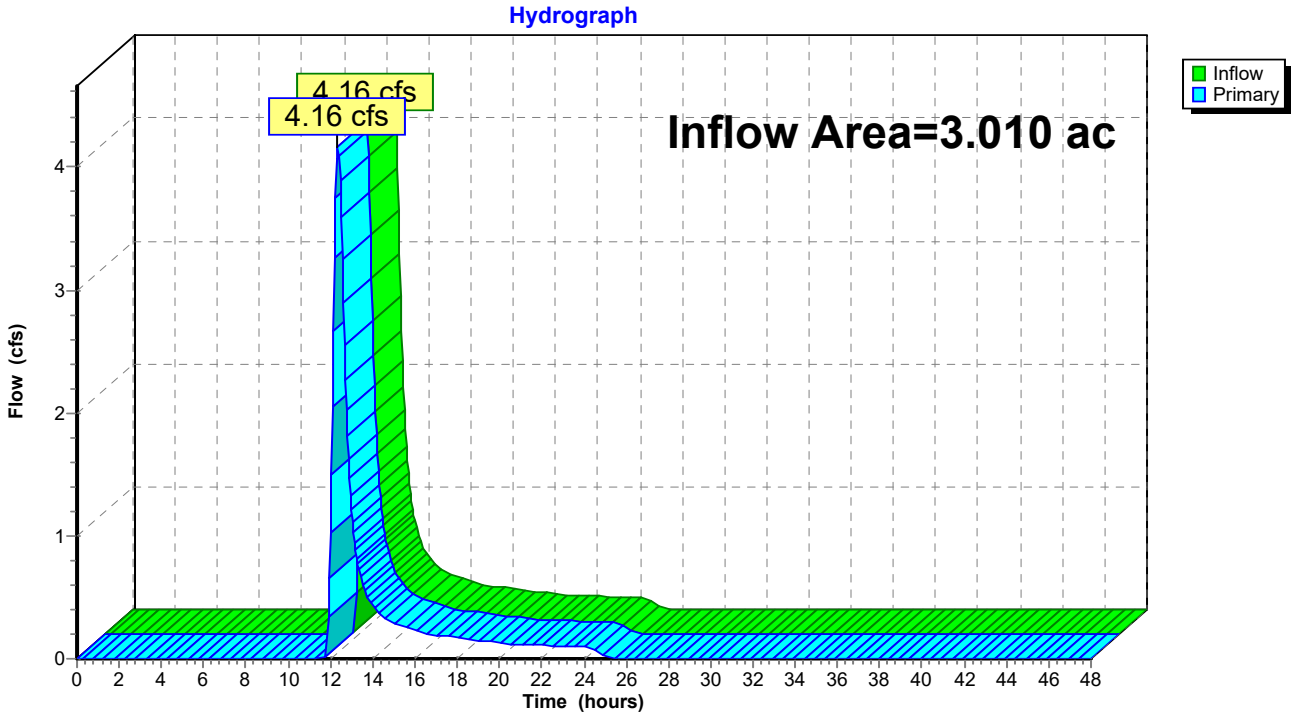


Summary for Link 6L: DESIGN POINT 1

Inflow Area = 3.010 ac, 0.17% Impervious, Inflow Depth = 1.72" for 10 YR 24 HR event
Inflow = 4.16 cfs @ 12.35 hrs, Volume= 0.432 af
Primary = 4.16 cfs @ 12.35 hrs, Volume= 0.432 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 6L: DESIGN POINT 1

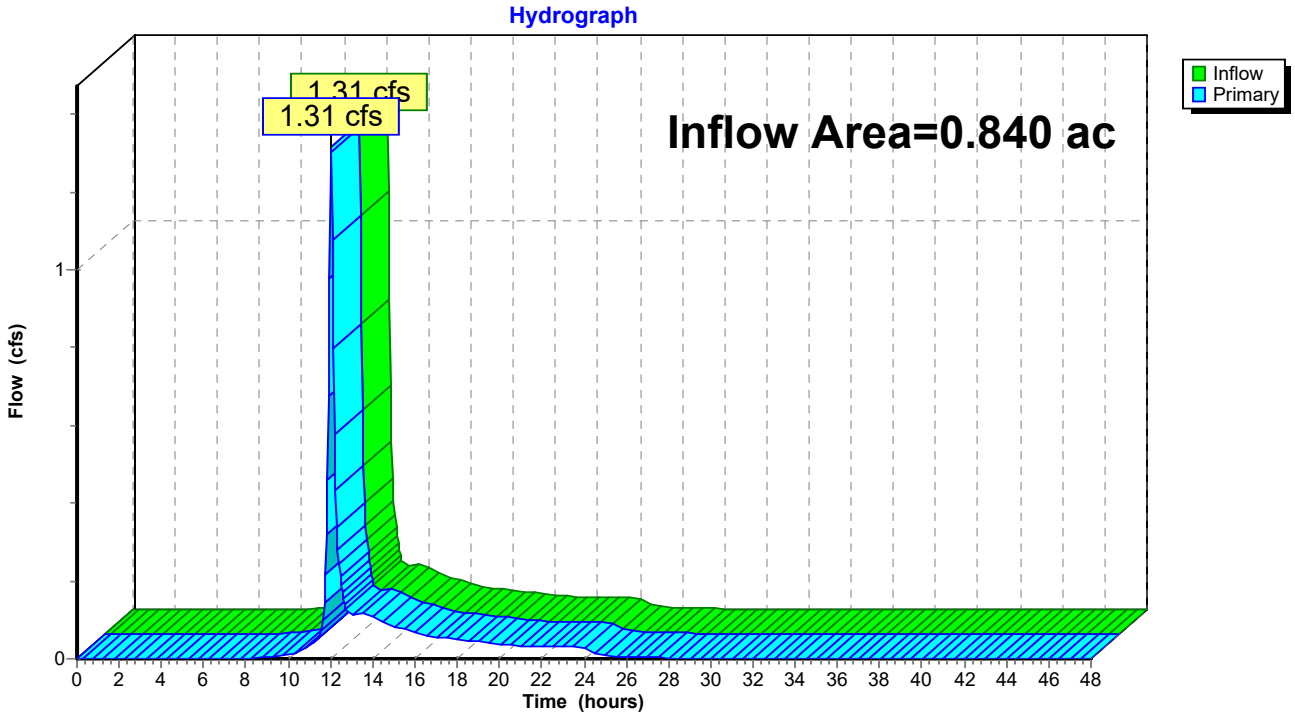


Summary for Link 9L: DESIGN POINT 2

Inflow Area = 0.840 ac, 0.00% Impervious, Inflow Depth = 1.47" for 10 YR 24 HR event
Inflow = 1.31 cfs @ 12.03 hrs, Volume= 0.103 af
Primary = 1.31 cfs @ 12.03 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 9L: DESIGN POINT 2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment PR-1: PR-1 Runoff Area=3.010 ac 0.17% Impervious Runoff Depth=2.37"
Flow Length=515' Tc=35.4 min CN=82 Runoff=5.54 cfs 0.596 af

Subcatchment PR-2A: PR-2A Runoff Area=0.160 ac 0.00% Impervious Runoff Depth=2.64"
Flow Length=300' Tc=16.5 min CN=85 Runoff=0.51 cfs 0.035 af

Subcatchment PR-2B: PR-2B Runoff Area=0.190 ac 0.00% Impervious Runoff Depth=2.55"
Flow Length=330' Tc=17.0 min CN=84 Runoff=0.58 cfs 0.040 af

Subcatchment PR-2C: PR-2C Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=2.37"
Flow Length=50' Slope=0.0150 '/' Tc=7.4 min CN=82 Runoff=1.26 cfs 0.063 af

Subcatchment PR-2D: PR-2D Runoff Area=0.170 ac 0.00% Impervious Runoff Depth=2.73"
Flow Length=200' Tc=12.8 min CN=86 Runoff=0.63 cfs 0.039 af

Reach 1R: Roadside Swale South Avg. Flow Depth=0.29' Max Vel=2.08 fps Inflow=1.79 cfs 0.143 af
n=0.030 L=286.0' S=0.0140 '/' Capacity=99.40 cfs Outflow=1.70 cfs 0.143 af

Pond 1P: Roadside Swale Detention Peak Elev=1,099.80' Storage=1,459 cf Inflow=0.96 cfs 0.068 af
Outflow=0.16 cfs 0.041 af

Pond 2P: Roadside Swale North 1 Peak Elev=1,101.01' Storage=489 cf Inflow=0.51 cfs 0.035 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0033 '/' Outflow=0.43 cfs 0.027 af

Pond 5P: Roadside Swale North 2 Peak Elev=1,093.55' Storage=48 cf Inflow=0.63 cfs 0.039 af
8.0" Round Culvert n=0.012 L=30.0' S=0.0067 '/' Outflow=0.62 cfs 0.039 af

Pond 12P: Northeast Swale Peak Elev=1,107.55' Storage=1,959 cf Inflow=5.54 cfs 0.596 af
Outflow=5.48 cfs 0.572 af

Link 6L: DESIGN POINT 1 Inflow=5.48 cfs 0.572 af
Primary=5.48 cfs 0.572 af

Link 9L: DESIGN POINT 2 Inflow=1.70 cfs 0.143 af
Primary=1.70 cfs 0.143 af

Total Runoff Area = 3.850 ac Runoff Volume = 0.773 af Average Runoff Depth = 2.41"
99.87% Pervious = 3.845 ac 0.13% Impervious = 0.005 ac

Summary for Subcatchment PR-1: PR-1

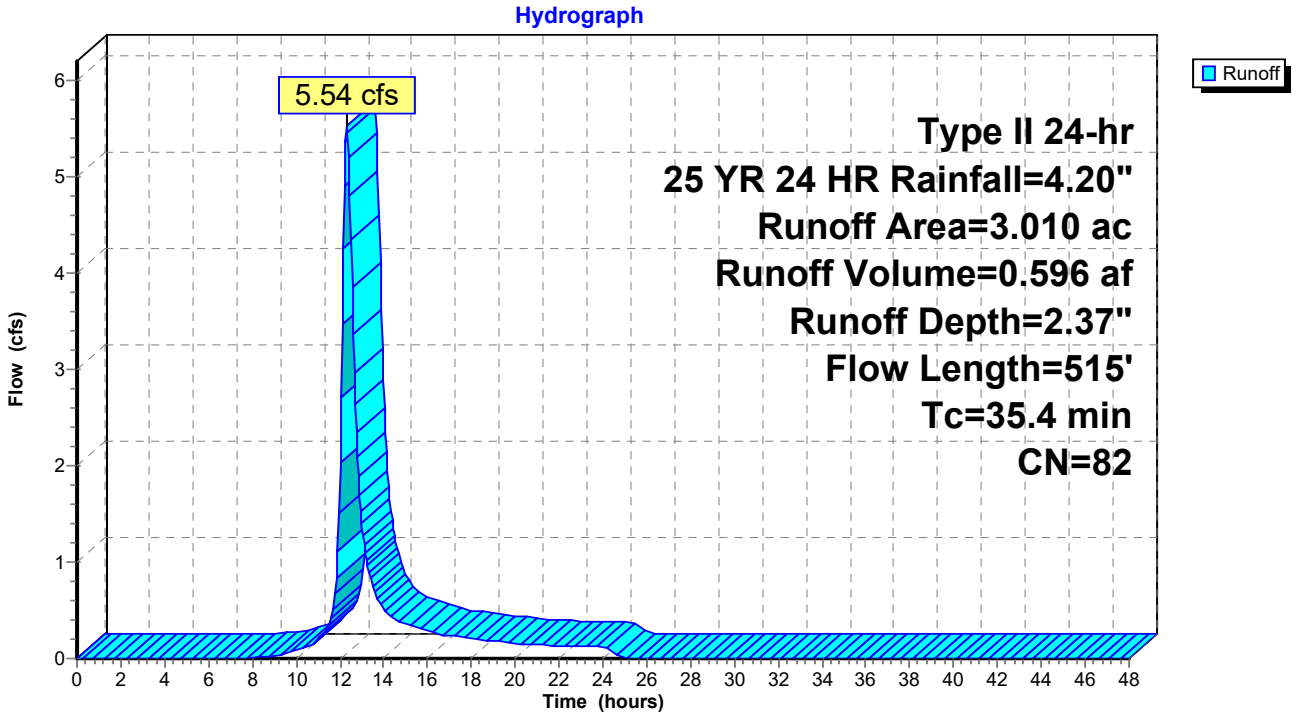
Runoff = 5.54 cfs @ 12.31 hrs, Volume= 0.596 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YR 24 HR Rainfall=4.20"

	Area (ac)	CN	Description
*	0.005	98	Impervious
	0.440	91	Gravel roads, HSG D
	2.565	80	>75% Grass cover, Good, HSG D
	3.010	82	Weighted Average
	3.005		99.83% Pervious Area
	0.005		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.3	140	0.0050	0.09		**Sheet Flow, Sheet flow from impervious across filter strip** Grass: Short n= 0.150 P2= 2.30"
5.4	225	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.2	55	0.0050	0.28		**Shallow Concentrated Flow, Swamp** Kv= 4.0 fps
0.5	95	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
35.4	515	Total			

Subcatchment PR-1: PR-1



Summary for Subcatchment PR-2A: PR-2A

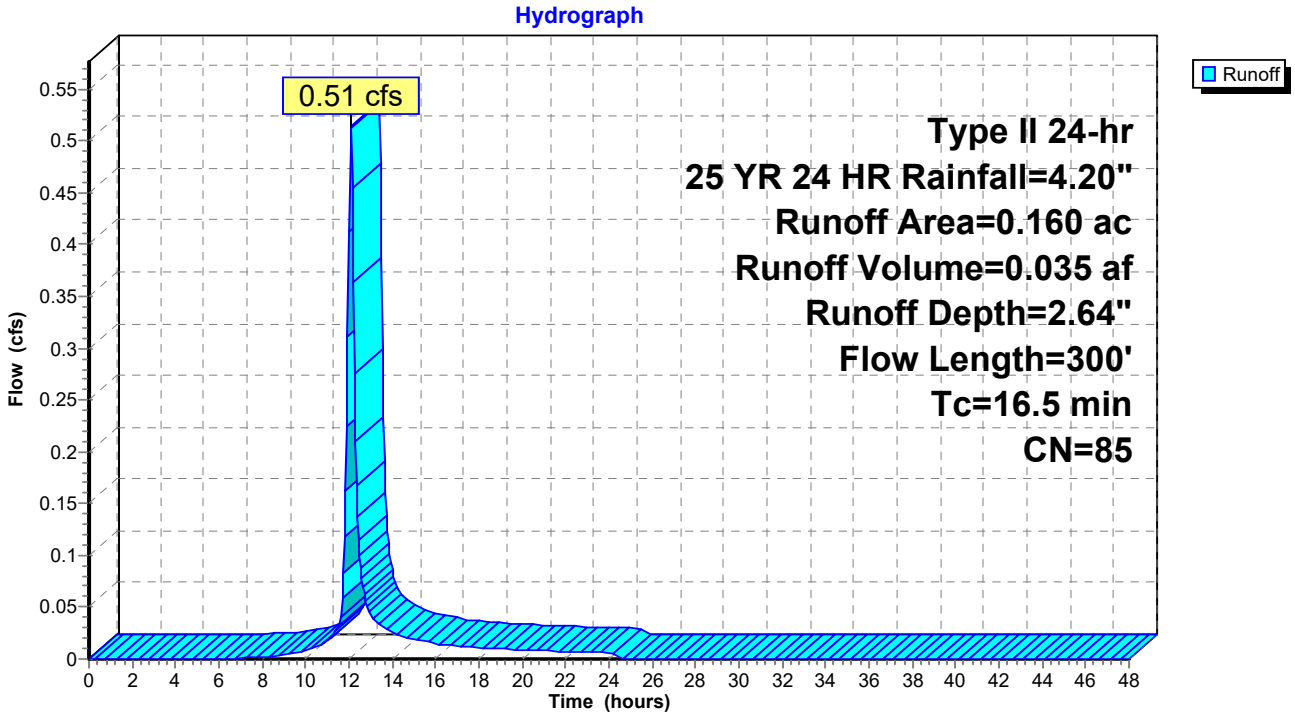
Runoff = 0.51 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YR 24 HR Rainfall=4.20"

	Area (ac)	CN	Description
*	0.070	91	Gravel roads, HSG D
	0.090	80	>75% Grass cover, Good, HSG D
	0.160	85	Weighted Average
	0.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0150	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
1.9	100	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	70	0.0400	0.80		**Shallow Concentrated Flow, Swale Lined with riprap** Kv= 4.0 fps
0.1	30	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
16.5	300	Total			

Subcatchment PR-2A: PR-2A



Summary for Subcatchment PR-2B: PR-2B

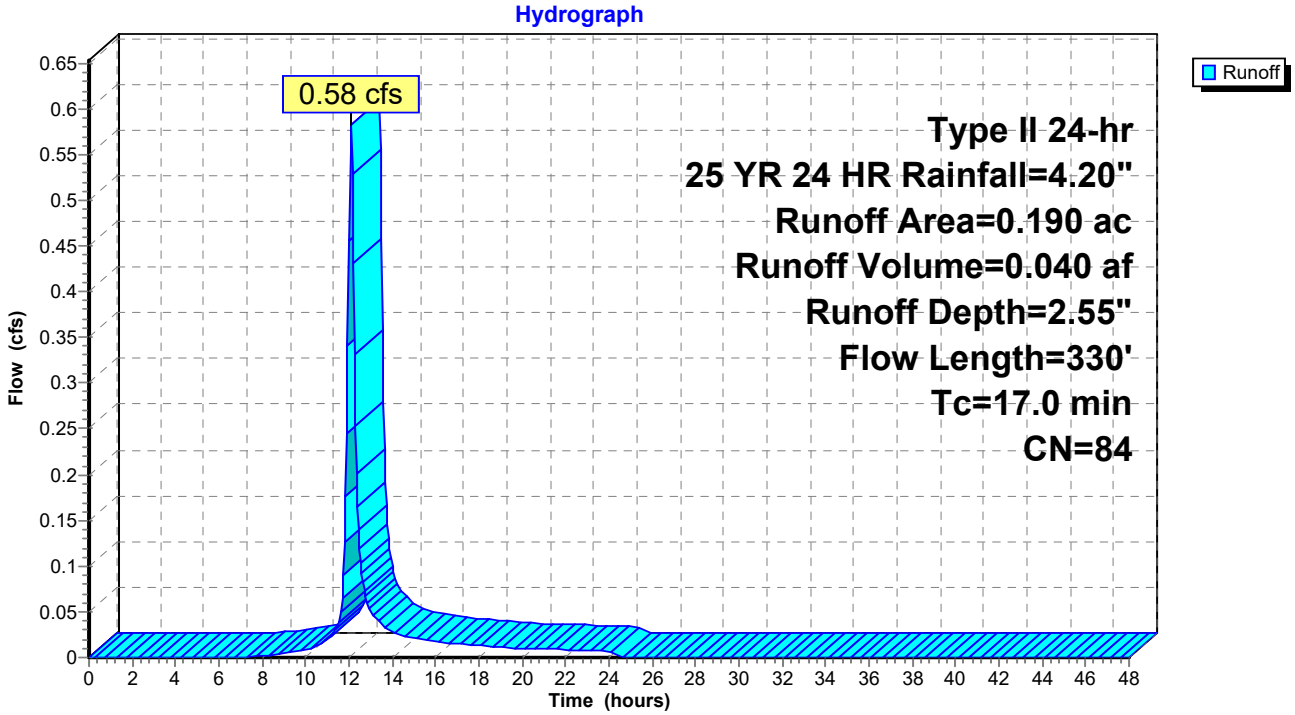
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.040 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YR 24 HR Rainfall=4.20"

	Area (ac)	CN	Description
*	0.070	91	Gravel roads, HSG D
	0.120	80	>75% Grass cover, Good, HSG D
	0.190	84	Weighted Average
	0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0150	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
2.1	110	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	100	0.0050	0.91	8.86	**Trap/Vee/Rect Channel Flow,** Bot.W=18.00' D=0.50' Z= 3.0 '/' Top.W=21.00' n= 0.069 Riprap, 6-inch
0.1	20	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
17.0	330	Total			

Subcatchment PR-2B: PR-2B



Summary for Subcatchment PR-2C: PR-2C

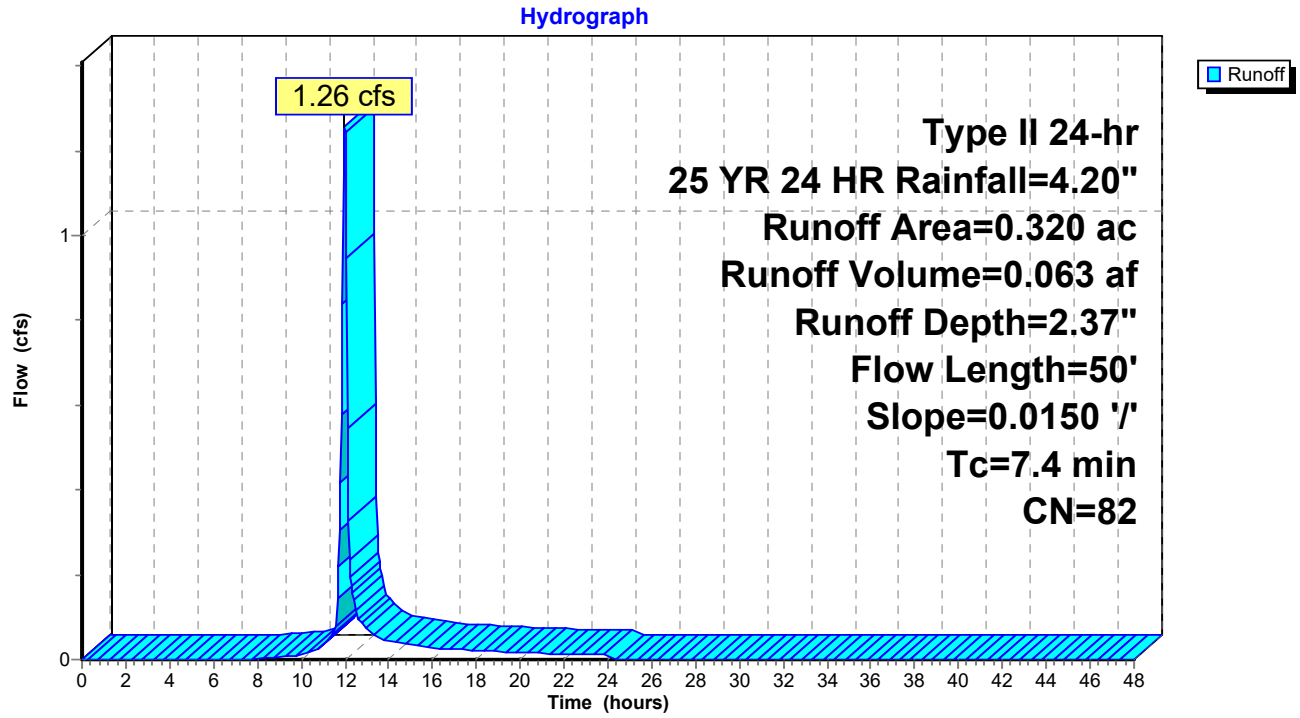
Runoff = 1.26 cfs @ 11.99 hrs, Volume= 0.063 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YR 24 HR Rainfall=4.20"

	Area (ac)	CN	Description
*	0.060	91	Gravel roads, HSG D
	0.260	80	>75% Grass cover, Good, HSG D
	0.320	82	Weighted Average
	0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0150	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"

Subcatchment PR-2C: PR-2C



Summary for Subcatchment PR-2D: PR-2D

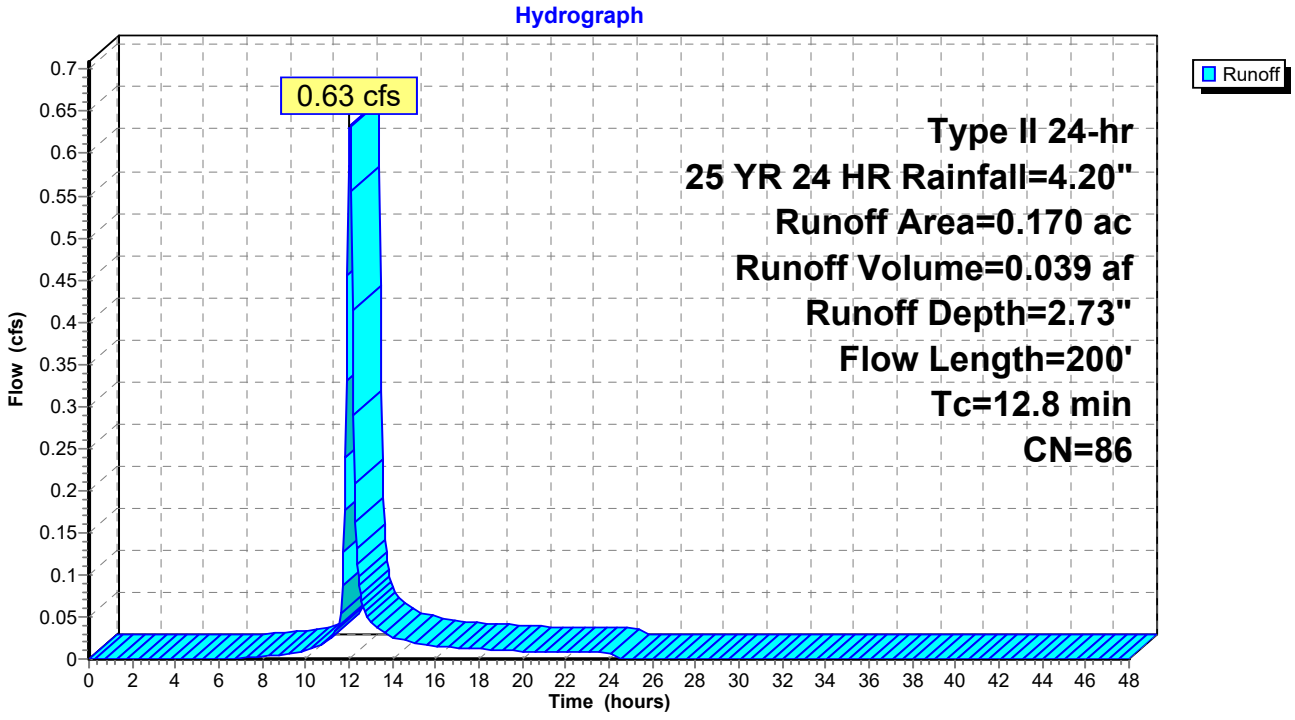
Runoff = 0.63 cfs @ 12.04 hrs, Volume= 0.039 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YR 24 HR Rainfall=4.20"

	Area (ac)	CN	Description
*	0.090	91	Gravel roads, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.170	86	Weighted Average
	0.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	20	0.0050	0.04		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.30"
2.4	50	0.0050	0.35		**Shallow Concentrated Flow, Wetland** Woodland Kv= 5.0 fps
2.1	100	0.0400	0.80		**Shallow Concentrated Flow, Swale Lined with riprap** Kv= 4.0 fps
0.2	30	0.0050	2.65	0.93	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
12.8	200	Total			

Subcatchment PR-2D: PR-2D



Summary for Reach 1R: Roadside Swale South

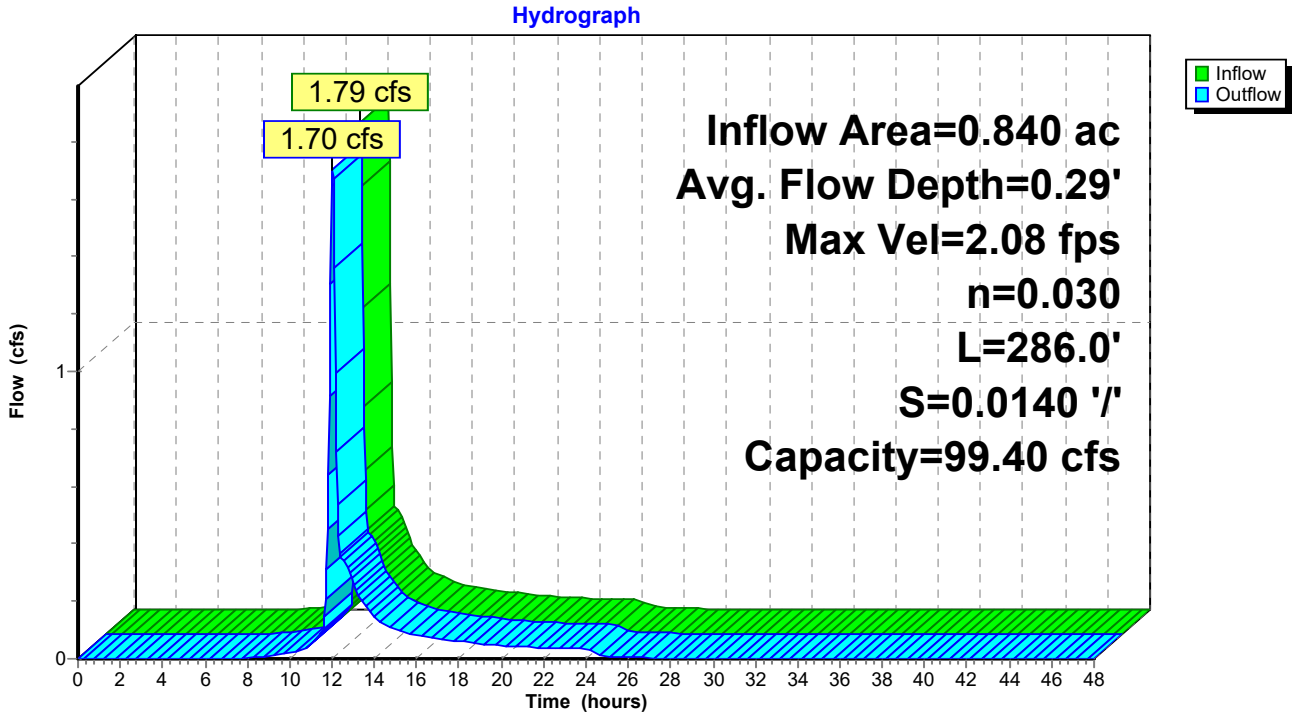
Inflow Area = 0.840 ac, 0.00% Impervious, Inflow Depth = 2.05" for 25 YR 24 HR event
Inflow = 1.79 cfs @ 12.00 hrs, Volume= 0.143 af
Outflow = 1.70 cfs @ 12.03 hrs, Volume= 0.143 af, Atten= 4%, Lag= 1.7 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.08 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.54 fps, Avg. Travel Time= 8.8 min

Peak Storage= 233 cf @ 12.03 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 99.40 cfs

2.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 286.0' Slope= 0.0140 '/'
Inlet Invert= 1,096.00', Outlet Invert= 1,092.00'

Reach 1R: Roadside Swale South



Summary for Pond 1P: Roadside Swale Detention

Inflow Area = 0.350 ac, 0.00% Impervious, Inflow Depth = 2.33" for 25 YR 24 HR event
Inflow = 0.96 cfs @ 12.14 hrs, Volume= 0.068 af
Outflow = 0.16 cfs @ 12.68 hrs, Volume= 0.041 af, Atten= 83%, Lag= 32.5 min
Primary = 0.16 cfs @ 12.68 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,099.80' @ 12.68 hrs Surf.Area= 1,093 sf Storage= 1,459 cf

Plug-Flow detention time= 265.8 min calculated for 0.041 af (61% of inflow)
Center-of-Mass det. time= 147.9 min (995.5 - 847.6)

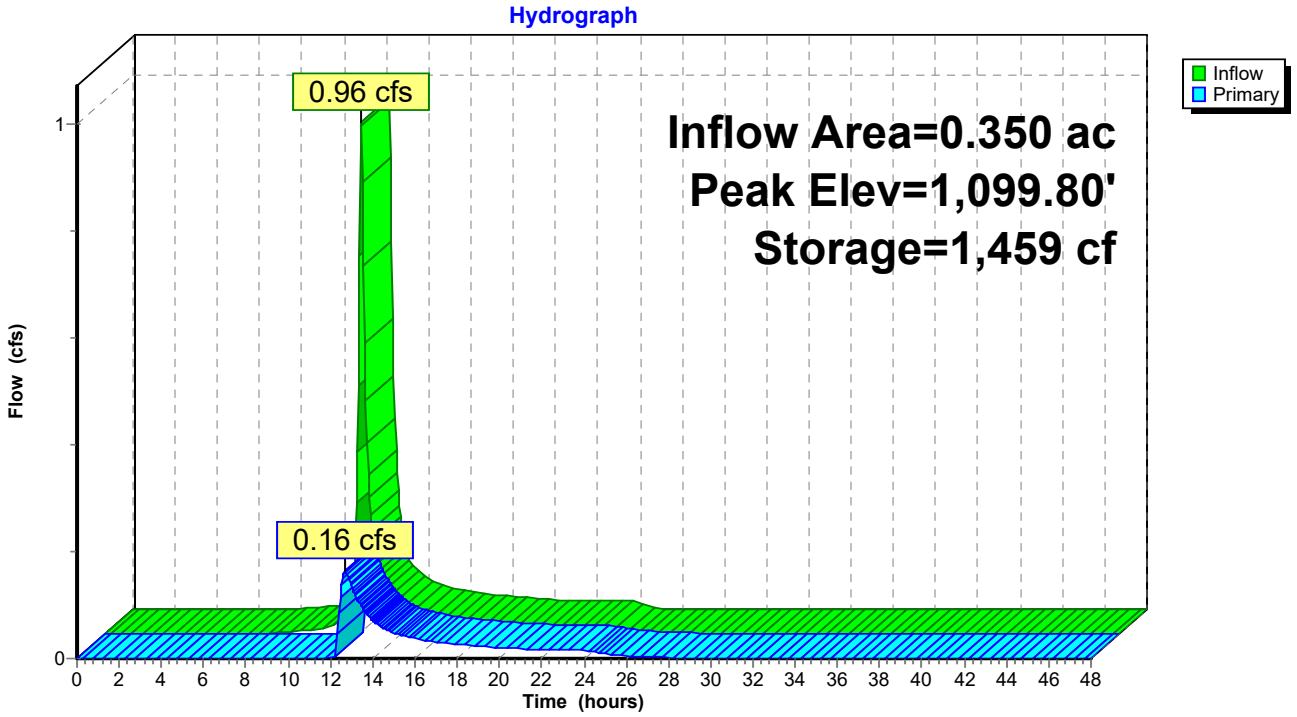
Volume	Invert	Avail.Storage	Storage Description
#1	1,098.00'	5,328 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,098.00	600	0	0
1,099.00	800	700	700
1,100.00	1,165	983	1,683
1,101.00	1,813	1,489	3,172
1,102.00	2,500	2,157	5,328

Device	Routing	Invert	Outlet Devices
#1	Primary	1,099.50'	**6.0" Round Culvert** L= 20.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,099.50' / 1,099.40' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Primary	1,101.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.16 cfs @ 12.68 hrs HW=1,099.80' (Free Discharge)
1=Culvert (Barrel Controls 0.16 cfs @ 1.89 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: Roadside Swale Detention



Summary for Pond 2P: Roadside Swale North 1

Inflow Area = 0.160 ac, 0.00% Impervious, Inflow Depth = 2.64" for 25 YR 24 HR event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.43 cfs @ 12.17 hrs, Volume= 0.027 af, Atten= 16%, Lag= 5.0 min
Primary = 0.43 cfs @ 12.17 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,101.01' @ 12.17 hrs Surf.Area= 402 sf Storage= 489 cf

Plug-Flow detention time= 146.6 min calculated for 0.027 af (78% of inflow)
Center-of-Mass det. time= 60.0 min (881.1 - 821.1)

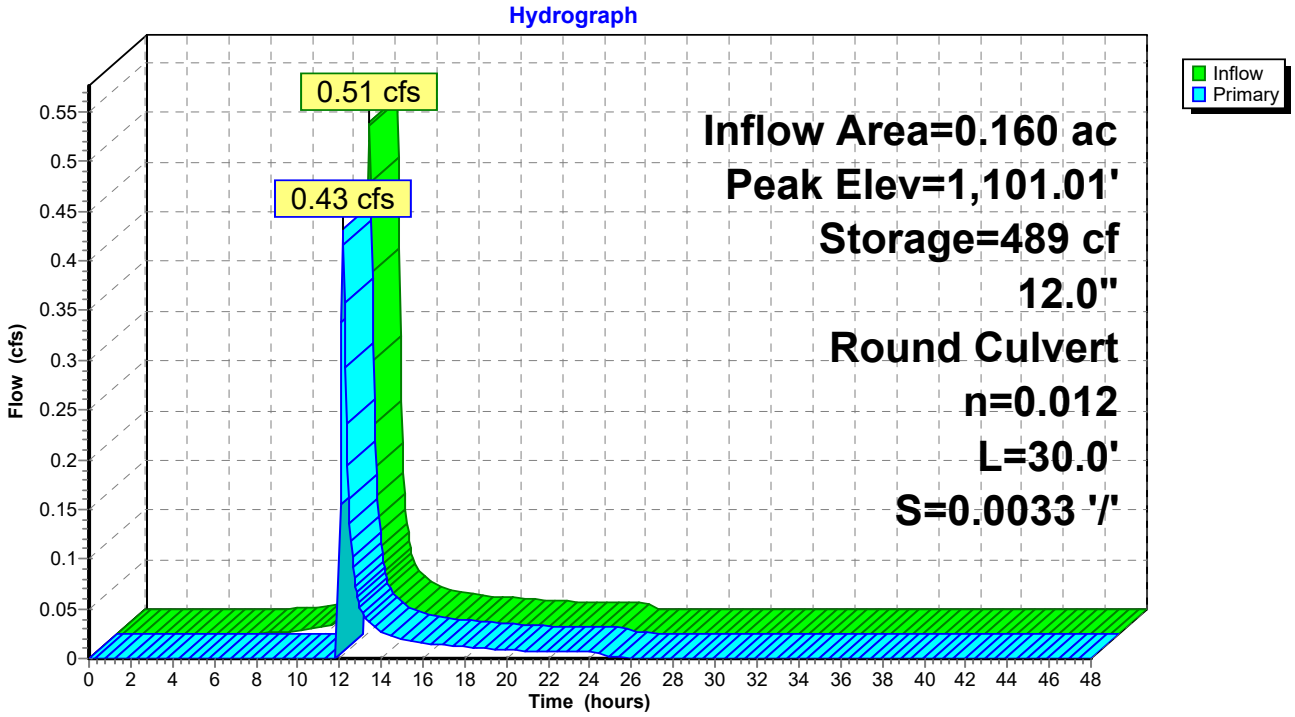
Volume	Invert	Avail.Storage	Storage Description
#1	1,099.00'	984 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,099.00	50	0	0
1,100.00	259	155	155
1,101.00	400	330	484
1,102.00	600	500	984

Device	Routing	Invert	Outlet Devices
#1	Primary	1,100.60'	**12.0" Round Culvert** L= 30.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,100.60' / 1,100.50' S= 0.0033 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.17 hrs HW=1,101.01' (Free Discharge)
1=Culvert (Barrel Controls 0.42 cfs @ 2.08 fps)

Pond 2P: Roadside Swale North 1



Summary for Pond 5P: Roadside Swale North 2

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 2.73" for 25 YR 24 HR event
Inflow = 0.63 cfs @ 12.04 hrs, Volume= 0.039 af
Outflow = 0.62 cfs @ 12.06 hrs, Volume= 0.039 af, Atten= 2%, Lag= 1.1 min
Primary = 0.62 cfs @ 12.06 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,093.55' @ 12.06 hrs Surf.Area= 116 sf Storage= 48 cf

Plug-Flow detention time= 3.2 min calculated for 0.039 af (100% of inflow)
Center-of-Mass det. time= 3.2 min (817.7 - 814.5)

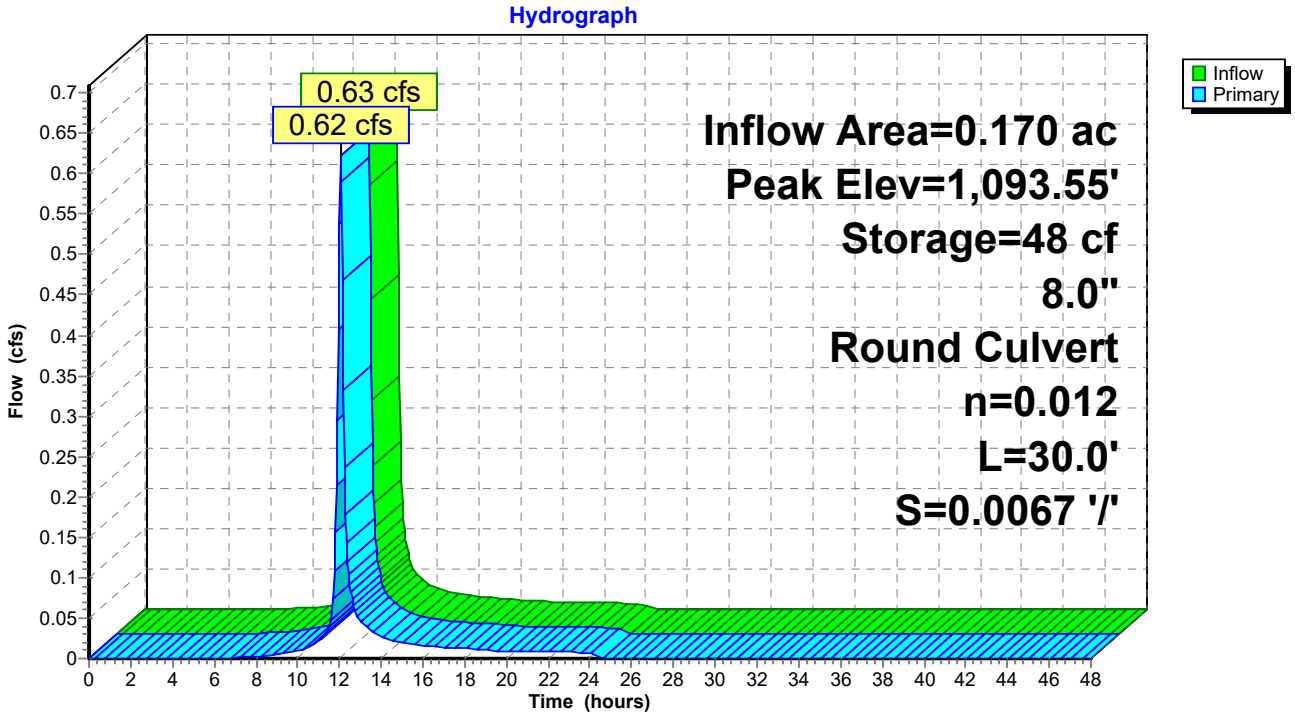
Volume	Invert	Avail.Storage	Storage Description
#1	1,093.00'	3,716 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,093.00	60	0	0
1,094.00	162	111	111
1,095.00	500	331	442
1,096.00	1,097	799	1,241
1,097.00	1,200	1,149	2,389
1,098.00	1,453	1,327	3,716

Device	Routing	Invert	Outlet Devices
#1	Primary	1,093.00'	**8.0" Round Culvert** L= 30.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,093.00' / 1,092.80' S= 0.0067 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.61 cfs @ 12.06 hrs HW=1,093.54' (Free Discharge)
1=Culvert (Barrel Controls 0.61 cfs @ 2.74 fps)

Pond 5P: Roadside Swale North 2



Summary for Pond 12P: Northeast Swale

Inflow Area = 3.010 ac, 0.17% Impervious, Inflow Depth = 2.37" for 25 YR 24 HR event
Inflow = 5.54 cfs @ 12.31 hrs, Volume= 0.596 af
Outflow = 5.48 cfs @ 12.35 hrs, Volume= 0.572 af, Atten= 1%, Lag= 2.3 min
Primary = 5.48 cfs @ 12.35 hrs, Volume= 0.572 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,107.55' @ 12.35 hrs Surf.Area= 2,010 sf Storage= 1,959 cf

Plug-Flow detention time= 36.8 min calculated for 0.572 af (96% of inflow)
Center-of-Mass det. time= 14.0 min (861.9 - 847.9)

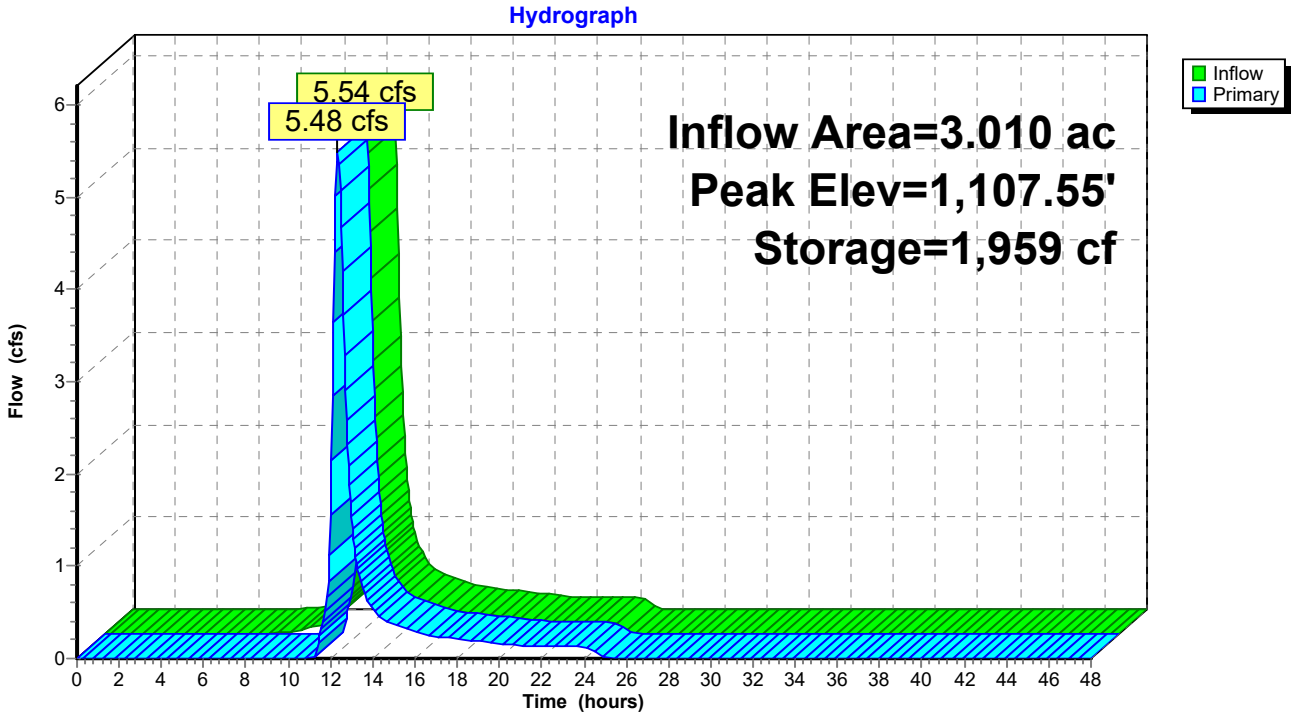
Volume	Invert	Avail.Storage	Storage Description
#1	1,106.00'	5,714 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,106.00	628	0	0
1,107.00	1,400	1,014	1,014
1,108.00	2,500	1,950	2,964
1,109.00	3,000	2,750	5,714

Device	Routing	Invert	Outlet Devices
#1	Primary	1,107.00'	**5.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=5.47 cfs @ 12.35 hrs HW=1,107.55' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 5.47 cfs @ 1.98 fps)

Pond 12P: Northeast Swale

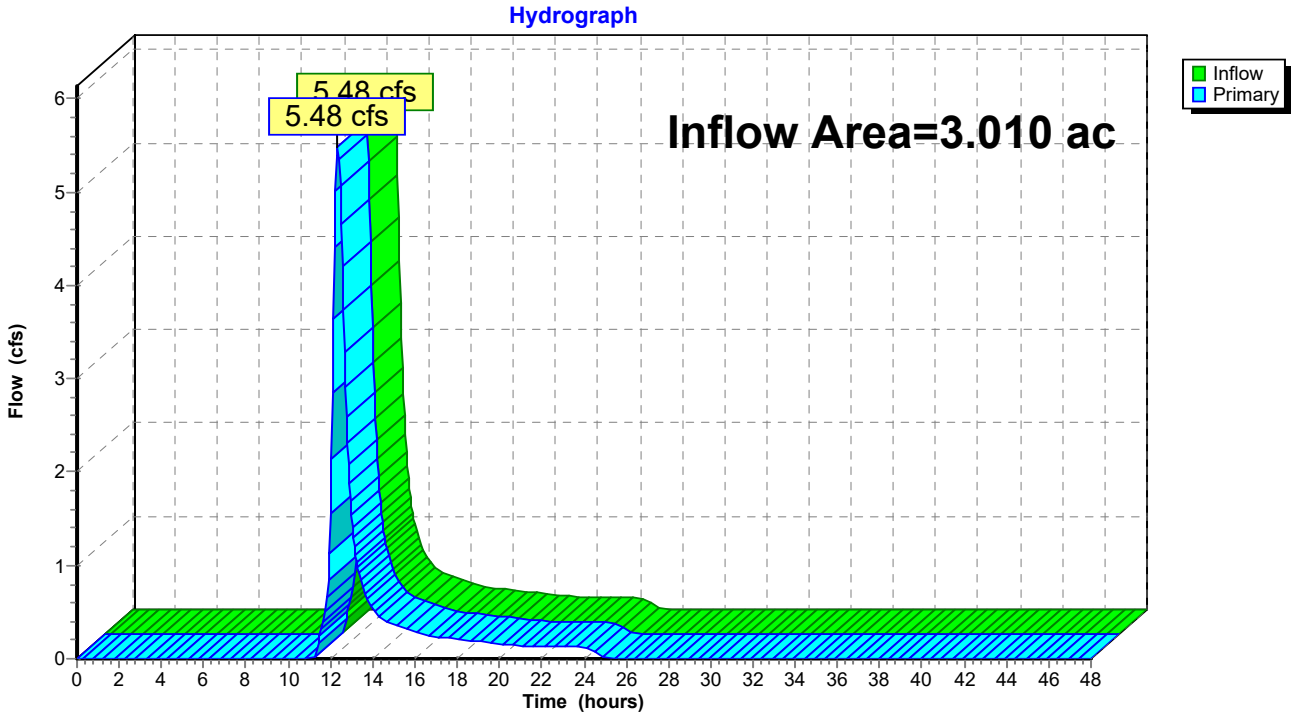


Summary for Link 6L: DESIGN POINT 1

Inflow Area = 3.010 ac, 0.17% Impervious, Inflow Depth = 2.28" for 25 YR 24 HR event
Inflow = 5.48 cfs @ 12.35 hrs, Volume= 0.572 af
Primary = 5.48 cfs @ 12.35 hrs, Volume= 0.572 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 6L: DESIGN POINT 1

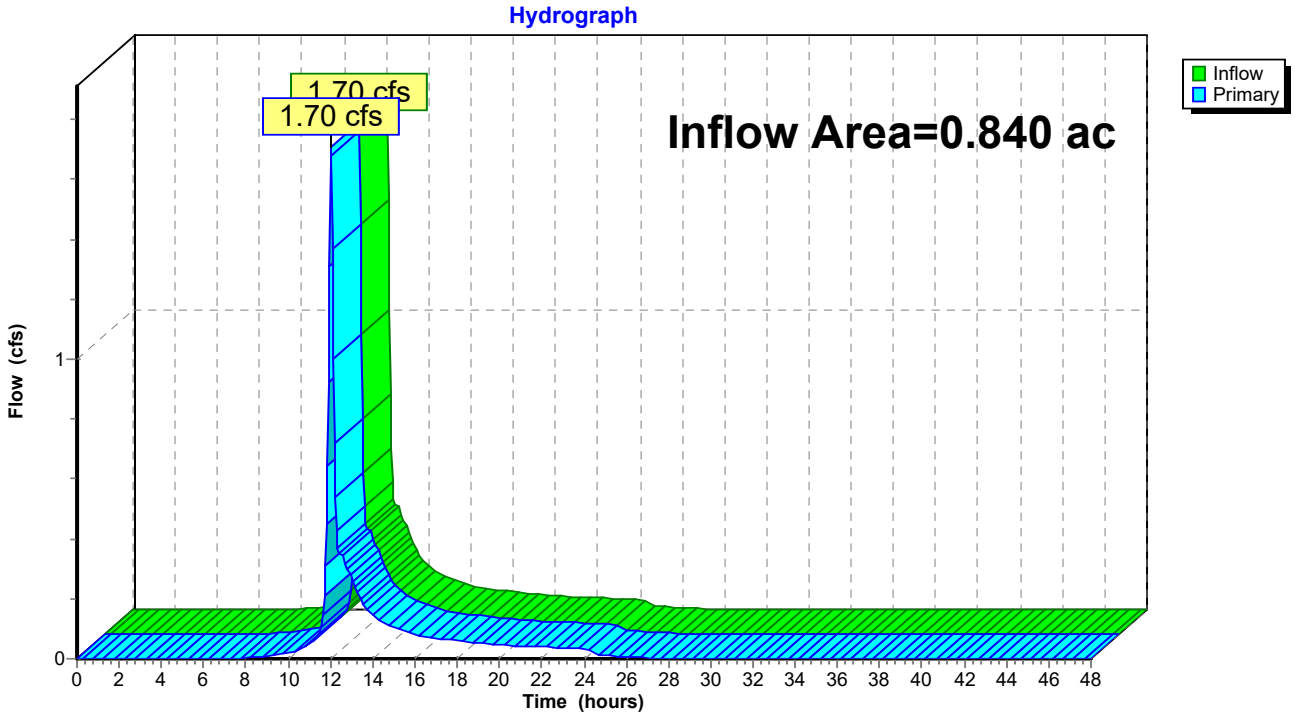


Summary for Link 9L: DESIGN POINT 2

Inflow Area = 0.840 ac, 0.00% Impervious, Inflow Depth = 2.05" for 25 YR 24 HR event
Inflow = 1.70 cfs @ 12.03 hrs, Volume= 0.143 af
Primary = 1.70 cfs @ 12.03 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 9L: DESIGN POINT 2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment PR-1: PR-1 Runoff Area=3.010 ac 0.17% Impervious Runoff Depth=3.27"
Flow Length=515' Tc=35.4 min CN=82 Runoff=7.63 cfs 0.820 af

Subcatchment PR-2A: PR-2A Runoff Area=0.160 ac 0.00% Impervious Runoff Depth=3.56"
Flow Length=300' Tc=16.5 min CN=85 Runoff=0.69 cfs 0.048 af

Subcatchment PR-2B: PR-2B Runoff Area=0.190 ac 0.00% Impervious Runoff Depth=3.46"
Flow Length=330' Tc=17.0 min CN=84 Runoff=0.79 cfs 0.055 af

Subcatchment PR-2C: PR-2C Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=3.27"
Flow Length=50' Slope=0.0150 '/' Tc=7.4 min CN=82 Runoff=1.71 cfs 0.087 af

Subcatchment PR-2D: PR-2D Runoff Area=0.170 ac 0.00% Impervious Runoff Depth=3.66"
Flow Length=200' Tc=12.8 min CN=86 Runoff=0.84 cfs 0.052 af

Reach 1R: Roadside Swale South Avg. Flow Depth=0.34' Max Vel=2.28 fps Inflow=2.41 cfs 0.207 af
n=0.030 L=286.0' S=0.0140 '/' Capacity=99.40 cfs Outflow=2.31 cfs 0.207 af

Pond 1P: Roadside Swale Detention Peak Elev=1,100.09' Storage=1,794 cf Inflow=1.40 cfs 0.095 af
Outflow=0.44 cfs 0.068 af

Pond 2P: Roadside Swale North 1 Peak Elev=1,101.11' Storage=529 cf Inflow=0.69 cfs 0.048 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0033 '/' Outflow=0.64 cfs 0.040 af

Pond 5P: Roadside Swale North 2 Peak Elev=1,093.67' Storage=63 cf Inflow=0.84 cfs 0.052 af
8.0" Round Culvert n=0.012 L=30.0' S=0.0067 '/' Outflow=0.82 cfs 0.052 af

Pond 12P: Northeast Swale Peak Elev=1,107.68' Storage=2,222 cf Inflow=7.63 cfs 0.820 af
Outflow=7.54 cfs 0.796 af

Link 6L: DESIGN POINT 1 Inflow=7.54 cfs 0.796 af
Primary=7.54 cfs 0.796 af

Link 9L: DESIGN POINT 2 Inflow=2.31 cfs 0.207 af
Primary=2.31 cfs 0.207 af

Total Runoff Area = 3.850 ac Runoff Volume = 1.061 af Average Runoff Depth = 3.31"
99.87% Pervious = 3.845 ac 0.13% Impervious = 0.005 ac

Summary for Subcatchment PR-1: PR-1

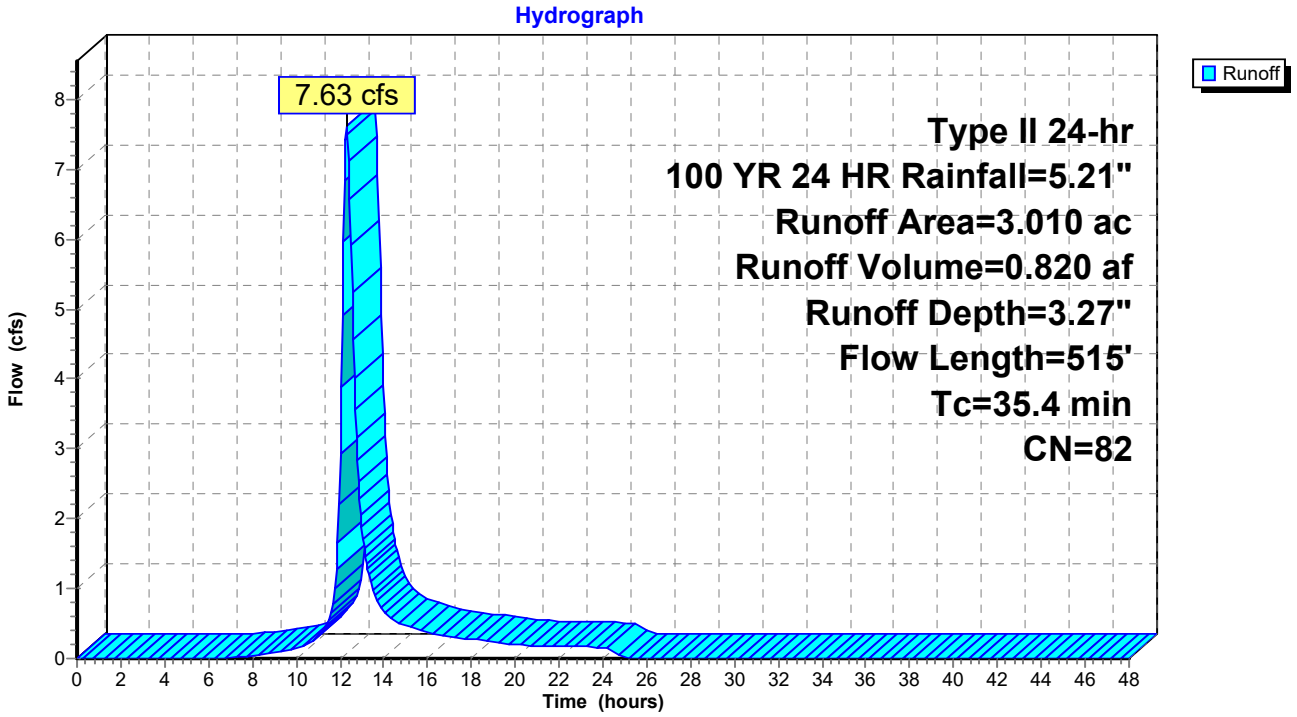
Runoff = 7.63 cfs @ 12.31 hrs, Volume= 0.820 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR 24 HR Rainfall=5.21"

	Area (ac)	CN	Description
*	0.005	98	Impervious
	0.440	91	Gravel roads, HSG D
	2.565	80	>75% Grass cover, Good, HSG D
	3.010	82	Weighted Average
	3.005		99.83% Pervious Area
	0.005		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.3	140	0.0050	0.09		**Sheet Flow, Sheet flow from impervious across filter strip** Grass: Short n= 0.150 P2= 2.30"
5.4	225	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.2	55	0.0050	0.28		**Shallow Concentrated Flow, Swamp** Kv= 4.0 fps
0.5	95	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
35.4	515	Total			

Subcatchment PR-1: PR-1



Summary for Subcatchment PR-2A: PR-2A

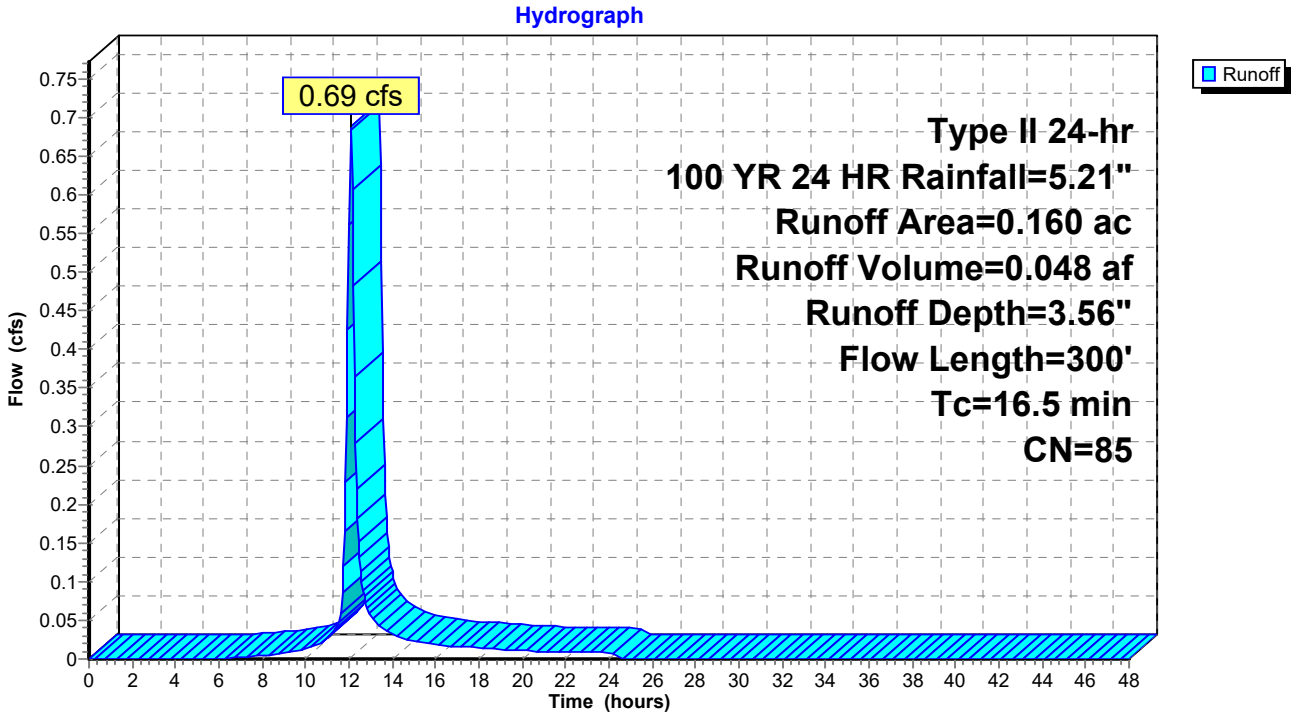
Runoff = 0.69 cfs @ 12.08 hrs, Volume= 0.048 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR 24 HR Rainfall=5.21"

	Area (ac)	CN	Description
*	0.070	91	Gravel roads, HSG D
	0.090	80	>75% Grass cover, Good, HSG D
	0.160	85	Weighted Average
	0.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0150	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
1.9	100	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	70	0.0400	0.80		**Shallow Concentrated Flow, Swale Lined with riprap** Kv= 4.0 fps
0.1	30	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
16.5	300	Total			

Subcatchment PR-2A: PR-2A



Summary for Subcatchment PR-2B: PR-2B

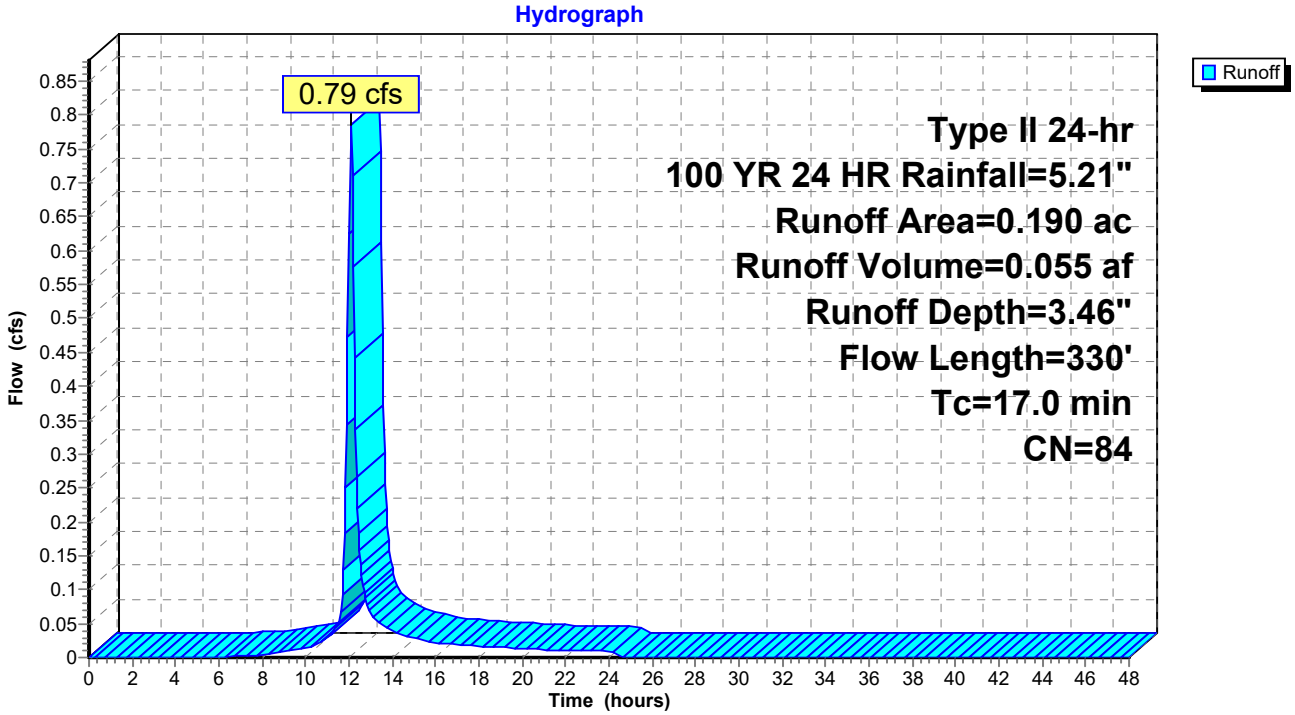
Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR 24 HR Rainfall=5.21"

	Area (ac)	CN	Description
*	0.070	91	Gravel roads, HSG D
	0.120	80	>75% Grass cover, Good, HSG D
	0.190	84	Weighted Average
	0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0150	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
2.1	110	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	100	0.0050	0.91	8.86	**Trap/Vee/Rect Channel Flow,** Bot.W=18.00' D=0.50' Z= 3.0 '/' Top.W=21.00' n= 0.069 Riprap, 6-inch
0.1	20	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
17.0	330	Total			

Subcatchment PR-2B: PR-2B



Summary for Subcatchment PR-2C: PR-2C

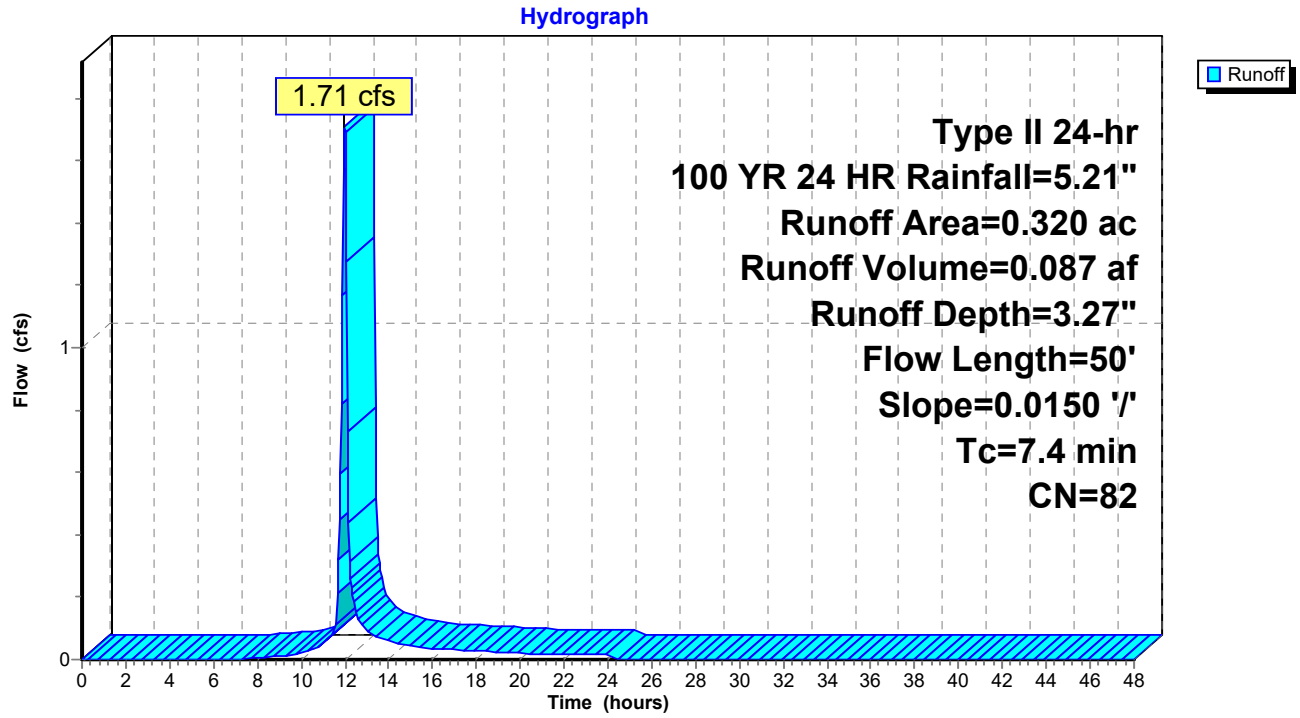
Runoff = 1.71 cfs @ 11.99 hrs, Volume= 0.087 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR 24 HR Rainfall=5.21"

	Area (ac)	CN	Description
*	0.060	91	Gravel roads, HSG D
	0.260	80	>75% Grass cover, Good, HSG D
	0.320	82	Weighted Average
	0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0150	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"

Subcatchment PR-2C: PR-2C



Summary for Subcatchment PR-2D: PR-2D

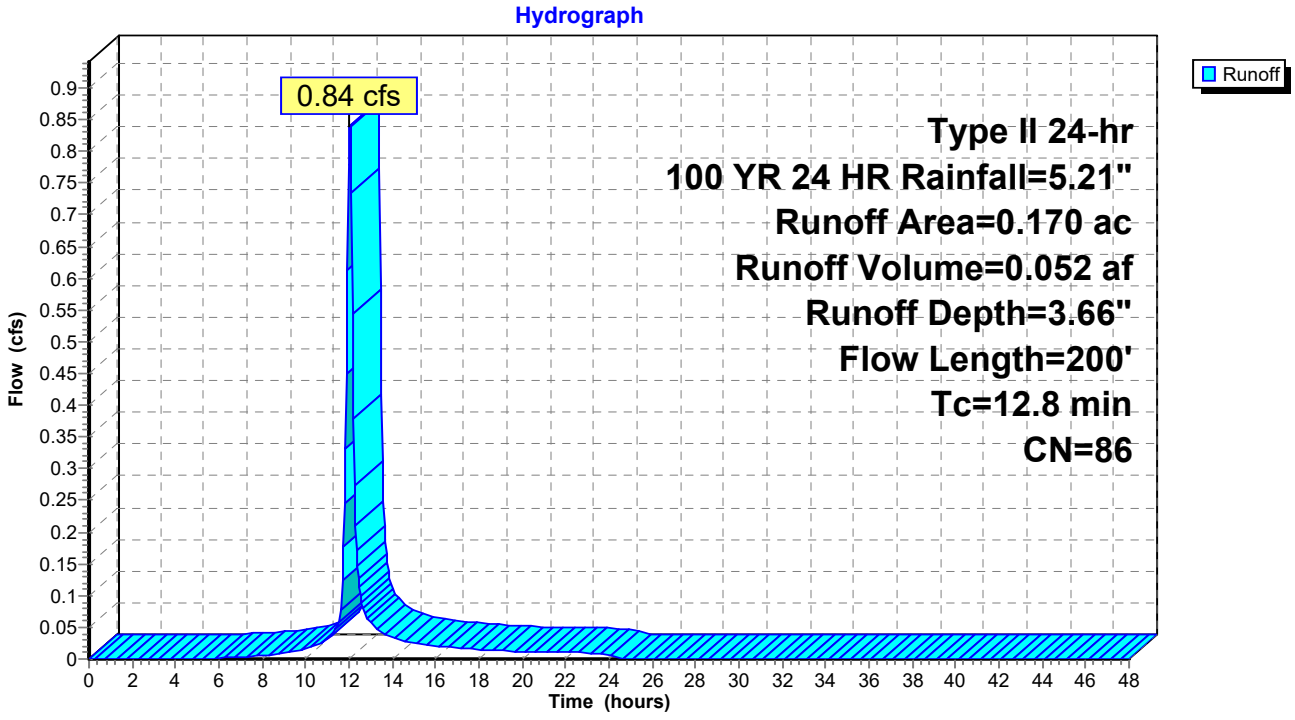
Runoff = 0.84 cfs @ 12.04 hrs, Volume= 0.052 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR 24 HR Rainfall=5.21"

	Area (ac)	CN	Description
*	0.090	91	Gravel roads, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.170	86	Weighted Average
	0.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	20	0.0050	0.04		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.30"
2.4	50	0.0050	0.35		**Shallow Concentrated Flow, Wetland** Woodland Kv= 5.0 fps
2.1	100	0.0400	0.80		**Shallow Concentrated Flow, Swale Lined with riprap** Kv= 4.0 fps
0.2	30	0.0050	2.65	0.93	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
12.8	200	Total			

Subcatchment PR-2D: PR-2D



Summary for Reach 1R: Roadside Swale South

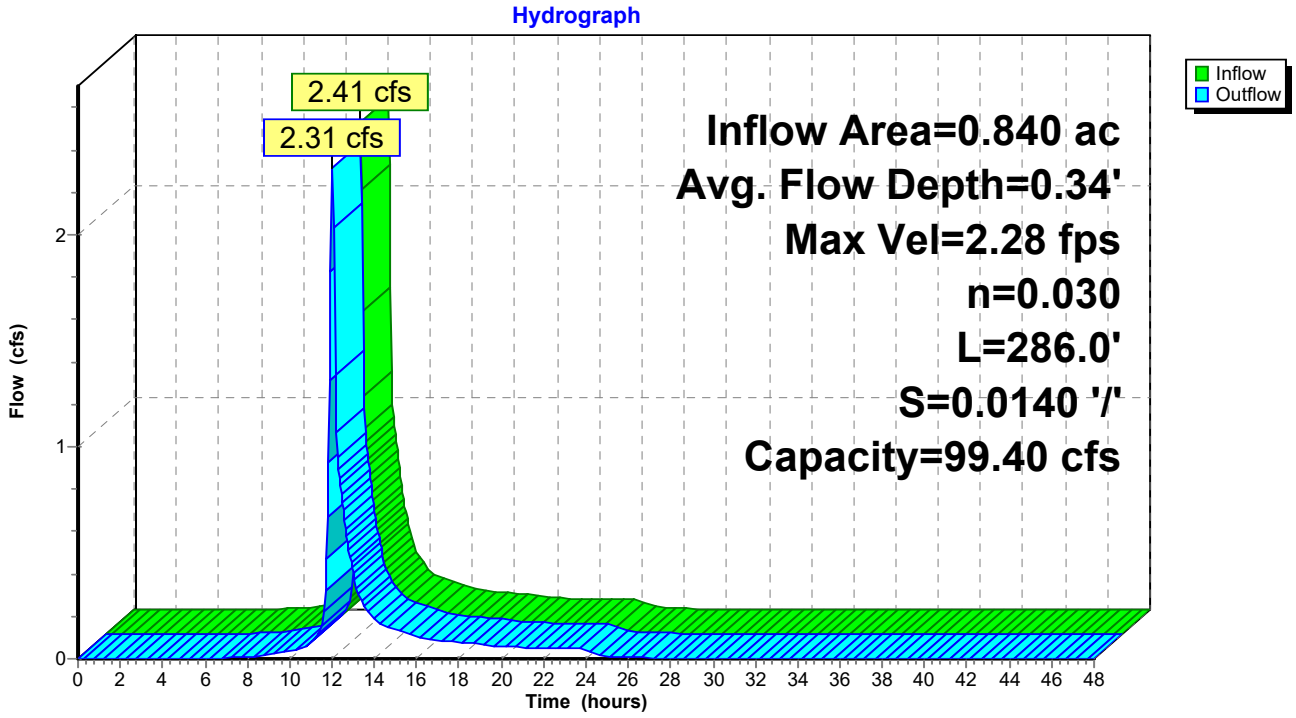
Inflow Area = 0.840 ac, 0.00% Impervious, Inflow Depth = 2.96" for 100 YR 24 HR event
Inflow = 2.41 cfs @ 12.00 hrs, Volume= 0.207 af
Outflow = 2.31 cfs @ 12.02 hrs, Volume= 0.207 af, Atten= 4%, Lag= 1.5 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.28 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 8.4 min

Peak Storage= 289 cf @ 12.02 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 99.40 cfs

2.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 286.0' Slope= 0.0140 '/'
Inlet Invert= 1,096.00', Outlet Invert= 1,092.00'

Reach 1R: Roadside Swale South



Summary for Pond 1P: Roadside Swale Detention

Inflow Area = 0.350 ac, 0.00% Impervious, Inflow Depth = 3.24" for 100 YR 24 HR event
Inflow = 1.40 cfs @ 12.11 hrs, Volume= 0.095 af
Outflow = 0.44 cfs @ 12.42 hrs, Volume= 0.068 af, Atten= 68%, Lag= 18.4 min
Primary = 0.44 cfs @ 12.42 hrs, Volume= 0.068 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,100.09' @ 12.42 hrs Surf.Area= 1,225 sf Storage= 1,794 cf

Plug-Flow detention time= 201.3 min calculated for 0.068 af (72% of inflow)
Center-of-Mass det. time= 100.5 min (935.5 - 834.9)

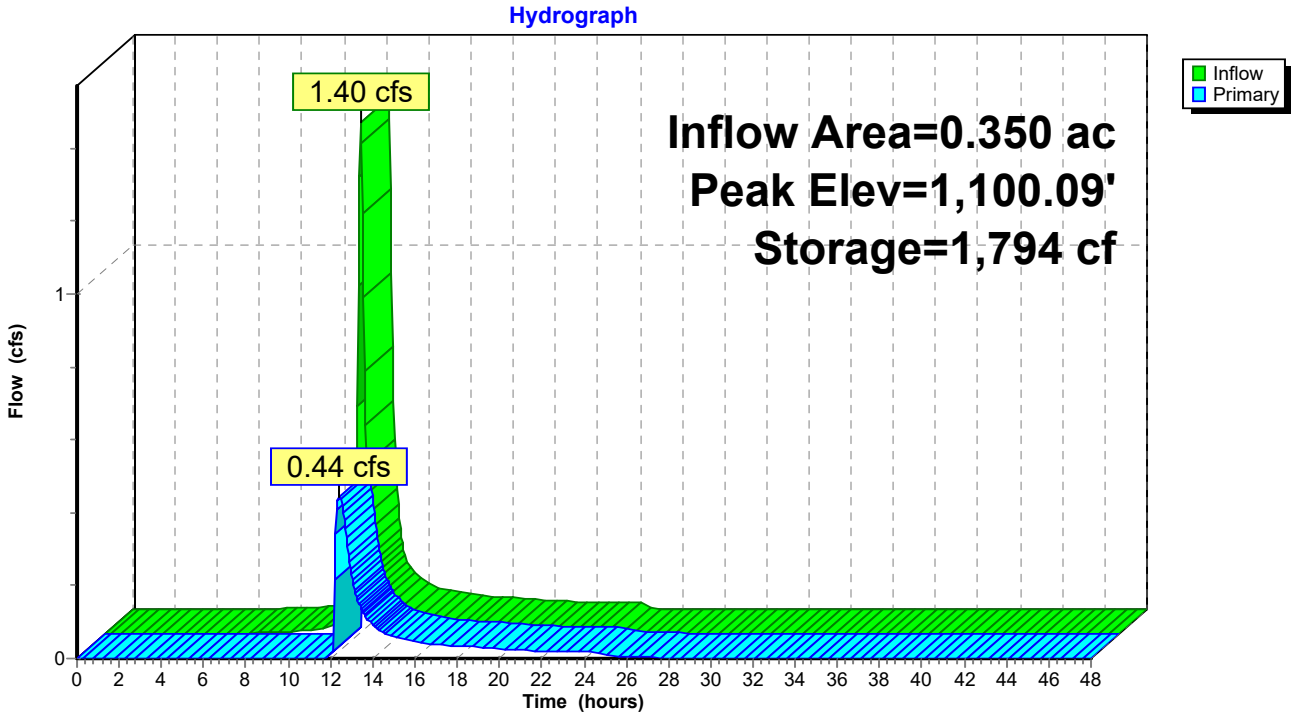
Volume	Invert	Avail.Storage	Storage Description
#1	1,098.00'	5,328 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,098.00	600	0	0
1,099.00	800	700	700
1,100.00	1,165	983	1,683
1,101.00	1,813	1,489	3,172
1,102.00	2,500	2,157	5,328

Device	Routing	Invert	Outlet Devices
#1	Primary	1,099.50'	**6.0" Round Culvert** L= 20.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,099.50' / 1,099.40' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Primary	1,101.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.44 cfs @ 12.42 hrs HW=1,100.09' (Free Discharge)
1=Culvert (Barrel Controls 0.44 cfs @ 2.41 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: Roadside Swale Detention



Summary for Pond 2P: Roadside Swale North 1

Inflow Area = 0.160 ac, 0.00% Impervious, Inflow Depth = 3.56" for 100 YR 24 HR event
Inflow = 0.69 cfs @ 12.08 hrs, Volume= 0.048 af
Outflow = 0.64 cfs @ 12.14 hrs, Volume= 0.040 af, Atten= 8%, Lag= 3.3 min
Primary = 0.64 cfs @ 12.14 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,101.11' @ 12.14 hrs Surf.Area= 422 sf Storage= 529 cf

Plug-Flow detention time= 119.2 min calculated for 0.040 af (84% of inflow)
Center-of-Mass det. time= 48.4 min (861.0 - 812.6)

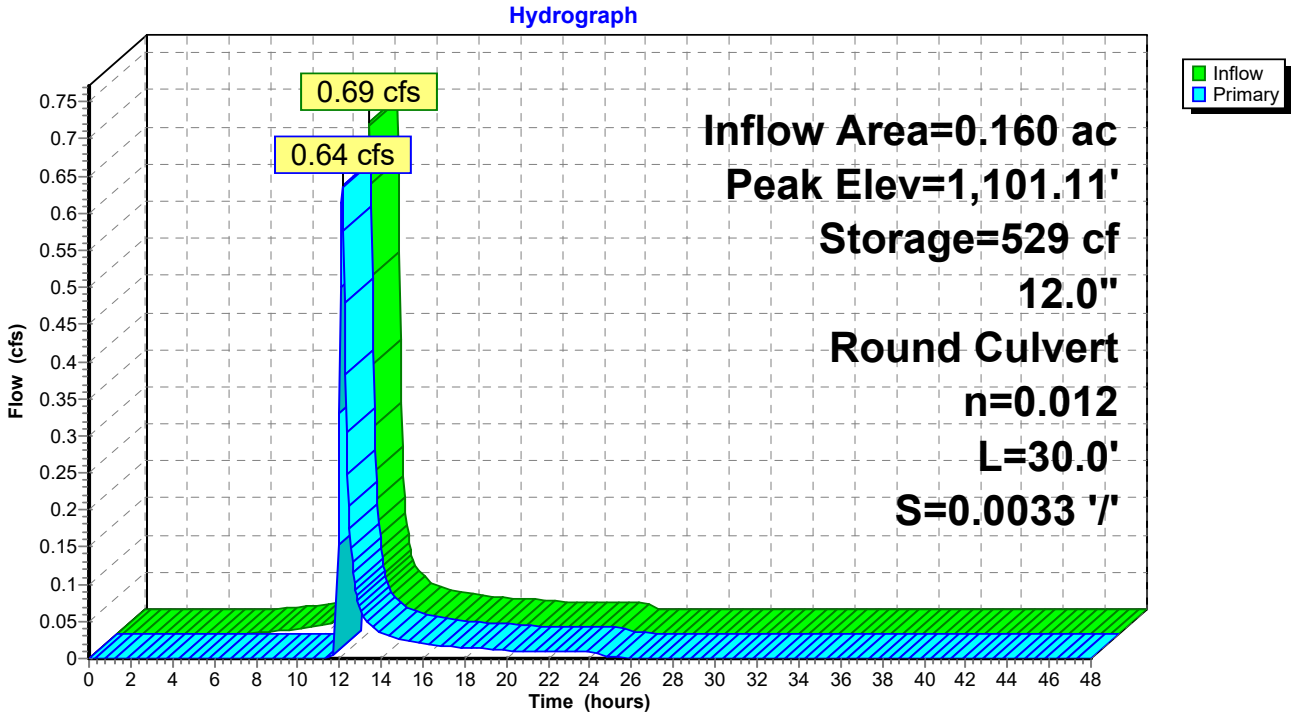
Volume	Invert	Avail.Storage	Storage Description
#1	1,099.00'	984 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,099.00	50	0	0
1,100.00	259	155	155
1,101.00	400	330	484
1,102.00	600	500	984

Device	Routing	Invert	Outlet Devices
#1	Primary	1,100.60'	**12.0" Round Culvert** L= 30.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,100.60' / 1,100.50' S= 0.0033 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.63 cfs @ 12.14 hrs HW=1,101.11' (Free Discharge)
1=Culvert (Barrel Controls 0.63 cfs @ 2.31 fps)

Pond 2P: Roadside Swale North 1



Summary for Pond 5P: Roadside Swale North 2

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 3.66" for 100 YR 24 HR event
Inflow = 0.84 cfs @ 12.04 hrs, Volume= 0.052 af
Outflow = 0.82 cfs @ 12.06 hrs, Volume= 0.052 af, Atten= 2%, Lag= 1.2 min
Primary = 0.82 cfs @ 12.06 hrs, Volume= 0.052 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,093.67' @ 12.06 hrs Surf.Area= 128 sf Storage= 63 cf

Plug-Flow detention time= 2.9 min calculated for 0.052 af (100% of inflow)
Center-of-Mass det. time= 2.9 min (809.0 - 806.1)

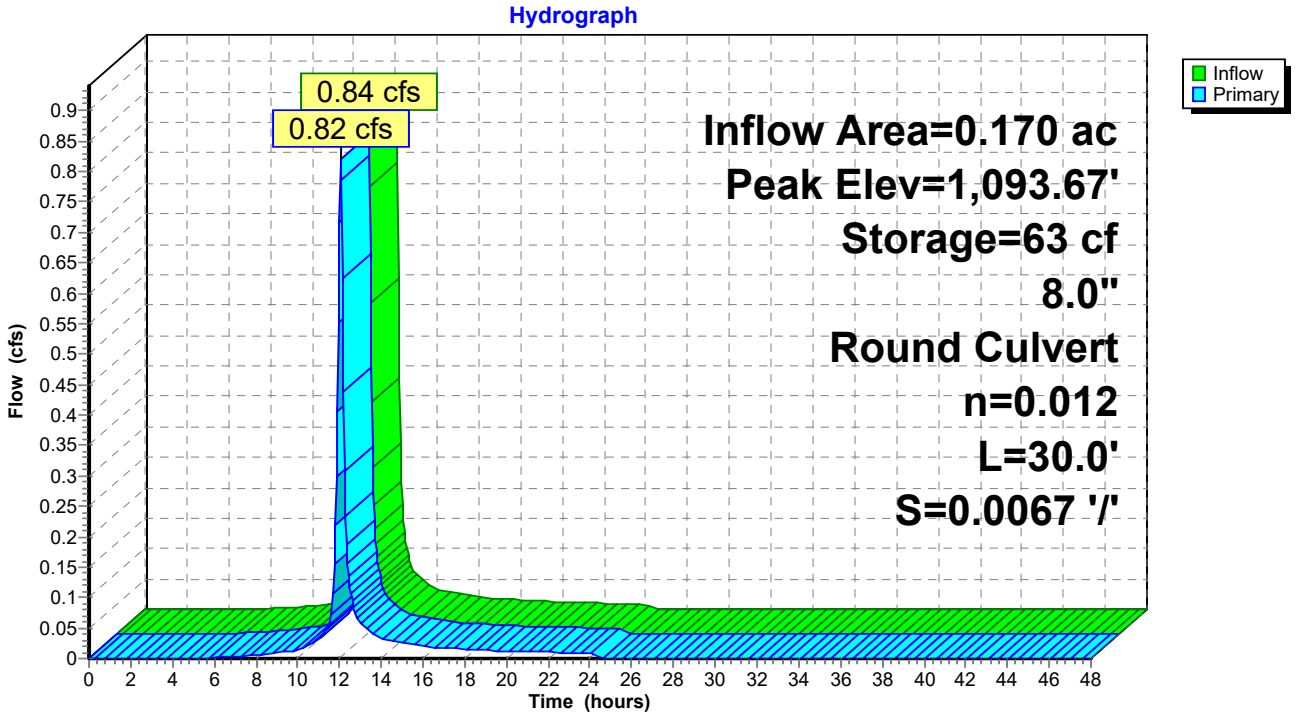
Volume	Invert	Avail.Storage	Storage Description
#1	1,093.00'	3,716 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,093.00	60	0	0
1,094.00	162	111	111
1,095.00	500	331	442
1,096.00	1,097	799	1,241
1,097.00	1,200	1,149	2,389
1,098.00	1,453	1,327	3,716

Device	Routing	Invert	Outlet Devices
#1	Primary	1,093.00'	**8.0" Round Culvert** L= 30.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,093.00' / 1,092.80' S= 0.0067 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.81 cfs @ 12.06 hrs HW=1,093.66' (Free Discharge)
1=Culvert (Barrel Controls 0.81 cfs @ 2.91 fps)

Pond 5P: Roadside Swale North 2



Summary for Pond 12P: Northeast Swale

Inflow Area = 3.010 ac, 0.17% Impervious, Inflow Depth = 3.27" for 100 YR 24 HR event
Inflow = 7.63 cfs @ 12.31 hrs, Volume= 0.820 af
Outflow = 7.54 cfs @ 12.34 hrs, Volume= 0.796 af, Atten= 1%, Lag= 2.3 min
Primary = 7.54 cfs @ 12.34 hrs, Volume= 0.796 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,107.68' @ 12.34 hrs Surf.Area= 2,149 sf Storage= 2,222 cf

Plug-Flow detention time= 29.6 min calculated for 0.796 af (97% of inflow)
Center-of-Mass det. time= 12.5 min (851.3 - 838.8)

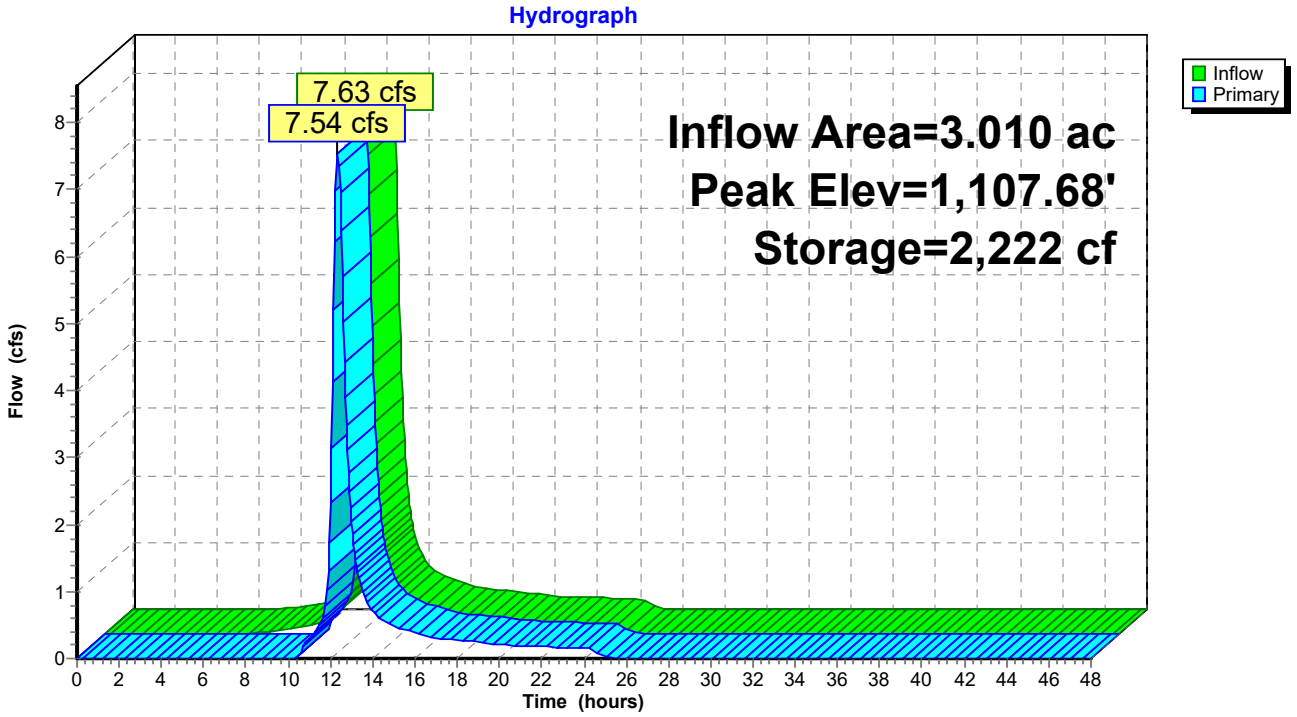
Volume	Invert	Avail.Storage	Storage Description
#1	1,106.00'	5,714 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,106.00	628	0	0
1,107.00	1,400	1,014	1,014
1,108.00	2,500	1,950	2,964
1,109.00	3,000	2,750	5,714

Device	Routing	Invert	Outlet Devices
#1	Primary	1,107.00'	**5.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=7.52 cfs @ 12.34 hrs HW=1,107.68' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 7.52 cfs @ 2.21 fps)

Pond 12P: Northeast Swale

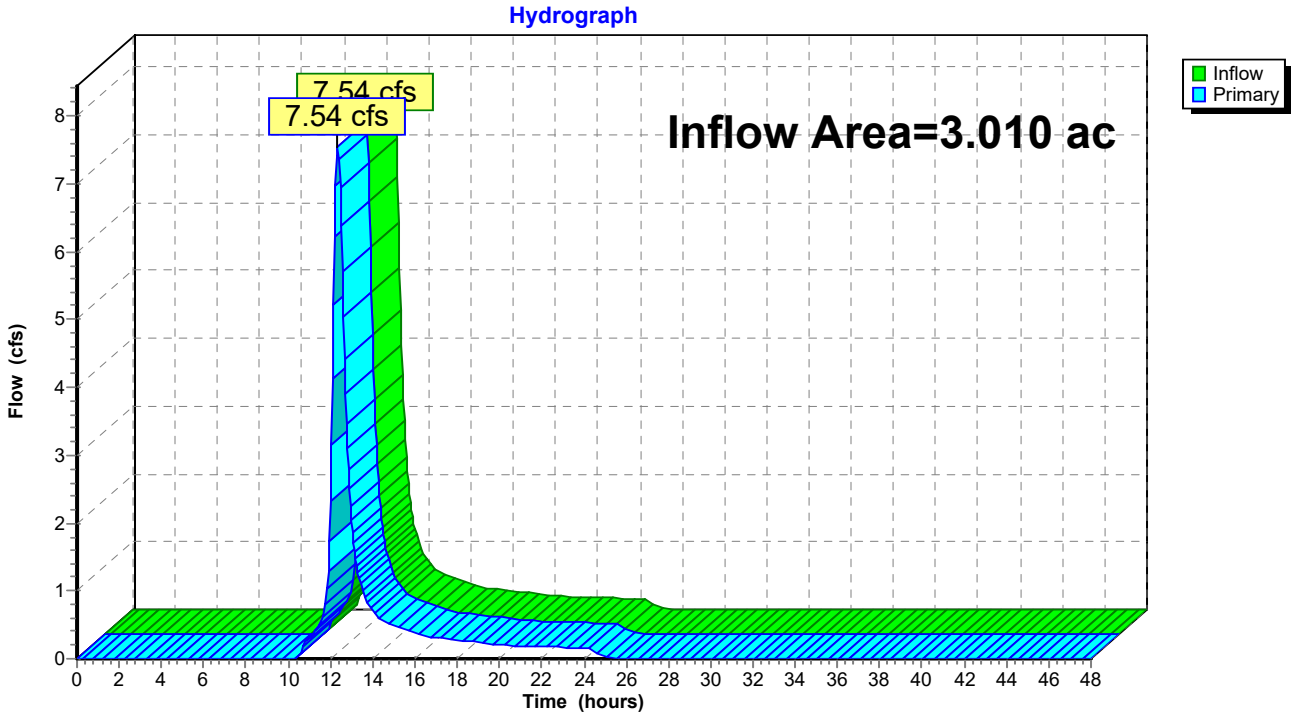


Summary for Link 6L: DESIGN POINT 1

Inflow Area = 3.010 ac, 0.17% Impervious, Inflow Depth = 3.17" for 100 YR 24 HR event
Inflow = 7.54 cfs @ 12.34 hrs, Volume= 0.796 af
Primary = 7.54 cfs @ 12.34 hrs, Volume= 0.796 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 6L: DESIGN POINT 1

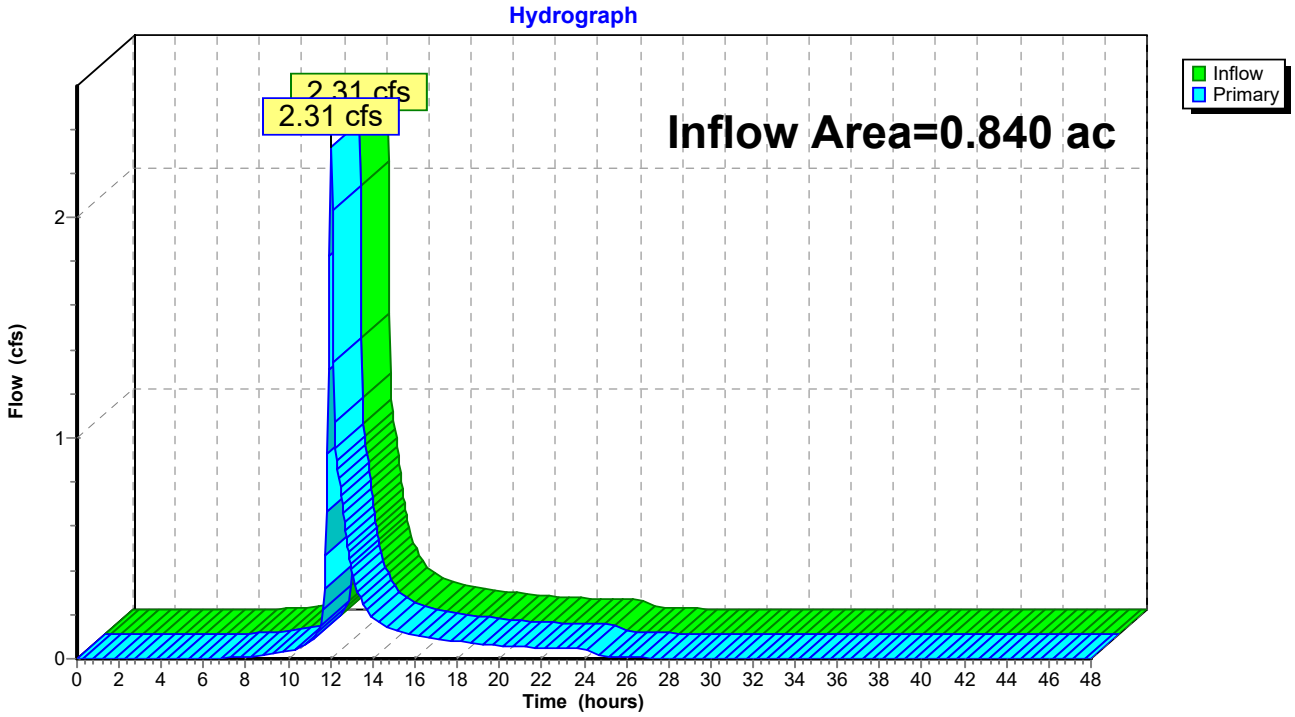


Summary for Link 9L: DESIGN POINT 2

Inflow Area = 0.840 ac, 0.00% Impervious, Inflow Depth = 2.96" for 100 YR 24 HR event
Inflow = 2.31 cfs @ 12.02 hrs, Volume= 0.207 af
Primary = 2.31 cfs @ 12.02 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 9L: DESIGN POINT 2



Appendix G

Construction Duration Inspection Form

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

Inspector (print name)	**Date of Inspection**
Qualified Inspector (print name)	**Qualified Inspector Signature**

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

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA
[ ] [ ] [ ] Is construction site litter, debris and spoils appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA
[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

Yes No NA
[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Flow Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Manufactured insert fabric is free of tears and punctures.
[ ] [ ] [ ] Filter Sock is not torn or flattened and fill material is contained within the mesh sock.

Sediment accumulation ___% of design capacity.

3. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment trap slopes and disturbed areas are stabilized.

Sediment accumulation is ___% of design capacity.

4. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment basin dewatering pool is dewatering at appropriate rate.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

Appendix H

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)

Appendix I

Project Drawings (11 x 17)

SITE USE PERMIT SET

411 REYNOLDS RD, FULTONVILLE, NY 12072
5.0MW WIND PROJECT

GENERAL NOTES

1. AS CONTAINED HEREIN, "CONTRACTOR" IS ASSUMED TO BE THE EPC PROVIDER HIRED BY THE SYSTEM/PROJECT OWNER.
2. WHEN THERE IS A CONFLICT BETWEEN THESE GENERAL NOTES AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
3. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING: LOCAL BUILDING CODE, LOCAL ELECTRICAL CODE, ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK AND THOSE CODES AND STANDARDS LISTED IN THESE DRAWINGS.
4. THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A CONSTRUCTION LEVEL DESIGN AND ASSOCIATED DRAWINGS AND DETAILS.
5. COORDINATE THESE DRAWINGS WITH SPECIFICATIONS AND MANUFACTURER INSTALLATION AND OPERATION MANUALS.
6. UNLESS OTHERWISE NOTED, THE DESIGN REPRESENTED ON THESE PLANS IS BASED ON THE INFORMATION AND CRITERIA LISTED IN THE "BASIS OF DESIGN" SECTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY SUCH INFORMATION IN PREPARATION OF THE CONSTRUCTION DESIGN.
7. THE EXISTING CONDITIONS REPRESENTED ON THESE PLANS ARE BASED ON PUBLICLY AVAILABLE INFORMATION AND THE SITE DISCOVERY SUMMARIZED IN THESE DRAWINGS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF SUCH INFORMATION AND SUPPLEMENT WITH ANY ADDITIONAL REQUIRED INFORMATION.
8. UNLESS INDICATED AS EXISTING (E), ALL PROPOSED MATERIALS AND EQUIPMENT SHALL BE CONSIDERED TO BE NEW.
9. ALL EQUIPMENT AND COMPONENTS SHALL BE MOUNTED IN COMPLIANCE WITH THE MANUFACTURER'S REQUIREMENTS, CONSTRUCTION DETAILS, AND/OR PRUDENT INDUSTRY STANDARDS.

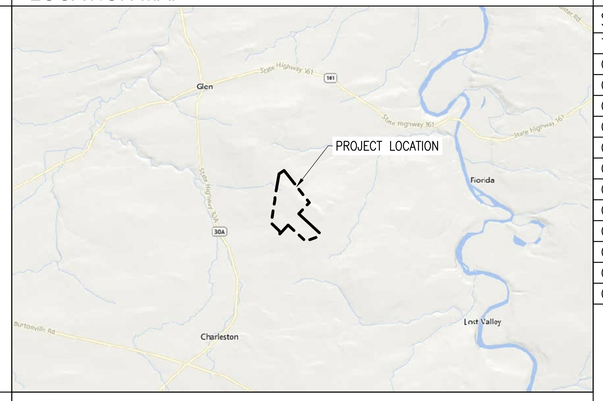
PROJECT SCOPE

THE FACILITY IS A PROPOSED WIND-POWERED ELECTRIC GENERATION PROJECT CONSISTING OF ONE WIND TURBINE GENERATING UP TO 5 MEGAWATTS (MW) OF ELECTRICITY. THE PROJECT WILL INCLUDE A WIND TURBINE, ACCESS ROAD, ELECTRICAL COLLECTION LINES, AND TEMPORARY CONSTRUCTION STAGING AND STORAGE AREAS. THE PROJECT WILL BE INTERCONNECTED TO THE EXISTING ELECTRICAL SYSTEM UPON COMPLETION.

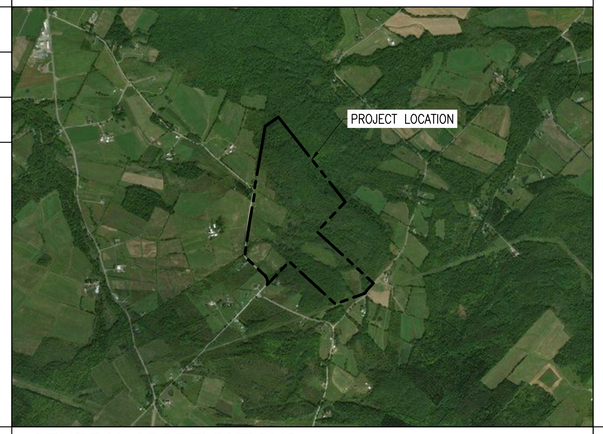
SYSTEM DESCRIPTION

PROJECT SIZE	5 MW	TURBINE MODEL	VESTAS V150
NUMBER OF TURBINES	1	ROTOR DIAMETER (FT)	493
HUB HEIGHT (FT)	394	TIP HEIGHT (FT)	650

LOCATION MAP



AERIAL VIEW



DRAWING LIST

SHEET NUMBER	SHEET TITLE
T-1	TITLE PAGE
CIVIL	
C-0.0	CIVIL NOTES
C-1.0	EXISTING CONDITIONS PLAN
C-2.0	TREE CLEARING PLAN
C-3.0	LAYOUT AND MATERIALS PLAN
C-4.0	EROSION CONTROL PLAN
C-5.0	GRADING AND DRAINAGE PLAN
C-5.1	GRADING AND DRAINAGE PLAN
C-6.0	ACCESS ROAD PLAN
C-7.0	ACCESS ROAD PROFILES
C-7.1	ACCESS ROAD SECTIONS
C-8.0	CIVIL DETAILS NY

APPLICABLE CODES AND STANDARDS

2017 NATIONAL ELECTRICAL CODE
2020 BUILDING CODE OF NEW YORK STATE
UL-1741 – INVERTERS

PROJECT DIRECTORY

LAND OWNER / HOST
GLEN WIND 1, LLC

AUTHORITY HAVING JURISDICTION
TOWN OF GLEN
MONTGOMERY COUNTY, NY 12072

UTILITY
NGRID NY

CIVIL ENGINEER
FIRM: GHD CONSULTING SERVICES INC.
CONTACT: CAMIE JARRELL
PHONE: 716-362-8879

ELECTRICAL ENGINEER
FIRM: BORREGO SOLAR SYSTEMS, INC
CONTACT: AHARON WRIGHT, P.E.
PHONE: 978-221-3081

DESIGN ENGINEER
FIRM: BORREGO SOLAR SYSTEMS, INC
CONTACT: MEGAN BELVAL
PHONE: 978-735-1946

GENERAL ABBREVIATIONS

(E)	EXISTING
AHJ	AUTHORITY HAVING JURISDICTION
AL	ALUMINUM
APPROX	APPROXIMATE
ARY	ARRAY
BLDG	BUILDING
BSS	BORREGO SOLAR SYSTEM
CL	CENTERLINE
DAS	DATA ACQUISITION SYSTEM
DIA	DIAMETER
DO	DITTO
EW	EAST-WEST
FBO	FURNISHED BY OTHERS
FF	FORWARD FACING
GALV	GALVANIZED
HDG	HOT DIP GALVANIZED
HVAC	HEATING VENTILATION AND AIR CONDITIONING
ID	INSIDE DIAMETER
MFR	MANUFACTURER
MOD	SOLAR MODULE
NS	NORTH-SOUTH
NTS	NOT TO SCALE
OAE	OR APPROVED EQUAL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PV	PHOTOVOLTAIC
PVC	POLY VINYL CHLORIDE
SCH	SCHEDULE
SS	STAINLESS STEEL
SSS	SOLAR SUPPORT STRUCTURE
STC	STANDARD TEST CONDITIONS
TBD	TO BE DETERMINED
TP	TAMPER PROOF
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VIF	VERIFY IN FIELD
WP	WEATHER PROOF

REV 1.0

BASIS OF DESIGN

BOUNDARY & TOPOGRAPHIC SURVEY:
MASER CONSULTING
AUGUST 2021

WETLAND STREAM AND DELINEATION REPORT:
LABELLA ASSOCIATES
AUGUST 2021

BORREGO
30 CENTURY HILL DRIVE, SUITE 301
LATHAM, NY 12110
PHONE: (888) 898-6273
FAX: (888) 843-6778
WWW.BORREGOSOLAR.COM

GHD Consulting Services Inc.
285 Delaware Avenue, Suite 500
Buffalo NY 14202 USA
T: 1 716 856 2142 W: www.ghd.com

NOT FOR CONSTRUCTION

PLAN SET
411 REYNOLDS RD
411 REYNOLDS RD, FULTONVILLE, NY 12072

PROJECT NUMBER:
XXX-XXXX

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
	10/6/21	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	11/16/21	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	12/15/21	BLS	BLS	SITE USE PERMIT SET
	1/20/22	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	3/8/22	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	3/9/22	BLS	BLS	SITE USE PERMIT SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

T-1
TITLE PAGE

GENERAL CIVIL NOTES

APPROVALS

1. SITE PLAN APPROVAL DATED MONTH DAY, 20__.
2. SEQR NEGATIVE DECLARATION DATED MONTH DAY, 20__.

GENERAL NOTES

1. EXISTING CONDITIONS SURVEY INFORMATION WAS PREPARED BY COLLIERS ENGINEERING & DESIGN PERFORMED ON 08/09/21. BASIS OF BEARING IS NEW YORK STATE PLANE COORDINATE SYSTEM EASTZONE. CONTROL WAS ESTABLISHED USING NYSNET. THE HORIZONTAL DATUMIS RELATIVE TO NAD83. THE VERTICAL POSITION OF THE HEREIN SURVEY IS BASED ON THE NYSNET RTKGPS NETWORK AND IS SUBJECT TO FURTHER ADJUSTMENT TO ANY LOCAL NGSBENCHMARKS. THE VERTICAL DATUM IS RELATIVE TO NAVD 1988.
2. THERE IS NO GUARANTEE THAT ALL THE EXISTING UTILITIES, WHETHER FUNCTIONAL OR ABANDONED WITHIN THE PROJECT LIMITS ARE ON THIS DRAWING. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES BEFORE STARTING WORK AND SHALL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM THIS WORK. A DIG SAFELY NEW YORK TICKET NUMBER INDICATING ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED SHALL BE OBTAINED PRIOR TO COMMENCING WORK. CONTACT "DIG SAFELY NEW YORK" AT 1-800-962-7962 AND PROVIDE 72 HOURS NOTICE TO RECEIVE A TICKET NUMBER.
3. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE ELECTRIC UTILITY COMPANY. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE UTILITY CONNECTIONS WITH THE RESPECTIVE COMPANIES PRIOR TO ANY UTILITY CONSTRUCTION.
4. THE SUBCONTRACTORS SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT TO THE CONTRACTOR.
5. TOWN APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES.
6. SUBCONTRACTOR(S) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
7. ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS, AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE CONTRACTOR/CEOR FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
8. AREAS USED AS FOR PARKING DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITED TO, REGRADING, LOAMING AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOURCE AREA AND/OR ANY BUFFER ZONES.
9. WIND TURBINE SHALL BE WHITE IN COLOR.
10. ALL EQUIPMENT SHALL MEET STANDARDS OF THE INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

SITE PREPARATION NOTES

1. NO TOPSOIL WILL BE ALLOWED TO LEAVE THE PROPERTY. EXCESS TOPSOIL SHALL BE DISTRIBUTED INTO A THIN LAYER ON LAND IMMEDIATELY ADJACENT TO WHERE THE TOPSOIL ORIGINATED.
2. TREE CLEARING AND STUMP REMOVAL SHALL BE IN ACCORDANCE WITH APPROVED LOCAL, STATE, AND FEDERAL PERMITS. TREES TO BE REMOVED SHALL BE MARKED BY THE CONTRACTOR'S PROJECT MANAGER OR SITE SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORK ON-SITE.
3. SEASONAL TREE CLEARING RESTRICTIONS MAY BE REQUIRED FOR ENDANGERED SPECIES PROTECTION. THE CONTRACTOR SHALL REFER TO THE TREE CLEARING PLAN FOR ANY RESTRICTIONS.
4. ITEMS TO BE REMOVED THAT ARE NOT STOCKPILED FOR LATER REUSE ON THE PROJECT OR DELIVERED TO THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE SUBCONTRACTOR(S).
5. THE SUBCONTRACTOR(S) SHALL BE RESPONSIBLE FOR COORDINATING THEIR EFFORTS WITH ALL TRADES.
6. THE SUBCONTRACTOR(S) SHALL COORDINATE ALL ADJUSTMENT OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.

EROSION AND SEDIMENT CONTROL MEASURES

1. A SPDES PERMIT SHALL BE IN PLACE PRIOR TO COMMENCING ANY EARTH DISTURBANCE.
2. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR DISTURBANCE AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
3. SEDIMENT BARRIERS SHALL BE INSPECTED AND APPROVED BY THE TOWN OF GLEN OR THEIR REPRESENTATIVE AND THE CONTRACTOR/CEOR BEFORE CONSTRUCTION BEGINS.
4. STRAW BALES AND MULCH SHALL BE MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE OF NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY WHEN INSTALLED.
5. DISTURBED AREAS SHALL BE BLANKETED OR SEEDED AND MULCHED AS SOON AS PRACTICAL AFTER CONSTRUCTION ACTIVITIES IN THAT AREA HAVE CONCLUDED. ALL ERODABLE/BARE AREAS SHALL BE BLANKETED OR SEEDED AND MULCHED WITHIN 7 DAYS WITH TEMPORARY EROSION CONTROL SEEDING.
6. STABILIZE SLOPES GREATER THAN 3:1 (HORIZONTAL: VERTICAL) WITH SEED, SECURED GEOTEXTILE FABRIC, SPRAYED COMPOST BLANKET, OR RIP-RAP AS REQUIRED TO PREVENT EROSION DURING CONSTRUCTION.
7. SEDIMENT BARRIERS SHALL BE CONSTRUCTED AROUND ALL SOIL STOCKPILE AREAS.
8. CLEAN OUT PROJECT DRAINAGE FEATURES AND STRUCTURES (I.E. CULVERTS, BASINS, SWALES, ETC.) AFTER COMPLETION OF CONSTRUCTION.
9. SEDIMENT COLLECTED BY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE USED ON-SITE AS BACKFILL OR GRADING AS APPROPRIATED OR REMOVED FROM SITE ALONG WITH ESC MEASURES WHEN SITE STABILIZATION IS ACHIEVED.
10. AFTER ALL DISTURBED AREAS HAVE BEEN FULLY STABILIZED, THE SUBCONTRACTOR(S) SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AT THE CONTRACTOR/CEOR DIRECTION.
11. AFTER THE REMOVAL OF TEMPORARY EROSION CONTROL MEASURES, THE SUBCONTRACTOR(S) SHALL GRADE AND SEED AREA OF TEMPORARY EROSION CONTROL MEASURE.
12. DAMAGED OR DETERIORATED EROSION AND SEDIMENT CONTROL ITEMS WILL BE REPAIRED IMMEDIATELY AFTER IDENTIFICATION OR AS DIRECTED BY THE CONTRACTOR/CEOR.
13. THE TRAINED CONTRACTOR SHALL INSPECT 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.
14. THE OWNER/OPERATOR SHALL HAVE THE QUALIFIED INSPECTOR CONDUCT INSPECTIONS ONCE EVERY SEVEN CALENDAR DAYS FOR SITE DISTURBANCES LESS THAN FIVE ACRES. FOR SITES WHICH HAVE RECEIVED AUTHORIZATION FROM NYSDEC TO DISTURB FIVE ACRES OR MORE, THE QUALIFIED INSPECTOR SHALL CONDUCT INSPECTIONS TWICE EVERY SEVEN CALENDAR DAYS WITH NO LESS THAN TWO DAYS SEPARATING THE INSPECTIONS.
15. PIPE OUTLETS (IF ANY) SHALL BE STABILIZED WITH STONE. REFER TO DETAILS.
16. WATER PUMPED OR OTHERWISE DISCHARGED FROM THE SITE DURING CONSTRUCTION DEWATERING SHALL BE DISCHARGED TO AN APPROPRIATE SEDIMENT TRAPPING DEVICE.
17. WHEN TEMPORARY DRAINAGE IS ESTABLISHED, EROSION/SEDIMENTATION CONTROL MEASURES MAY BE REQUIRED BY CONTRACTOR/CEOR.
18. GRAVEL ROADS, ACCESS DRIVES, PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH, AND VEHICLE WASH DOWN FACILITIES, SHALL BE PROVIDED TO PREVENT SOIL FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. ANY SOIL REACHING A PUBLIC OR PRIVATE ROADWAY SHALL BE REMOVED BEFORE THE END OF EACH WORKDAY.
19. NECESSARY MEASURES SHALL BE TAKEN TO CONTAIN ANY FUEL OR POLLUTION RUNOFF. NO RE-FUELING SHALL OCCUR WITHIN 100 FEET OF ANY WETLAND RESOURCE AREA AND 200 FEET FROM RIVERFRONT. LEAKING EQUIPMENT OR SUPPLIES SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE.
20. THE COST OF REPAIRING EROSION CONTROL MEASURES OR REMOVING SEDIMENT FROM EROSION CONTROL SYSTEMS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE APPLICABLE EROSION CONTROL ITEM.
21. EROSION CONTROL MEASURES SHALL BE KEPT OPERATIONAL AND MAINTAINED CONTINUOUSLY THROUGHOUT THE PERIOD OF LAND DISTURBANCE UNTIL PERMANENT SEDIMENT AND EROSION CONTROL MEASURES ARE OPERATIONAL.
22. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT DUST FROM FORMING.
23. EROSION CONTROL MEASURES AS SHOWN ON THESE DRAWINGS IS INTENDED TO CONVEY MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES AS NECESSARY TO PREVENT SOIL EROSION AND TO COMPLY WITH THE PROJECT'S SPDES PERMIT AND STORMWATER POLLUTION PREVENTION PLAN.
24. A CONCRETE WASH OUT AREA SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS.

LAYOUT AND MATERIAL NOTES

1. THE CONTRACTOR SHALL HAVE SITE FEATURES STAKED OUT BY A LICENSED LAND SURVEYOR PRIOR TO ANY INSTALLATION OF RACKING OR TRENCHES.
2. EXCESS TRENCH MATERIAL SHALL BE PLACED ON THE SIDES OF THE TRENCH AND PLACED AT OR NEAR THE SAME LOCATION AS WHERE EXCAVATED. AFTER TRENCH HAS BEEN BACKFILLED TOPSOIL REMOVED SHALL BE PLACED ON TOP AND LIGHTLY COMPACTED.
3. SUBCONTRACTOR SHALL INSTALL CONDUITS FOR ALL ELECTRIC CONDUIT CROSSINGS PRIOR TO INSTALLATION OF ROADWAY SUBBASE.

GRADING NOTES

1. WHERE PROPOSED GRADES MEET EXISTING GRADES, SUBCONTRACTOR(S) SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
2. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL TURBINE FOUNDATIONS, PUBLIC ROADWAYS, AND WORK AREAS.
3. THE ELEVATIONS SHOWN ON THESE DRAWINGS ARE TO BE CONSIDERED GUIDANCE AND SHOULD BE ADJUSTED TO FIT ACTUAL FIELD CONDITIONS DURING CONSTRUCTION. THE CONTRACTOR SHALL USE JUDGEMENT WHEN ESTABLISHING CONSTRUCTION GRADES AND ELEVATIONS.
4. THE FINISHED SURFACE OF CRANE PAD SHALL NOT SLOPE MORE THAN 1% IN ANY DIRECTION. THE CRANE PAD SHALL BE CONSTRUCTED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
5. CONTRACTOR SHALL FIELD VERIFY THE LENGTHS OF ALL PIPE CULVERTS TO BE REMOVED AND INSTALLED PRIOR TO ORDERING THE PIPE.
6. THE CONTRACTOR SHALL BE REQUIRED TO RELOCATE OR TO REMOVE AND RE-INSTALL ALL ROAD SIGNS WHICH INTERFERE WITH CONSTRUCTION OPERATIONS AND TO TEMPORARILY RESET ALL SUCH SIGNS DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. ALL OTHER EXISTING ROW MARKERS AND/OR PROPERTY PINS SHALL BE MAINTAINED OR REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH NEW YORK LAW.

NEW YORK STATE DEPARTMENT Of AGRICULTURE AND MARKETS GUIDELINES FOR AGRICULTURAL MITIGATION FOR WIND POWER PROJECTS

1. THE FOLLOWING GUIDELINES SHALL APPLY TO CONSTRUCTION AREAS FOR WIND POWER CONSTRUCTION PROJECTS IMPACTING AGRICULTURAL LAND. THE PROJECT SPONSOR SHALL COORDINATE WITH THE NEW YORK STATE DEPARTMENT OF AGRICULTURE AND MARKETS (AG. AND MARKETS) TO DEVELOP AN APPROPRIATE SCHEDULE FOR INSPECTIONS TO ASSURE THAT THE GOALS OF THESE GUIDELINES ARE BEING MET. THE PROJECT SPONSOR SHALL HIRE AN ENVIRONMENTAL MONITOR TO OVERSEE THE CONSTRUCTION AND RESTORATION IN AGRICULTURAL FIELDS. THE ENVIRONMENTAL MONITOR SHALL BE ON SITE WHENEVER CONSTRUCTION OR RESTORATION WORK IS OCCURRING ON AGRICULTURAL LAND. THE ENVIRONMENTAL MONITOR SHALL MAINTAIN REGULAR CONTACT WITH THE AFFECTED FARMERS AND AG. AND MARKETS CONCERNING FARM RESOURCES AND MANAGEMENT MATTERS PERTINENT TO THE AGRICULTURAL OPERATIONS AND THE SITE-SPECIFIC IMPLEMENTATION OF THE CONSTRUCTION AND RESTORATION GUIDELINES.
2. ALL AGRICULTRUAL AREAS SHALL BE RESTORED IN ACCORDANCE WITH DEPARTMENT OF AGRICULTURE AND MARKETS GUIDELINES FOR WIND ENGERGY PROJECTS.

ABBREVIATIONS

BIT	BITUMINOUS
BMP	BEST MANAGEMENT PRACTICE
BVW	BORDERING VEGETATED WETLANDS
CB	CONCRETE BOUND
CONC	CONCRETE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED PLASTIC PIPE
DH	DRILL HOLE
DIP	DUCTILE IRON PIPE
DMH	DRAIN MANHOLE
ECB	EROSION CONTROL BARRIER
FES	FLARED END SECTION
FH	FIRE HYDRANT
FND	FOUND
GG	GAS GATE
HDPE	HIGH-DENSITY POLYETHYLENE
HW	HEADWALL
ILSF	ISOLATED LANDS SUBJECT TO FLOODING
IP	IRON PIPE
ISW	ISOLATED WETLANDS (FEDERAL JURISDICTION)
LA	LANDSCAPED AREA
LOW	LIMIT OF WORK
N/F	NOW OR FORMERLY
NTS	NOT TO SCALE
OCS	OUTLET CONTROL STRUCTURE
OHW	OVERHEAD WIRE
RCP	REINFORCED CONCRETE PIPE
RET	RETAINING
ROW	RIGHT-OF-WAY
SB	STONE BOUND
TEL	TELEPHONE CABLE
TYP	TYPICAL
UP	UTILITY POLE
WG	WATER GATE

REV 1.1

LEGEND

ROAD (GRAVEL)
FENCE LINE
PROPERTY LINE
FLOW DIRECTION
BANK LINE/FLAG
WETLAND LINE/FLAG
(E) MAJOR CONTOUR
(E) MINOR CONTOUR
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
100' WETLAND BUFFER ZONE
200' RIVERFRONT AREA
100-YEAR FLOOD LINE
WATER RESOURCE OVERLAY DISTRICT
TREELINE
STONE WALL
SILT FENCE
SILT FENCE WITH STEEL POSTS
LIMITS OF WORK
SWALE
DRAIN PIPE
ELECTRICAL TRENCH
OVERHEAD ELECTRIC
UNDERGROUND MV CONDUIT
SEWER LINE
WATER LINE
GAS MAIN
23-23A ASSESSORS MAP-LOT
TREE CLEARING LIMITS

BORREGO
30 CENTURY HILL DRIVE, SUITE 301
LATHAM, NY 12110
PHONE: (888) 898-6273
FAX: (888) 843-6778
WWW.BORREGOSOLAR.COM

GHD Consulting Services Inc.
285 Delaware Avenue, Suite 500
Buffalo NY 14202 USA
T: 1 716 856 2142 W: www.ghd.com

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PLAN SET
411 REYNOLDS RD
411 REYNOLDS RD, FULTONVILLE, NY 12072

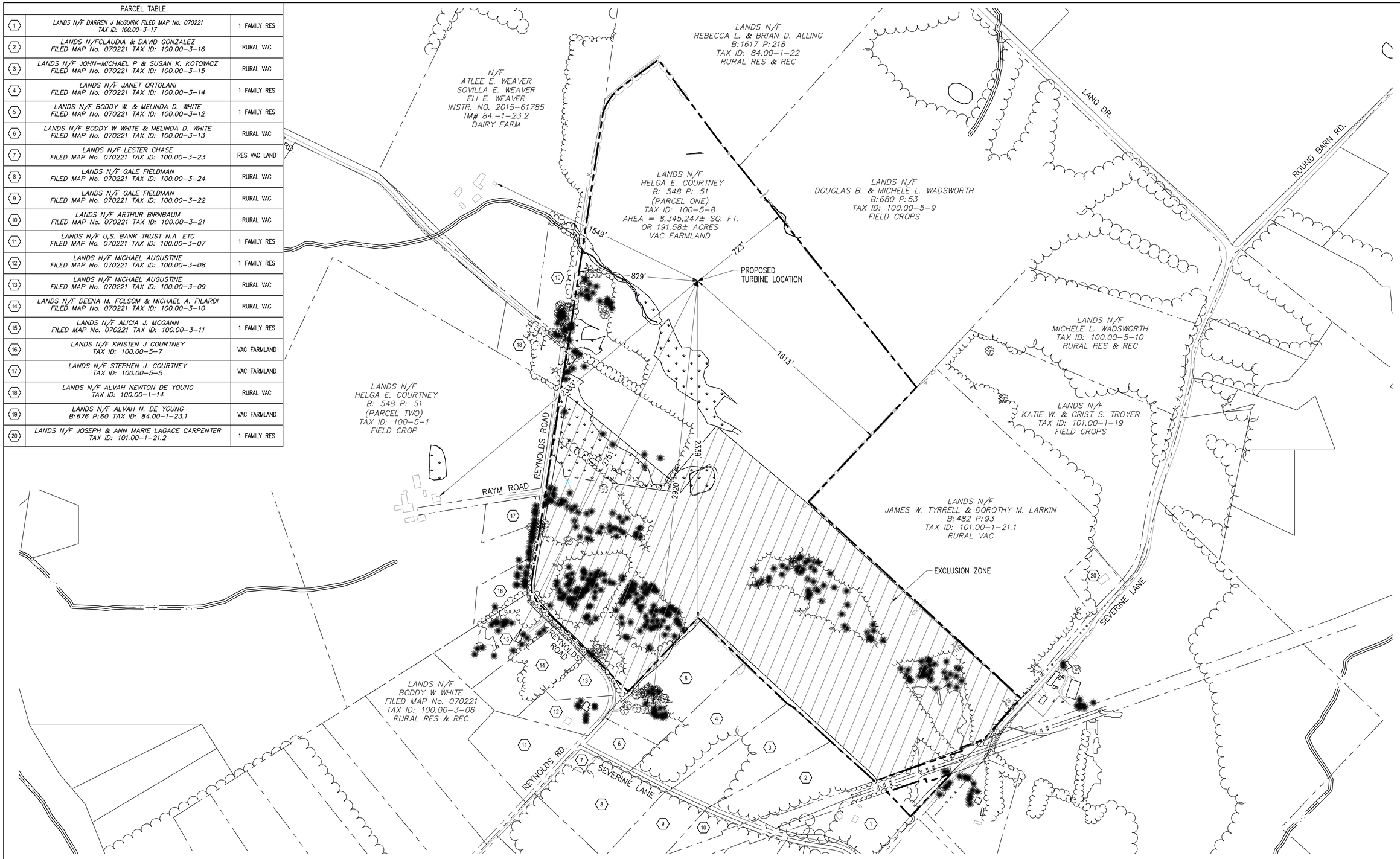
PROJECT NUMBER: XXX-XXXX

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
	10/6/21	CRR	CJJ	TOWN ENGINEER CONSULTANT COMMENTS
	11/16/21	CRR	CJJ	TOWN ENGINEER CONSULTANT COMMENTS
	12/15/21	BLS	BLS	SITE USE PERMIT SET
	1/20/22	CRR	CJJ	TOWN ENGINEER CONSULTANT COMMENTS
	3/8/22	CRR	CJJ	TOWN ENGINEER CONSULTANT COMMENTS
	3/9/22	BLS	BLS	SITE USE PERMIT SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-0.0
CIVIL NOTES

PARCEL TABLE		
1	LANDS N/F DARREN J McGUIRK FILED MAP No. 070221 TAX ID: 100.00-3-17	1 FAMILY RES
2	LANDS N/FCLAUDIA & DAVID GONZALEZ FILED MAP No. 070221 TAX ID: 100.00-3-16	RURAL VAC
3	LANDS N/F JOHN-MICHAEL P & SUSAN K. KOTOWICZ FILED MAP No. 070221 TAX ID: 100.00-3-15	RURAL VAC
4	LANDS N/F JANET ORTOLANI FILED MAP No. 070221 TAX ID: 100.00-3-14	1 FAMILY RES
5	LANDS N/F BODDY W. & MELINDA D. WHITE FILED MAP No. 070221 TAX ID: 100.00-3-12	1 FAMILY RES
6	LANDS N/F BODDY W WHITE & MELINDA D. WHITE FILED MAP No. 070221 TAX ID: 100.00-3-13	RURAL VAC
7	LANDS N/F LESTER CHASE FILED MAP No. 070221 TAX ID: 100.00-3-23	RES VAC LAND
8	LANDS N/F GALE FIELDMAN FILED MAP No. 070221 TAX ID: 100.00-3-24	RURAL VAC
9	LANDS N/F GALE FIELDMAN FILED MAP No. 070221 TAX ID: 100.00-3-22	RURAL VAC
10	LANDS N/F ARTHUR BIRNBAUM FILED MAP No. 070221 TAX ID: 100.00-3-21	RURAL VAC
11	LANDS N/F U.S. BANK TRUST N.A. ETC FILED MAP No. 070221 TAX ID: 100.00-3-07	1 FAMILY RES
12	LANDS N/F MICHAEL AUGUSTINE FILED MAP No. 070221 TAX ID: 100.00-3-08	1 FAMILY RES
13	LANDS N/F MICHAEL AUGUSTINE FILED MAP No. 070221 TAX ID: 100.00-3-09	RURAL VAC
14	LANDS N/F DEENA M. FOLSOM & MICHAEL A. FILARDI FILED MAP No. 070221 TAX ID: 100.00-3-10	RURAL VAC
15	LANDS N/F ALICIA J. MCGANN FILED MAP No. 070221 TAX ID: 100.00-3-11	1 FAMILY RES
16	LANDS N/F KRISTEN J COURTNEY TAX ID: 100.00-5-7	VAC FARMLAND
17	LANDS N/F STEPHEN J. COURTNEY TAX ID: 100.00-5-5	VAC FARMLAND
18	LANDS N/F ALVAH NEWTON DE YOUNG TAX ID: 100.00-1-14	RURAL VAC
19	LANDS N/F ALVAH N. DE YOUNG B:676 P:60 TAX ID: 84.00-1-23.1	VAC FARMLAND
20	LANDS N/F JOSEPH & ANN MARIE LAGACE CARPENTER TAX ID: 101.00-1-21.2	1 FAMILY RES



EXISTING CONDITIONS PLAN

SCALE: 1" = 300'

0 300" 600"

BORREGO
30 CENTURY HILL DRIVE, SUITE 301
LATHAM, NY 12110
PHONE: (888) 898-6273
FAX: (888) 843-6778
WWW.BORREGOSOLAR.COM

GHD Consulting Services Inc.
285 Delaware Avenue, Suite 500
Buffalo NY 14202 USA
T 1 716 856 2142 W www.ghd.com

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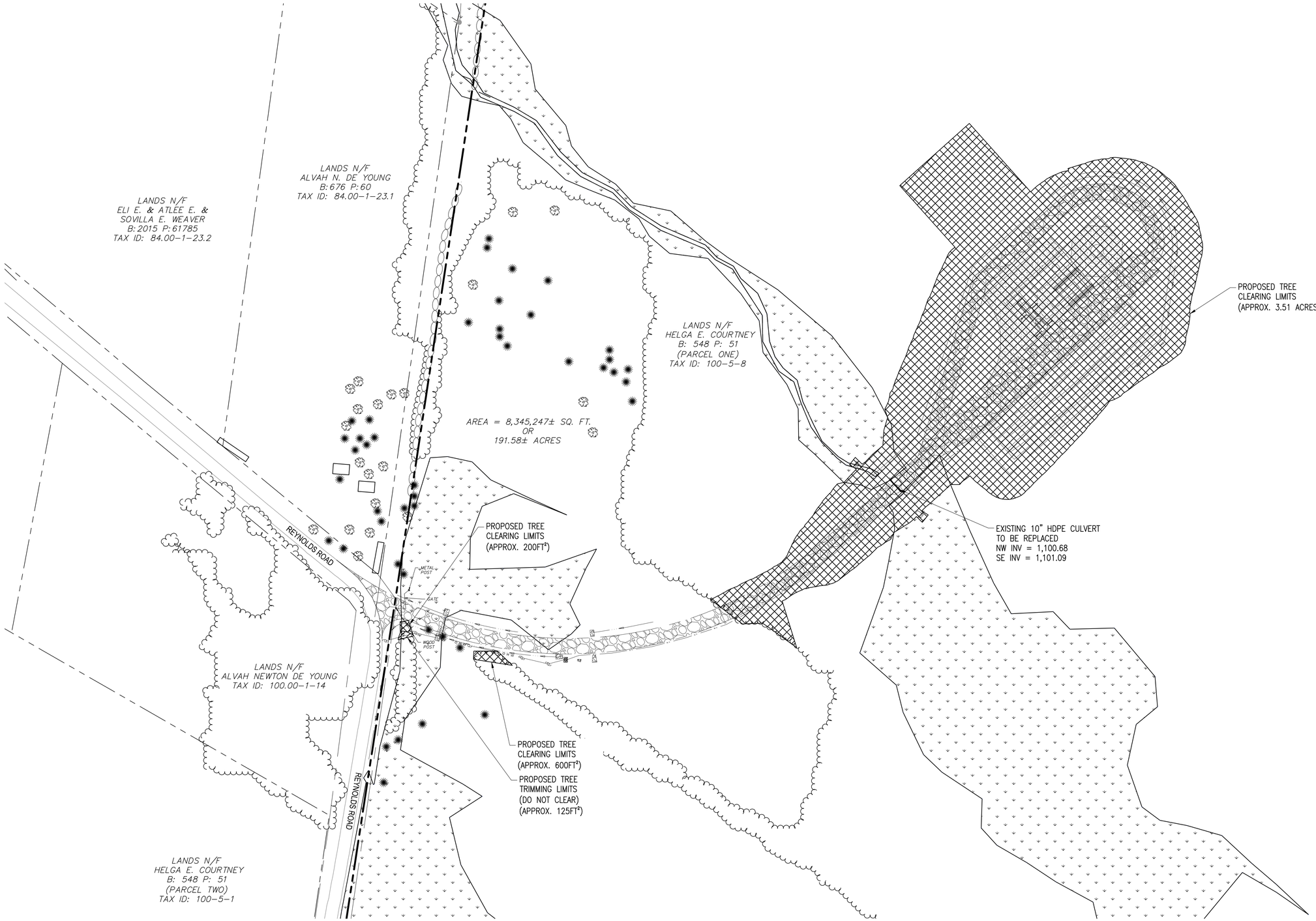
PLAN SET
411 REYNOLDS RD
411 REYNOLDS RD, FULTONVILLE, NY 12072

PROJECT NUMBER:
XXX-XXXX

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
	10/6/21	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	11/16/21	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	12/15/21	BLS	BLS	SITE USE PERMIT SET
	1/20/22	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	3/8/22	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	3/9/22	BLS	BLS	SITE USE PERMIT SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-1.0
EXISTING CONDITIONS PLAN



TREE CLEARING PLAN

SCALE: 1" = 60'

0 60' 120'

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	3/9/22	BLS	BLS	SITE USE PERMIT SET

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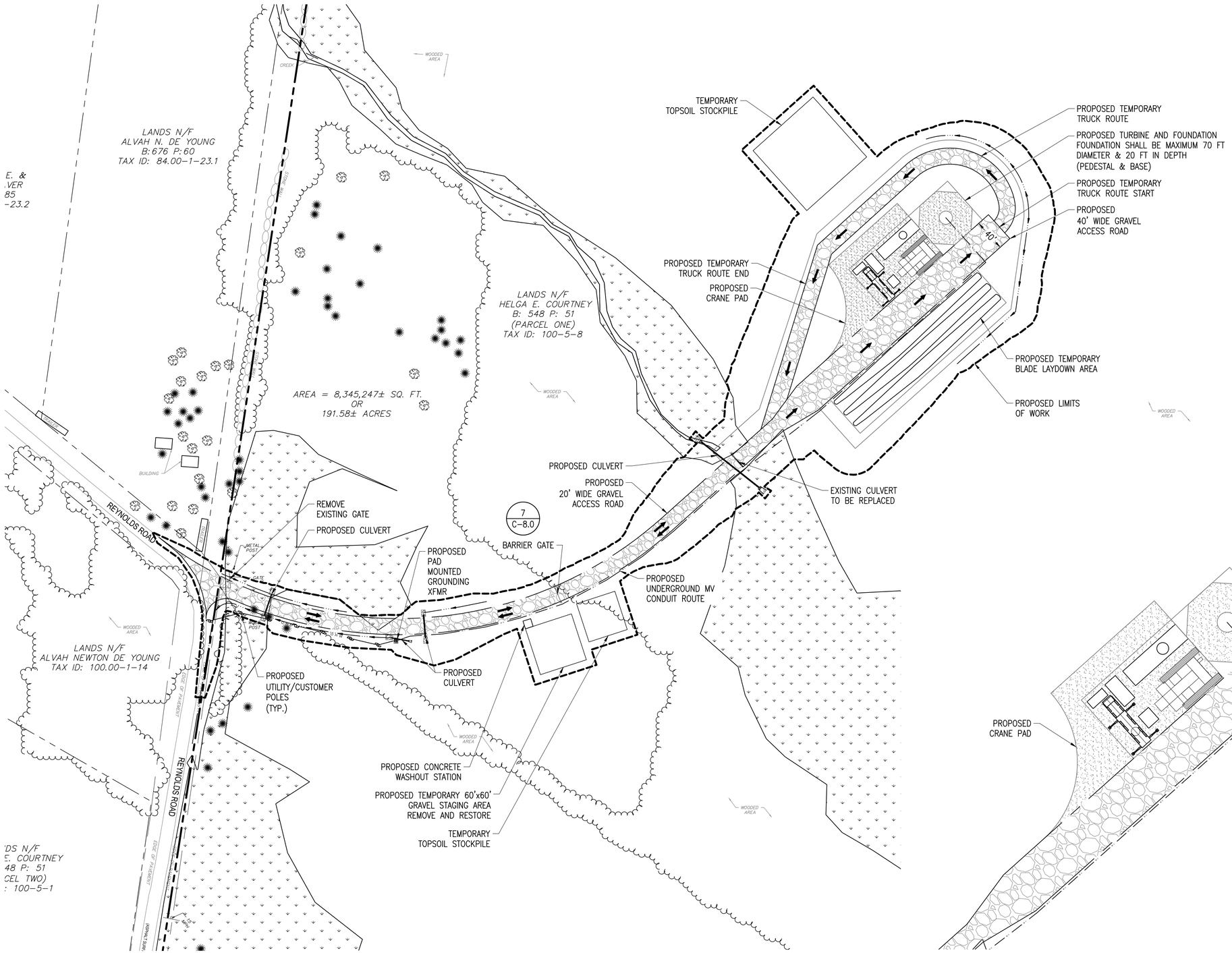
C-2.0
TREE CLEARING PLAN



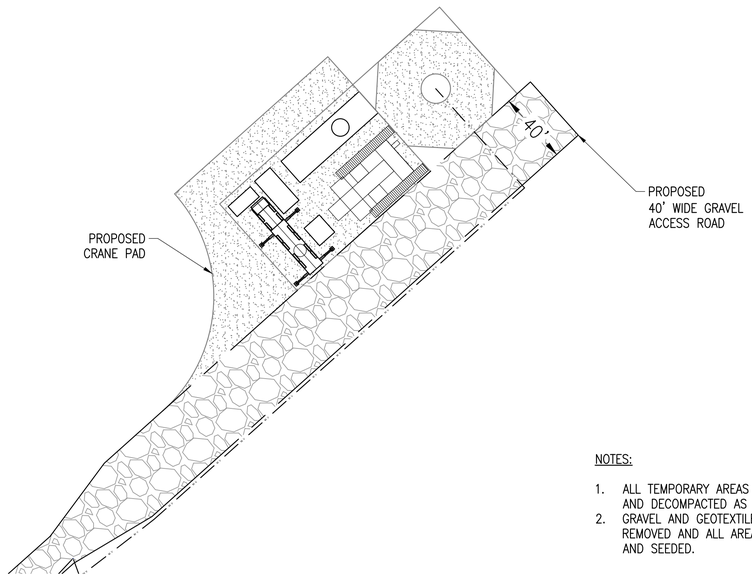
LAYOUT AND MATERIALS PLAN

SCALE: 1" = 60'

0 60' 120'

NOTE:

1. TOTAL ACREAGE OF IMPACTED WETLANDS = 0.21 ACRES
   TREE CLEARING = ~3.53 ACRES
   WETLAND DISTURBANCE = 0.21 ACRES
   TOTAL DISTURBANCE = 4.38 ACRES
   PERMANENT IMPERVIOUS = 1.09 ACRES



NOTES:

1. ALL TEMPORARY AREAS TO BE RESTORED AND DECOMPACTED AS NEEDED.
2. GRAVEL AND GEOTEXTILE FABRIC TO BE REMOVED AND ALL AREAS TO BE TOPSOIL AND SEEDED.

ENLARGED PERMANENT PLAN

SCALE: 1" = 40'

0 40' 80'

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30 CENTURY HILL DRIVE, SUITE 301
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PHONE: (888) 898-6273
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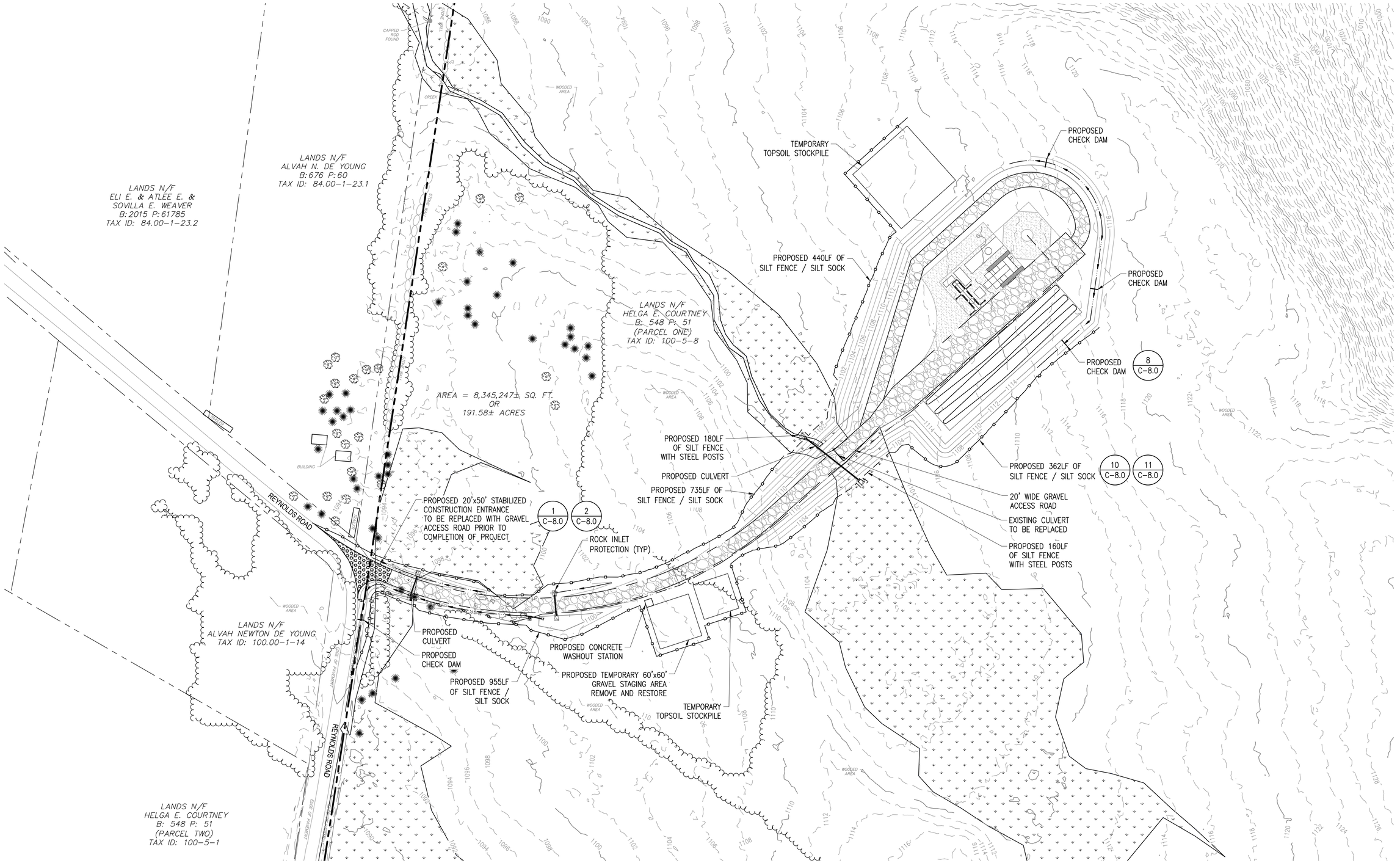
C-3.0
LAYOUT AND MATERIALS PLAN



EROSION CONTROL PLAN

SCALE: 1" = 60'

0 60' 120'

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30 CENTURY HILL DRIVE, SUITE 301
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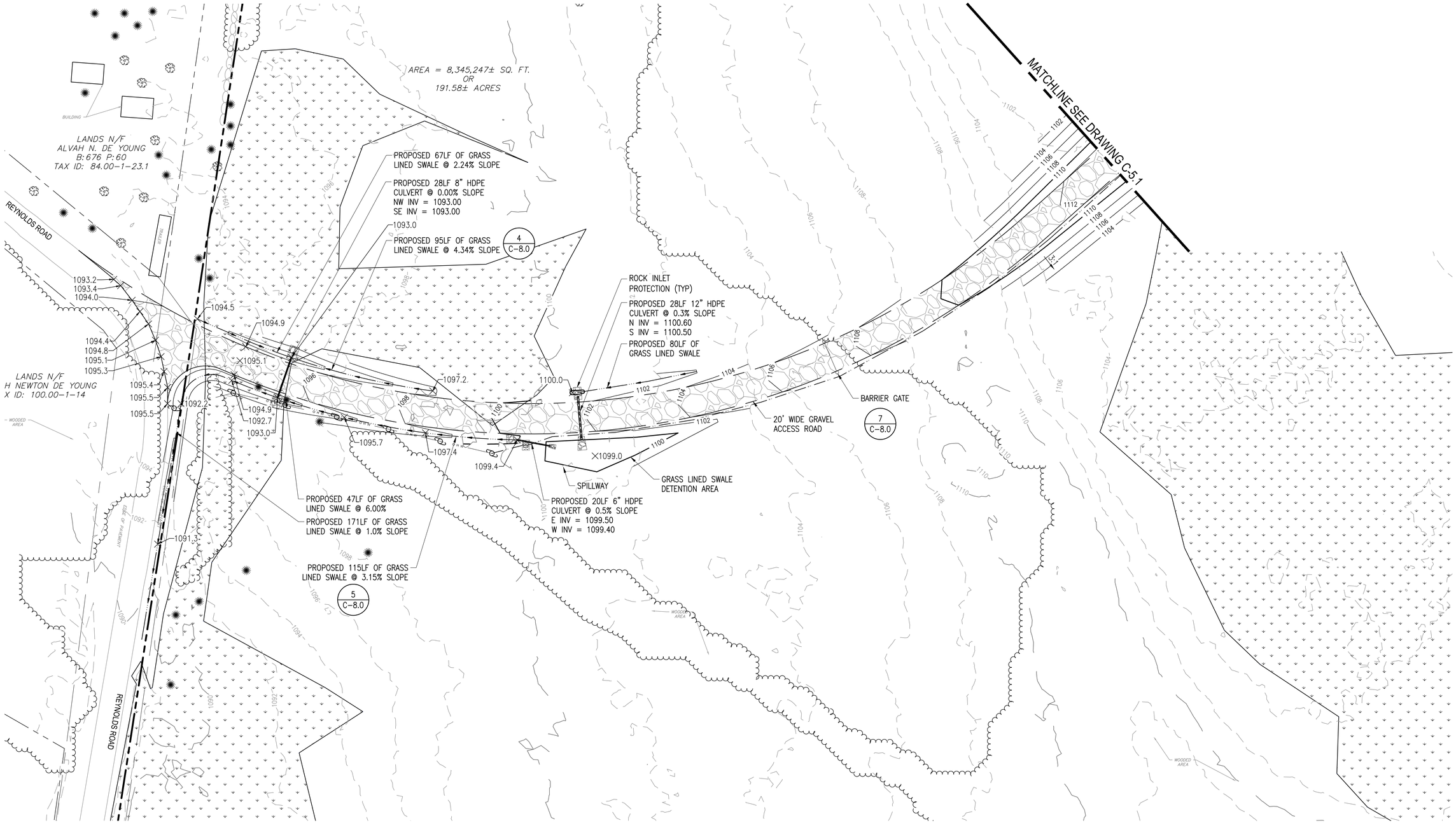
C-4.0
EROSION CONTROL PLAN



GRADING AND DRAINAGE PLAN

SCALE: 1" = 30'

0 30' 60'

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LATHAM, NY 12110
PHONE: (888) 898-6273
FAX: (888) 843-6778
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GHD Consulting Services Inc.
285 Delaware Avenue, Suite 500
Buffalo NY 14202 USA
T 1 716 856 2142 W www.ghd.com

NOT FOR CONSTRUCTION

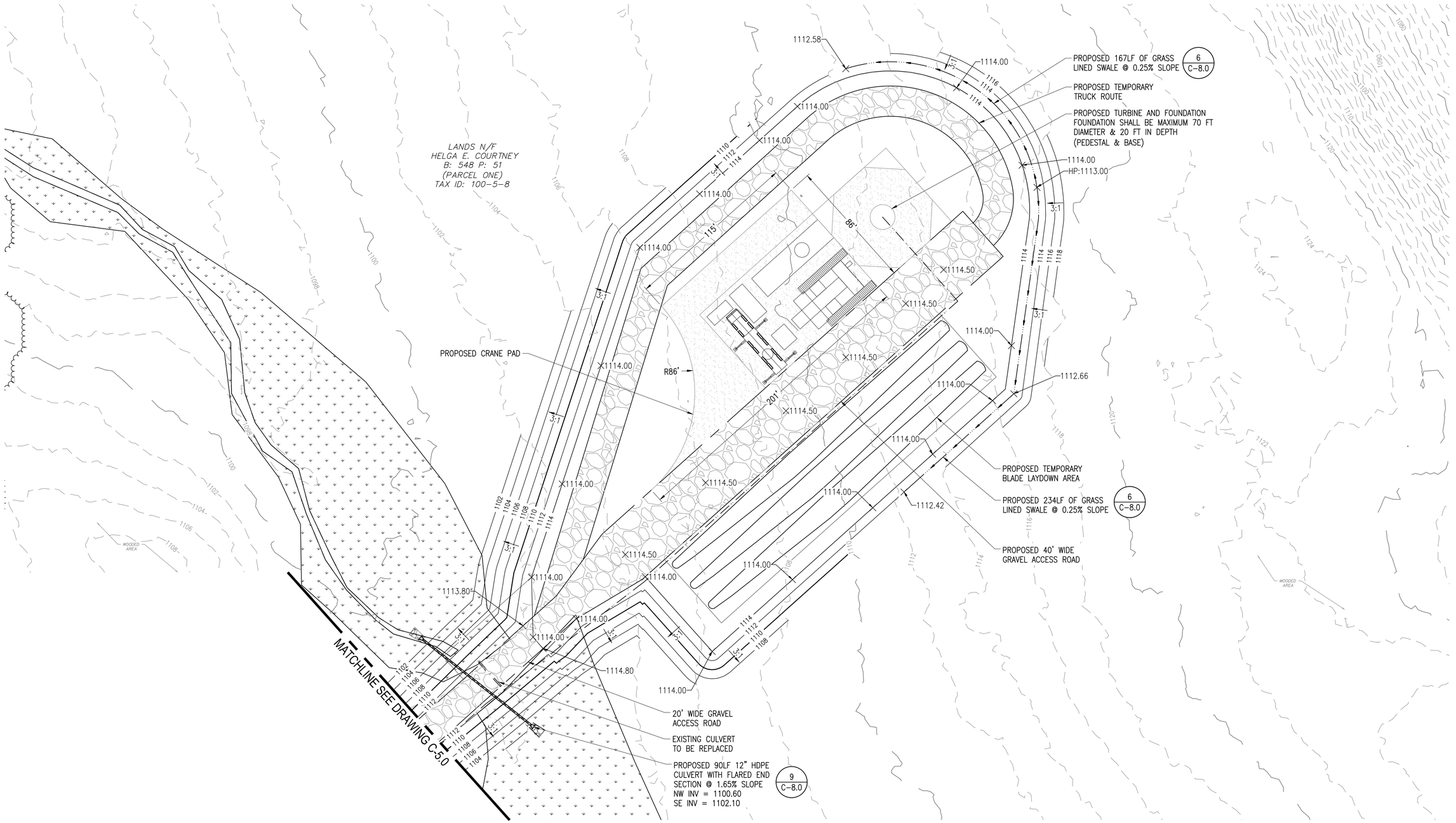
PLAN SET
411 REYNOLDS RD
411 REYNOLDS RD, FULTONVILLE, NY 12072

PROJECT NUMBER:
XXX-XXXX

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
	10/6/21	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	11/16/21	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	12/15/21	BLS	BLS	SITE USE PERMIT SET
	1/20/22	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	3/8/22	CRR	CLJ	TOWN ENGINEER CONSULTANT COMMENTS
	3/9/22	BLS	BLS	SITE USE PERMIT SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-5.0
GRADING AND DRAINAGE PLAN



GRADING AND DRAINAGE PLAN

SCALE: 1" = 30'

0 30' 60'

BORREGO
30 CENTURY HILL DRIVE, SUITE 301
LATHAM, NY 12110
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C-5.1
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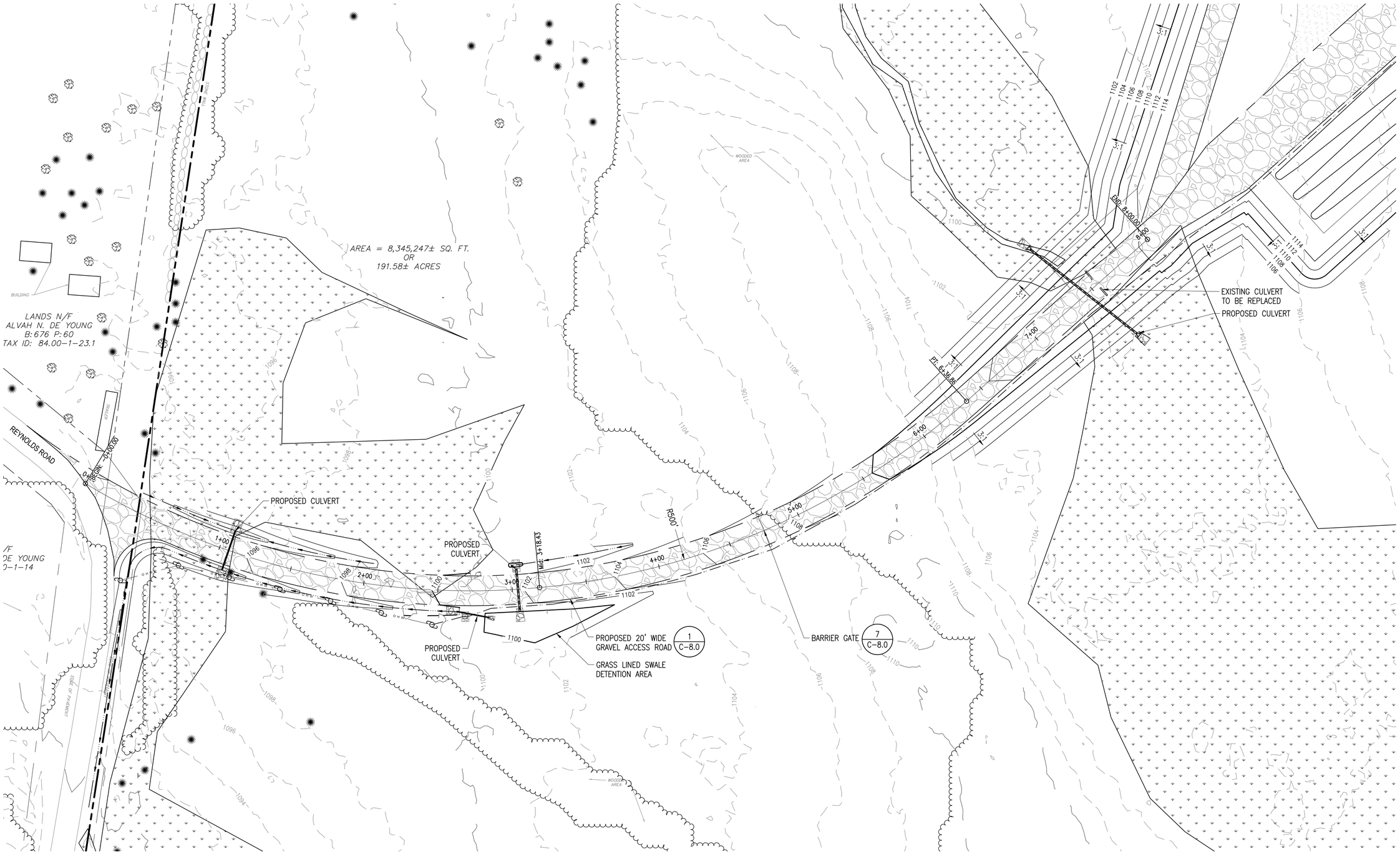

ACCESS ROAD PLAN

SCALE: 1" = 30'

0 30' 60'

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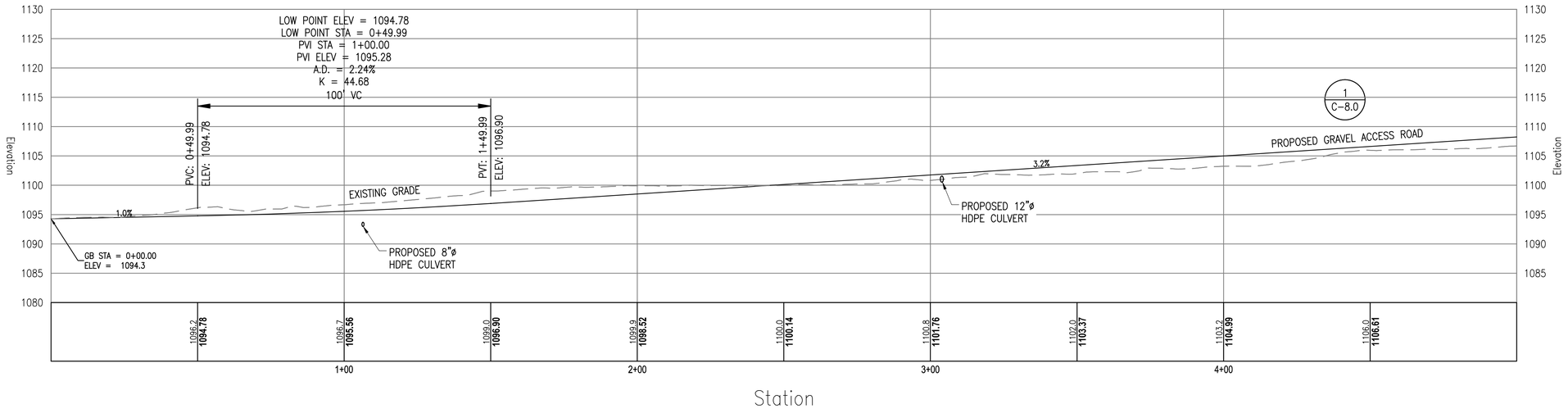
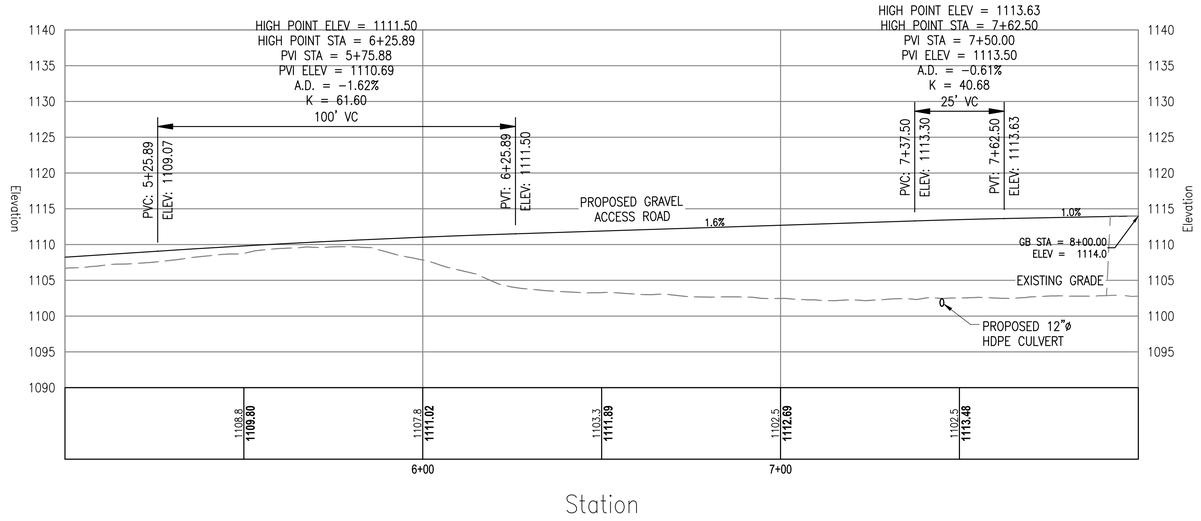
C-6.0
ACCESS ROAD PLAN



PROPOSED GRAVEL ACCESS ROAD PROFILE

SCALE: H: 1"=20' V: 1"=10'



ACCESS ROAD PROFILES

PROPOSED GRAVEL ACCESS ROAD PROFILE

SCALE: H: 1"=20' V: 1"=10'

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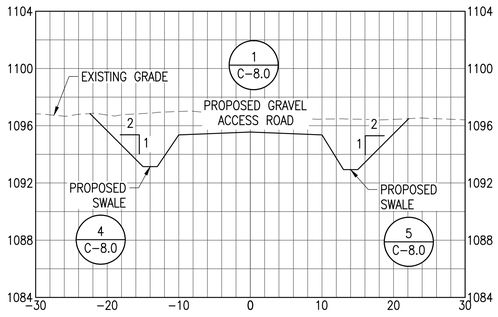
C-7.0
ACCESS ROAD PROFILES

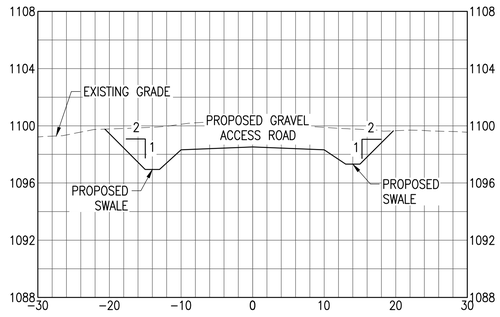
1+00



STATION 1+00

SCALE: H: 1"=10' V: 1"=5'

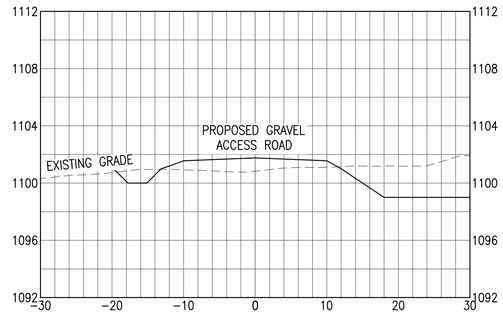
2+00



STATION 2+00

SCALE: H: 1"=10' V: 1"=5'

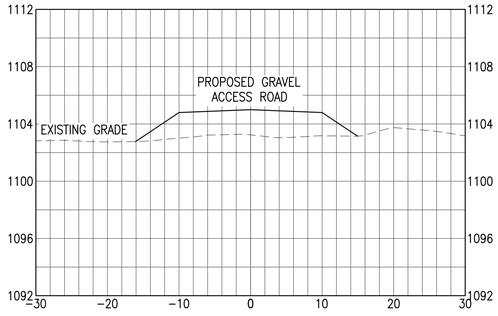
3+00



STATION 3+00

SCALE: H: 1"=10' V: 1"=5'

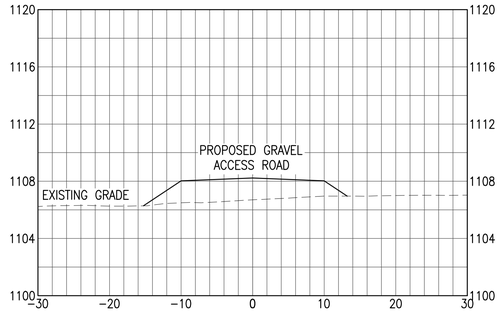
4+00



STATION 4+00

SCALE: H: 1"=10' V: 1"=5'

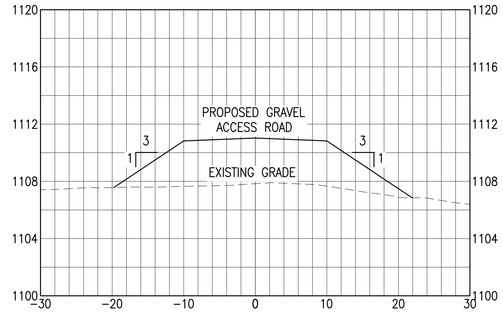
5+00



STATION 5+00

SCALE: H: 1"=10' V: 1"=5'

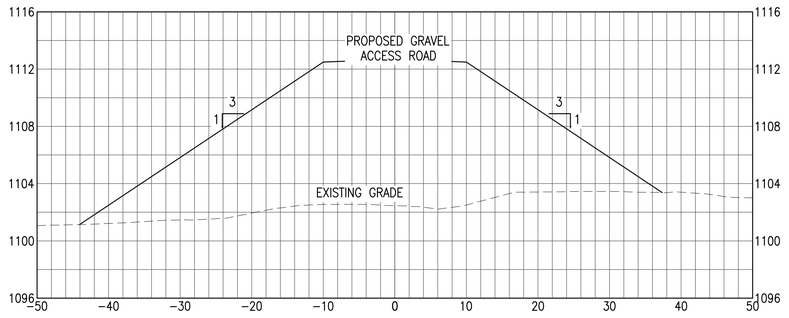
6+00



STATION 6+00

SCALE: H: 1"=10' V: 1"=5'

7+00



STATION 7+00

SCALE: H: 1"=10' V: 1"=5'

ACCESS ROAD SECTIONS

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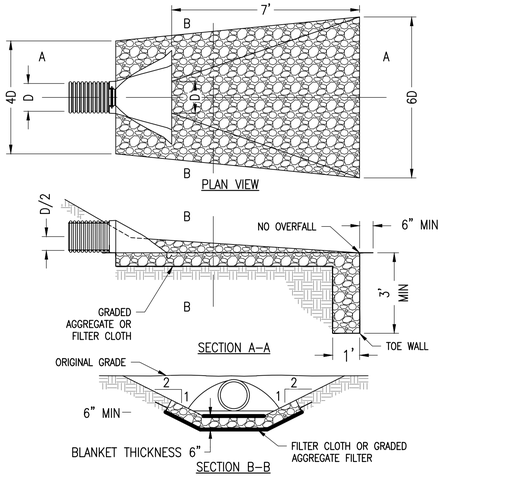
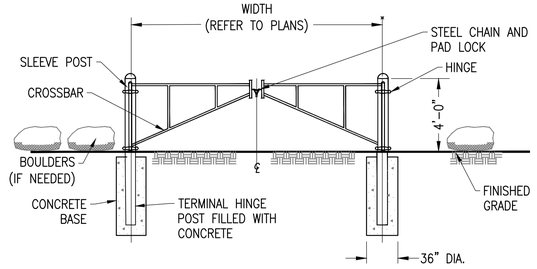
C-7.1
ACCESS ROAD SECTIONS



9 RIP-RAP OUTLET PROTECTION

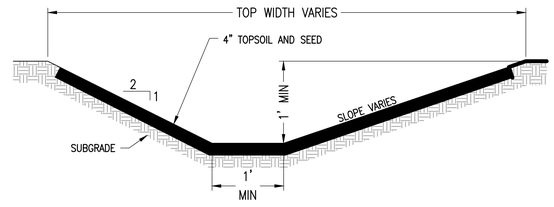
SCALE: NTS



NOTE:
CONTRACTOR SHALL ENSURE NO VEHICULAR ACCESS (INCLUDING MOTORCYCLES, ATV'S, ETC.) AROUND BARRIER GATE.

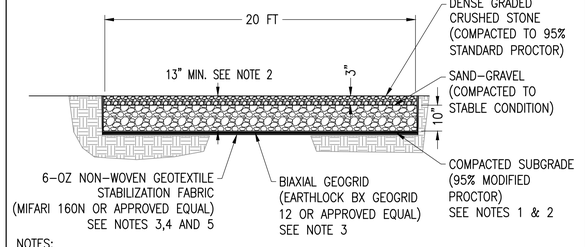
7 BARRIER GATE

SCALE: NTS



4 GRASS LINED SWALE OPTION 1

SCALE: NTS

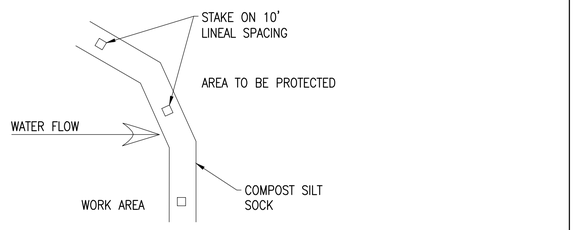


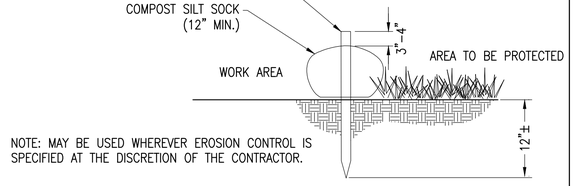
NOTES:
1. SUBCONTRACTOR SHALL EXCAVATE TO SUITABLE MATERIAL FOR SUBGRADE.
2. SUBCONTRACTOR SHALL COMPACT SUBGRADE TO PROVIDE SUITABLE SURFACE TO PLACE ROAD. REFER TO GEOTECHNICAL REPORT FOR SUBGRADE PREPERATION CRITERIA.
3. SUBCONTRACTOR SHALL FOLLOW MANUFACTURER INSTALLATION PROCEDURES.
4. WHERE OVERLAPPING OF GEOTEXTILE FABRIC IS REQUIRED, SUBCONTRACTOR SHALL OVERLAP A MINIMUM OF 24".
5. SUBCONTRACTOR SHALL REMOVE TEMPORARY CONSTRUCTION ACCESS ROADS, AND RESTORE TO PRE–CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE CEOR AND THE GOVERNING AGENCIES.
6. SUBCONTRACTOR SHALL INSTALL CONDUITS FOR ALL ELECTRICAL CONDUIT CROSSINGS PRIOR TO INSTALLATION OF THE GEOGRID MATERIAL. THE GEOGRID SHALL NOT BE HORIZONTALLY CUT ONCE INSTALLED.
7. COMPACT CRANE PAD TO PROVIDE A GROUND BEARING CAPACITY OF NOMINAL 5,000 POUNDS PER SQUARE FOOT IN WET OR DRY CONDITIONS.

1 GRAVEL ACCESS ROAD / CRANE PAD

SCALE: NTS

XD_CIVIL_GRAVEL_ROAD_IL 04-30-2019



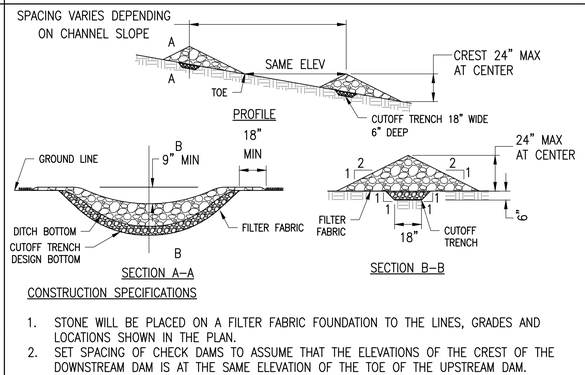


NOTE: MAY BE USED WHEREVER EROSION CONTROL IS SPECIFIED AT THE DISCRETION OF THE CONTRACTOR.

10 COMPOST SILT SOCK

SCALE: NTS

XD_CIVIL_FILTREXX_FILTER_SOCK 03-29-2016

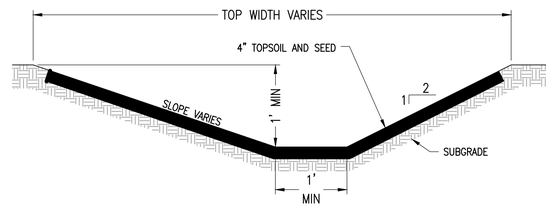


CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 18" BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
6. MINIMUM DRAINAGE AREA 2 ACRES

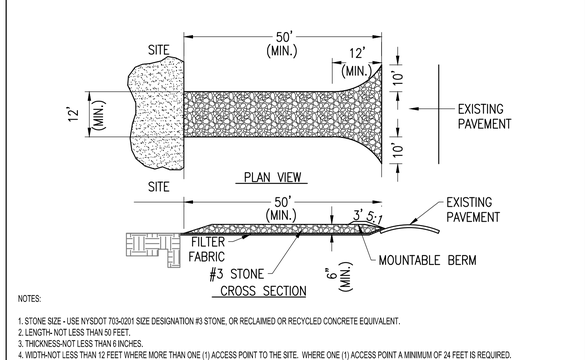
8 CHECK DAM

SCALE: NTS



5 GRASS LINED SWALE OPTION 2

SCALE: NTS



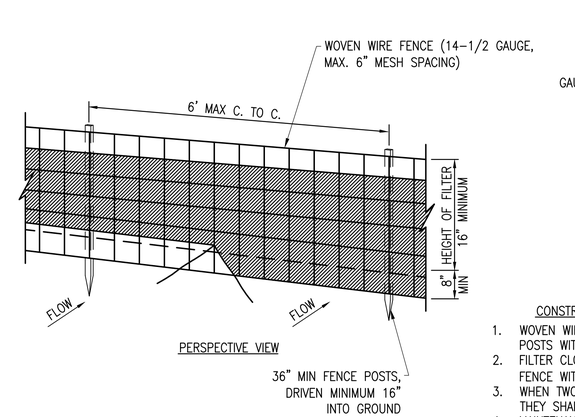
NOTES:

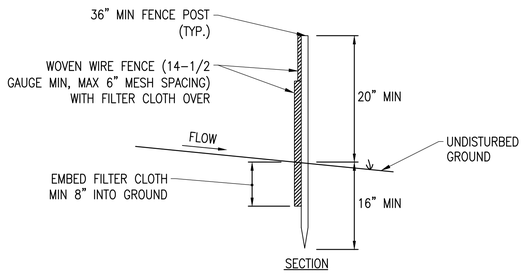
1. STONE SIZE - USE NYSDOT 703-0201 SIZE DESIGNATION #3 STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50 FEET.
3. THICKNESS-NOT LESS THAN 6 INCHES.
4. WIDTH-NOT LESS THAN 12 FEET WHERE MORE THAN ONE (1) ACCESS POINT TO THE SITE. WHERE ONE (1) ACCESS POINT A MINIMUM OF 24 FEET IS REQUIRED.
5. GEOTEXTILE-SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER-SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5: 1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE-THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
8. WHEN WHEEL WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

2 STABILIZED CONSTRUCTION EXIT

SCALE: NTS

XD_CIVIL_TEMPORARY CONSTRUCTION_STABILIZED CONSTRUCTION EXIT_NY 2019-04-02





CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

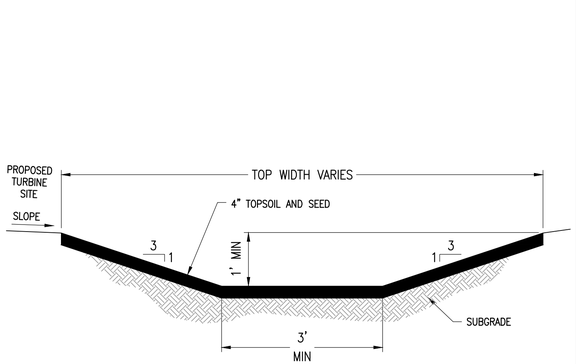
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.

POSTS: STEEL, EITHER T OR U TYPE OR 2" HARDWOOD
FENCE: WOVEN WIRE, 14 GAUGE 6" MAX. MESH OPENING
FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

11 SILT FENCE DETAIL

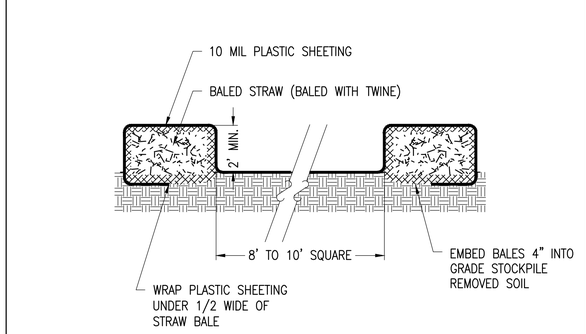
SCALE: NTS

XD_CIVIL_SILT-FENCE-DETAL 03-07-2016



6 GRASS LINED SWALE OPTION 3

SCALE: NTS



NOTES:
1. BASIN SHALL BE INSPECTED DAILY.
2 .PLASTIC SHEETING SHALL BE FREE OF TEARS OR HOLES. DAMAGED OR LEAKING BASINS SHALL BE REPLACED OR REPAIRED IMMEDIATLY.
3. ACCUMULATED HARDENED MATERIAL SHALL BE REMOVED WHEN 75% OF THE STORAGE CAPACITY OF THE BASIN IS FILLED. WASHWATER FROM WASHOUT BASIN SHALL EVAPORATE OR BE VACUUMED OUT. REMOVE REMAINING HARDENED SOLIDS. REPLACE PLASTIC SHEETING WITH EACH CLEANING. REPLACE STRAWBALES AS REQUIRED.
4. DISPOSE OF HARDENED MATERIAL OFF–SITE OR PER THE PROJECTS SWPPP.

3 CONCRETE WASHOUT BASINS

SCALE: NTS

XD_CIVIL_CONCRETE WASHOUT BASINS 07-26-2017

BORREGO
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LATHAM, NY 12110
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C-8.0
CIVIL DETAILS NY


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