STORMWATER POLLUTION PREVENTION PLAN & STORMWATER DESIGN REPORT

BUFA – PROJECT DOUBLE REED
TOWN OF ALABAMA

SBL 10.-1-42 (Portion)/SBL 10.-1-41
6840 CROSBY ROAD
TOWN OF ALABAMA
GENESSEE COUNTY, NEW YORK

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I. INTRODUCTION

This property had previously been approved, and construction started, for a Hydrogen Production Facility for Plug Power. This is described in a report entitled "Plug Power Hydrogen Production Facility, STAMP Project Gateway, Stormwater Pollution Prevention Plan" dated May 21, 2021, last revised May 1, 2023.

This tract contains an area of approximately 29.096 acres (excluding the highway right of way). The approved stormwater management design for this tract includes a bio-retention basin, a vegetated sediment basin and a vegetated dry detention basin. In addition, a vegetated swale was constructed along the southern and western boundaries of the tract which cuts off and directs runoff from off-site areas around the tract and discharges to the adjacent wetland area to the west. All of these facilities have been constructed other than the installation of the landscaping within the bio-retention basin. These plantings will be constructed in accordance with the previously approved plans and which are detailed on the site plans prepared by Bowman.

The approved stormwater management design was based upon a total of 19.27 acres of impervious cover, which included gravel surfaces (9.45 acres); paved parking (6.27 acres); building/roof areas (2.35 acres) and unconnected pavement (1.20 acres). We also note that the prior development application was designed and approved in accordance with the New York State Stormwater Management Design Manual (January 2015). Our evaluation of the current conditions on the site and the proposed redevelopment of the site are being evaluated under the design criteria set forth in the New York State Department of Environmental Conservation's (NYSDEC) "Stormwater Management Design Manual" (SWM Design Manual) dated July 31, 2024.

At the time of the preparation of this report, the site has been disturbed and in addition to the constructed stormwater management facilities, the site contains approximately 21 acres of gravel surfaces, construction trailers and equipment (24,300 SF +/-), and a guard house (250 SF +/-). The proposed development of this tract by SDC is for an approximately 664,000 gross square foot two-story data center with associated paved parking areas, paved internal driveways, gravel generator yards and requisite utility improvements. The existing on-site sub-station (gravel surface) will remain (approx. 44,200 SF +/-). The total impervious coverage for the proposed development is 14.22 acres, a decrease of 7.04 acres (32.2% decrease) from that which exists. Impervious coverage includes building, pavement, concrete and gravel surfaces. The breakdown of the proposed areas is 333,375 SF (7.65 AC) building coverage; 170,420 SF (3.91 AC) pavement and concrete surfaces; 136,266 SF (3.13 AC) gravel surface area; and approx. 311,950 SF (7.16 AC) open space within the total 22.89 AC Redevelopment Activity Area.

As this tract has already been disturbed and construction commenced for the previously approved hydrogen production facility, the stormwater management design for the

current development is analyzed under the provisions of Chapter 9 “Redevelopment Activity” of the SWM Design Manual. The project Redevelopment Area is 21.88 acres.

Chapter 9 of the NYSDEC’s Design Manual describes alternate approaches for addressing stormwater management that involve the disturbance and reconstruction of existing impervious surfaces. The existing stormwater management facilities that have been constructed will remain and will not be modified other than reconstruction of portions of the existing upstream conveyance system to accommodate the current design parameters associated with the proposed data center and associated improvements. However, the discharge points and connections into and out of the stormwater facilities will remain as original designed, approved and constructed. The tributary flows to these discharge points are equal to or less than those previously designed and approved for all studied storm events, in accordance with Design Manual requirements for redevelopment activity.

This report has been prepared to accompany the set of plans entitled “BUFA – Project Double Reed South Campus, Town of Alabama, Genesee County, New York,” prepared by Bowman Consulting Engineering, Land Surveying & Landscape Architecture, P.C., dated January 9, 2026.

This Report has been prepared to describe the proposed stormwater improvements, applicable regulatory and design requirements, the proposed stormwater design, and compliance with regulatory and design requirements for the subject project.

Subsection I-A below provides further information as to the project’s location, as well as a description of the current site conditions. Subsection I-B provides a more detailed description of the proposed project.

This report explains the design of the existing on-site stormwater management system and impacts of proposed improvements, applicability to current stormwater regulations, and design strategies, which are summarized in Subsection II-A of this report. The appendices of this report contain engineering calculations and related technical documentation supporting the design information presented herein.

A. Location and Description of Project Site

The project site is located within the Science & Technology Advanced Manufacturing Park (STAMP) in the Town of Alabama, Genesee County, New York. The property is located at 6840 Crosby Road. The subject parcel is identified as SBL 10.-1-41 (partial) and SBL 10.-1-42.2 with a total parcel area of 29.096 acres (excluding the right of way). The STAMP site has been rezoned as a Technology District (TD) with three (3) sub-districts, TD1, TD2 and TD-3. The subject site is located in Sub-District TD-1 which permits technology manufacturing, office buildings, warehousing and

distribution, technology/environmental demonstration facilities and a number of other uses.

The project site is currently partially developed in accordance with the previously approved Plug Power hydrogen production facility, including stormwater management facilities and an on-site sub-station. The entire disturbed portion of the site is surfaced with gravel (approximately 21 acres), a trailer complex and a guard house. The approved stormwater management design for this tract includes a bio-retention basin, a vegetated sediment basin and a vegetated dry detention basin. In addition, a vegetated swale was constructed along the southern and western boundaries of the tract which cuts off and directs runoff from off-site areas around the tract and discharges to the adjacent wetland area to the west.

The site has approximately 693 feet of frontage along the westerly side of Crosby Road. To the north there is a tributary which flows from east to west which accepts the runoff from the developed portions of the site. Adjacent lands to the south and west contain some wetland areas but these areas have not been and will not be disturbed by the proposed redevelopment activities. The parcel to the north of the subject site is designated in part for STAMP utility uses. The western portion of this area has already been cleared and provided with a gravel surface. Transmission lines extend through this parcel and then branch off to serve the subject parcel and the previously constructed sub-station. Refer to Appendix A for site location figures.

The existing project site is generally flat with slopes of approximately 2% +/-, and steeper slopes of approximately 1:3 at existing berms located along the eastern property boundary and southern and western swale side slopes at the southern and western property boundaries. The side slopes of the existing stormwater BMP's located at the northern property boundary are approximately 1:3. Elevations range from approximately elev. 679.00 (NAVD88) at the eastern end of the property to to approximately elev. 663.00 in the existing bioretention basin BMP.

The localized low points are drained by existing catch basins and are conveyed via pipe to an existing network of stormwater BMP's as noted above. Stormwater is discharged from the existing BMP's via pipe to existing outfalls and into an existing tributary to Oak Orchard Creek (Oak Orchard Creek, Upper and Tribs).

This segment of the receiving waters is impaired by the pollutant phosphorus, as indicated in Appendix D – 303(d) Segments Impaired by Construction Related Pollutants(s) of the New York State Department Of Environmental Conservation SPDES General Permit For Stormwater Discharges From Construction Activity (Permit No. GP-0-25-001), Effective Date: January 29, 2025, Expiration Date: Jan. 30, 2030. The project site watershed is <u>not</u> part of an Enhanced Phosphorous Removal Watershed.

The site is located in Zone X, an area of minimal flood hazard as per the FEMA Flood Insurance Rate Map Number 36037C0135E, effective date Preliminary Issue Date 03/03/2025.

The existing on-site underlying soils are type CaA – Cananadaigua silt loam, CIB – Collamer silt loam, La – Lakemont silty clay loam, NgA – Niagara silt loam, and OdB – Odessa silt loam. These soil groups area categorized as **Hydrologic Soil Group D soils** with low infiltration rates and a high stormwater runoff potential. Refer to Appendix B of this report for a site soils report and map taken from the US Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey, dated December 16, 2025.

B. Project Description

As indicated above, the proposed improvements include but are not limited to construction of a 664,000 gross square foot two-story building, a one-story guard house, paved parking and drive aisles, an internal loop road, paved access to the existing substation, two proposed one-way driveways intersecting with existing Crosby Road, security fencing, gravel generator yards, lighting, landscaping and requisite utility improvements. **The proposed project disturbance area is 22.89 acres.**

The proposed project will decrease the total on-site impervious surface area by approximately 8.67AC, a decrease of 37.9% of the redevelopment activity area impervious. Impervious surfaces include building roof, pavement, concrete surfaces, and gravel surfaces. The proposed improvements are depicted on the Post-Development Drainage Area Map located in Appendix J.

II. EROSION AND SEDIMENT CONTROL & POST-CONSTRUCTION STORMWATER MANAGEMENT DESIGN REQUIREMENTS

This section of the report describes the application of regulatory requirements to the proposed Soil Erosion and Sediment Control and Post-Construction Stormwater Management design strategies. Subsection A provides a brief overview of the regulatory requirements, while Subsection B provides information pertaining to specific engineering methodologies employed for demonstrating compliance of the project's erosion and sediment control and stormwater management system to regulatory requirements. Subsection C describes the existing conditions studied and summarizes the results of the calculations completed to estimate existing stormwater runoff rates and volumes from the studied area. The proposed stormwater conditions applied to the site are described in Subsections D and E, respectively. Finally, Subsection F summarizes the project's stormwater management design's compliance with each of the applicable requirements summarized in Subsection A.

A. Overview of Regulatory Requirements and Design Standards

Town of Alabama:
The Town of Alabama Zoning Law requires New York State Department of Environmental Conservation (DEC) permits where applicable. Other municipal standards provide for general drainage requirements.

New York State Department of Environmental Conservation (DEC) - State Pollutant Discharge Elimination System (SPDES) General Permit For Stormwater Discharges From Construction Activity (Permit No. GP-0-25-001):

The proposed project will require land disturbance greater than one (1) acre and is therefore required to obtain permit coverage under the State Pollutant Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities. The current general permit is the New York State Department of Environmental Protection SPDES General Permit For Stormwater Discharges From Construction Activity Permit No. GP-0-25-001, effective date January 29, 2025, expiration date January 28, 2030. Refer to the SWPPP for a copy of the General Permit. The General Permit defines design standards for Erosion and Sediment Control and Post-Construction Stormwater Management (PCSM) Practice requirements.

Erosion and sediment control requirements include:

a. Design, install and maintain effective erosion and sediment controls to minimize the discharge of pollutants and prevent a violation of the water quality standards;
b. Soil Stabilization;
c. Dewatering;
d. Pollution Prevention Measures;
e. Prohibited Discharges
f. Surface Outlet protection;

As noted above, the existing site consists of gravel surfaces only and therefore **the proposed project disturbance and reconstruction is a Redevelopment Activity**. The existing gravel surfaces have been compacted and are considered impervious in accordance with the General Permit definitions.

The General Permit defines the Post Construction Stormwater Management (PCSM) requirements and SMP sizing criteria for Redevelopment Activity in Part II. C.2.c as follows:

i. Water Quality Volume ("WQv") – The proposed project addresses the WQv treatment objective through reduction of impervious cover by a minimum of

25% of the total disturbed, impervious area. Soil Restoration criteria in Section 5.1.6 of the NYS Design Manual must be applied to all newly created pervious areas.

ii. Channel Protection Volume ("Cpv") – is not required if there is 0% change to hydrology that increases the discharge rate and volume from the project site. CPv is the 24-hour extended detention of the post-developed 1-year, 24-hr design storm.

iii. Overbank Flood Control Criteria ("Qp") – is not required if there is 0% change to hydrology that increases the discharge rate from the project site. Qp is the 10-year, 24-hour design storm peak flow rate.

iv. Extreme Flood Control Criteria ("Qf") – is not required if there is 0% change to hydrology that increase the discharge rate from the project site. Qf is the 100-year, 24-hour design storm peak flow rate.

Stormwater Pollution Prevention Plan (SWPPP):

Projects applying for coverage under the SPDES General Permit for Stormwater Discharges From Construction Activity are required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP prepared for the proposed project is supplemental to this Report.

The SWPP has been prepared in compliance with NYS SPDES General Permit for Stormwater Discharges From Construction Activity.

B. Strategy and Methodologies

This section of the report describes the engineering methodologies employed for the design of the project's stormwater management system. Specifically, the methods used for the preparation of the Project's stormwater management design are as follows:

1. Estimates of Runoff Rates and Volumes

    - Pre-Development versus Post-Development Peak Rates and Volumes:

    The hydrologic estimates and modeling conducted for the design of the Project's stormwater management system utilized the NRCS Technical Release 20, (TR-20) program and the SCS Unit Hydrograph, in accordance with NY State Stormwater Design Manual requirements. This method can provide total

stormwater runoff volume and peak flow rates; and is appropriate for the proposed project watershed size. Design storm frequencies of the 1-, 10-, 25- and 100-year 24-hour storms were modeled, as required to compare pre-development and post-development stormwater flows and volumes. The models indicated within this Stormwater Management Report, used stormwater rainfall depths taken from National Oceanic and Atmospheric Administration (NOAA) Atlas 14 data for the project site (Lat 43.0822°, Long -77.4041°). Refer to Appendix C for site rainfall data. A predefined NOAA Type A storm curve was used as developed by NRCS for Atlas 14 rainfall distributions for Northeast states. Design storm 24-hour rainfall depths are as follows:

- 1-year = 1.89 inches
- 10-year = 3.26 inches
- 25-year = 3.91 inches
- 100-year = 4.90 inches

- Water Quality Volume:

  - Water Quality Volume (WQv) is defined by New York State as the volume of stormwater runoff generated from the 90th percentile rain event and shall be calculated using the following equation:

    WQv = (P * Rv * A) / 12

    Where,

    P = 90% rainfall event number (taken from NYS Stormwater Design Manual Figure 4.1) = 1.0 for Project Site (Refer to Appendix A for copy of Figure 1 noting project site location)

    Rv = 0.05 + 0.009(I)

    I = percent impervious cover

    A = contributing drainage area (acres)

- Runoff Coefficients and Times of Concentration:

Stormwater runoff coefficients (CN values) were based on NRCS TR-55 Chapter 2 Estimating Runoff. As noted above, the project site underlying soils are classified as hydrologic soil group D (HSG D). Refer to Appendix C for CN values used in the hydrologic model as taken from TR-55 Chapter 2 tables. A summary is presented below:

Land Cover	**HSG D**
Impervious/Roof/Pavement (Table 2-2a)	98
Woods, fair (Table 2-2c)	79

Open Space, Good condition (Table 2-2a)	80
Gravel (Table 2-2a)	91
Meadow, non-grazed (Table 2-2c)	78
Brush, fair	77

Note that a CN of 91 is used for existing and proposed gravel surfaces in accordance with TR-55 CN values and appropriate for the project site poorly draining HSG D soils. This is a revision from the approved stormwater analysis. Times of concentration were calculated in accordance with TR-55 Chapter 3. A maximum sheet flow length of 100 ft was used for pre-development and post-development conditions. A maximum runoff coefficient of 0.4 was used for wooded areas. Times of concentration were calculated for each land cover type of each sub-watershed. Refer to Appendix D and Appendix E for time of concentration calculations.

Times of concentration calculations, estimates of peak runoff rates and volumes determined in accordance with NRCS TR-55 methodology were calculated using HydroCAD design software version 10.20. HydroCAD is a computer aided design tool used for modeling hydrology and hydraulics of stormwater runoff.

- Weighted Average Volume Technique:

The use of weighed or composite curve numbers that average both pervious and impervious CN values underestimates runoff volume. As such, runoff from impervious surfaces and pervious surfaces are calculated separately in the hydrograph model. The “Weighted-Q” option in HydroCAD calculates runoff for each CN separately and then combines volumes. The Weighted-Q option has been applied to the calculations. Sub-categories for each land cover type have been provided in the Hydrograph model for clarity.

- Points of Analysis:

A point located upstream of the existing stormwater management facilities is used as the point of analysis. This analysis point represents all upstream inflow into the existing stormwater management facilities that are not being disturbed.

2. Stormwater Conveyance Sizing Criteria:

In accordance with Section 4.11 of the 2024 NYS Stormwater Design Manual, stormwater convenance piping shall be sized for the 10-year/24-hr design storm as a minimum sizing criteria;

Piped conveyance capacity calculations were prepared using Bentley OpenFlows StormCAD (Connect Edition update 3), a stormwater hydraulics design software tool. Calculations in StormCAD are performed using the rational method. NOAA Atlas 14 rainfall data for the project site was used for intensity-duration curves used in conveyance sizing calculations. Refer to Appendix C for project site precipitation intensity data. Refer to Appendix H for capacity calculations.

3. Soil Erosion and Sedimentation Control

Proposed erosion and sediment control measures for the project have been selected and designed in accordance with New York State Standards and Specifications for Erosion and Sediment Control (Blue Book), dated November 2016. Erosion and sediment control measures shall be installed and maintained in accordance with Blue Book requirements and conditions of the SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-25-001.

C. Existing Drainage Areas and Stormwater Runoff Estimates

In pre-development conditions, the project site drains by one on-site watershed. Refer to the Pre-Development Drainage Area Map in Appendix J for pre-development watershed delineations.

- Existing Drainage Area 1, X-DA-1:
  Existing drainage area 1 is comprised of majority of the project site and includes all stormwater runoff piped to the existing stormwater management practices. Refer to Appendix J for the Existing Drainage Area Map and Appendix D of this Report contains TR-55 calculations for the existing drainage areas.

- Existing Drainage Area 2, X-DA-2:
  Existing drainage area 2 is comprised of overland inflow into the existing bioretention basin.

- Existing Drainage Area 3, X-DA-3:
  Existing drainage area 3 is comprised of overland inflow into the existing sediment basin (bioretention pretreatment impoundment).

- Existing Drainage Area 4, X-DA-4:
  Existing drainage area 4 is comprised of overland inflow into the existing detention basin.

D. Approved Site Plans Drainage Areas and Stormwater Runoff Estimates

Approved drainage design hydrology was taken from a report entitled "Plug Power Hydrogen Production Facility, STAMP Project Gateway, Stormwater Pollution Prevention Plan" dated May 21, 2021, last revised May 1, 2023.

The approved hydraulic model was recreated in HydroCAD to compare approved peak flows and volumes to post-development peak flows and volumes. Design storm depths as noted above were used in the recreated model. Refer to Appendix J for the approved drainage area map and Appendix D for the hydrographs taken from the recreated approved design.

E. Geotechnical Investigation Design Testing

A geotechnical investigation was previously performed by Glynn Group Engineering & Architecture, PLLC to log soils and determine groundwater elevations. Additional geotechnical investigation will be performed to confirm the design of the proposed stormwater management practice (SMP).

F. Description of Post-Construction Stormwater Management And Drainage Areas

In post-development conditions, the drainage patterns of the approved site are maintained. Stormwater runoff from the majority of the project site is collected and conveyed to the exiting stormwater management facilities.

The project must meet post-construction stormwater management design requirements for redevelopment activity as outlined in the SPDES General Permit GP-0-25-001 for post-development stormwater runoff draining to the Point of Analysis. The project proposed one stormwater management practice to meet hydrologic requirements for the redevelopment activity. A Dry Swale stormwater management practice (type O-1 in the NYS Design Manual) is proposed.

Proposed SMP-A Dry Swale

A 298 LF dry swale stormwater management practice is proposed to provide stormwater attenuation and meet the hydraulic requirements for redevelopment activity. The proposed dry swale will be located east of the proposed building adjacent to proposed parking areas. Runoff from the parking areas and portions of roadway will flow overland into the proposed SMP. A 2 ft deep x 2 ft wide gravel diaphragm with a flush concrete curb is proposed where there is direct inflow into the swale. There is no piped inflow into the swale.

The proposed dry swale will include an 8 ft wide bottom, 1:8 side slopes at a 0.6% slope. The dry swale will be comprised of 30" of filter media, a 10" drainage layer, filter fabric, and perforated PVC underdrain as required. An outlet structure located at the downstream end of the swale will provide controlled release of impounded stormwater.

Refer to the NYS stormwater spreadsheets in Appendix G for the proposed SMP design.

Post-Development (Proposed) Drainage Areas:

- Proposed Drainage Area, P-DA-1A:
  Proposed drainage area 1A is the post-development inflow area into proposed SMP-A Dry Swale.

- Proposed Drainage Area, P-DA-1B:
  Proposed drainage area 1B is the post-development inflow area piped into the existing stormwater management facilities.

- Proposed Drainage Area, P-DA-2:
  Proposed drainage area 2 is comprised of the post-development overland flow into the existing bioretention basin.

- Proposed Drainage Area 3, P-DA-3:
  Proposed drainage area 3 is comprised of the post-development overland inflow into the existing sediment basin (bioretention pretreatment impoundment).

- Proposed Drainage Area 4, P-DA-4:
  Proposed drainage area 4 is comprised of the post-development overland inflow into the existing detention basin.

G. Post-Construction Stormwater Management Sizing Design

Post-construction stormwater management practices were sized in accordance with SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-25-001 sizing criteria for Redevelopment Activity.

Point of Analysis 1

The project proposes a dry swale stormwater management practice (SMP-A) to meet the applicable stormwater regulations. The proposed dry swale has been designed in accordance with SMP O-1 design criteria as indicated int the 2024 NYS Stormwater Management Design Manual and sized in accordance with the General Permit sizing criteria for New Development. Refer to the NYSDEC 2024 Design Manual GI Excel worksheet and sizing calcs located in Appendix G.

i. Water Quality Volume, WQv:
The post-development impervious area is decreased by 37.9% from existing conditions in the redevelopment activity area. **(COMPLIES)**

ii. Channel Protection Volume, Cpv:
The TR-55 proposed hydrograph model was used to determine 1-year/24-hour design flows and volumes in comparison to peak flows and volumes from the recreated approved post-development design hydraulic model.

TABLE No. 1
SUMMARY OF 1-YEAR / 24-HOUR DESIGN STORM
PEAK FLOWS & VOLUMES TO POINT OF ANALYSIS 1 (CFS)

DRAINAGE AREA	1-YR STROM PEAK FLOW (CFS)	1-YEAR STORM VOLUME (ac-ft)
Approved Design to POA-1	**27.15**	**2.427**
Proposed Design to POA-1	**23.76**	**2.313**

There is a decrease in peak flows and volumes from the 1-year/24-hr design storm from the approved design hydrology; therefore CPv is not required (**COMPLIES).**

iii. Overbank Flood Control Criteria, Qp:
The TR-55 proposed hydrograph model was used to determine 10-year/24-hour design flows and volumes in comparison to peak flows

and volumes from the recreated approved post-development design hydraulic model.

TABLE No. 2 SUMMARY OF 10-YEAR / 24-HOUR DESIGN STORM PEAK FLOWS & VOLUMES TO POINT OF ANALYSIS 1 (CFS)	
DRAINAGE AREA	**10-YR STORM PEAK FLOW (CFS)**
Approved Design to POA-1	**54.51**
Proposed Design to POA-1	**48.01**

There is a decrease in peak flows from the 10-year/24-hr design storm from the approved design hydrology; therefore, Qp is not required (**COMPLIES).**

iv. Extreme Flood Control Criteria, Qf:
The TR-55 proposed hydrograph model was used to determine 100-year/24-hour design flows and volumes in comparison to peak flows and volumes from the recreated approved post-development design hydraulic model.

TABLE No. 2 SUMMARY OF 100-YEAR / 24-HOUR DESIGN STORM PEAK FLOWS & VOLUMES TO POINT OF ANALYSIS 1 (CFS)	
DRAINAGE AREA	**100-YR STORM PEAK FLOW (CFS)**
Approved Design to POA-1	**88.12**
Proposed Design to POA-1	**78.37**

There is a decrease in peak flows from the 100-year/24-hr design storm from the approved design hydrology; therefore, Qf is not required (**COMPLIES).**

G. Proposed OS Riser Emergency Spillway Design

The proposed dry swale SMP does not have any overland emergency spillway relief as the design includes overland inflow only. A riser spillway via overtopping of the proposed outlet structure is proposed. The 10-year design storm inflow was used for calculation in head elevation over the riser crest and associated freeboard in the SMP. Refer to Appendix G for emergency spillway calculations.

H. Proposed Stormwater Conveyance Sizing

The proposed stormwater conveyance piping has been sized to convey stormwater flows from the 10-year design storm, in accordance with NYS Design Manual standards. A Manning's Coefficient of n=0.013 was used to provide a conservative analysis of capacity for HDPE or RCP pipe; and n=0.011 for PVC pipe.

Stormwater pipe capacity calculations were prepared using Bentley OpenFlows StormCAD (Connect Edition update 3), a stormwater hydraulics design software tool. Calculations in StormCAD are performed using the rational method. Rainfall-intensity curves were taken from NOAA Atlas 14 using the project site location (refer to Appendix C). Refer to Appendix C for runoff coefficients (c values) used in calculations. A 10 min time of concentration was used. Refer to Appendix J for the Inlet Drainage Area Map; and Appendix H for the StormCad capacity analysis.

I. Soil Erosion and Sediment Controls

The proposed erosion and sediment control measures for the project have been selected and designed in accordance with New York State Standards and Specifications for Erosion and Sediment Control (Blue Book), dated November 2016. The project Contractor shall follow all erosion controls as required by the SWPPP, General Permit No. GP-0-25-001, and in accordance with the approved Erosion Control Plan.

J. Assessment of Compliance with Regulatory Requirements

i. New York State Department of Environmental Conservation:

a. State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-25-001):

1. Erosion and Sediment Controls:

The proposed project erosion and sediment controls have been selected and designed in accordance with NYS Blue Book standards to meet the requirements of General Permit No. GP-0-25-001.

2. Post-Construction Stormwater Management Practice Requirements:

The proposed post-construction stormwater management has been designed in accordance with General Permit No. GP-0-25-001, Part II, C.2.c. Sizing Criteria for Redevelopment Activity; and meets the hydrologic

requirements for Water Quality Volume, Channel Protection Volume, Overbank Flood Control, and Extreme Flood Control.

K. Stormwater Pollution Prevention Plan (SWPPP)

Stormwater Pollution Prevention Plan (SWPPP) must be prepared and implemented by the owner and operator of construction activities associated with the SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-25-001). The SWPPP components included in this Report are as follows:

CONSTRUCTION SEQUENCING SCHEDULE

1.0 GENERAL

Construction activities will be scheduled in such a manner as to minimize the impacts of the storm water in construction areas will have on receiving waters. The following construction sequence shall be followed:

1. Conduct pre-construction meeting with the Town to discuss erosion and sediment controls and construction phasing.
2. Install stabilized construction entrance.
3. Install construction fences.
4. Prepare temporary parking and storage areas.
5. Install inlet protection, silt dikes, and silt fence on the site as shown on plans within the construction limits.
6. Demo existing structures, pavement, and/or specified utilities.
7. Begin grading site.
8. Begin construction of utilities.
9. Begin subgrade preparation and construction of structures.
10. Begin installation of curb, gutter, and paving.
11. Complete permanent stabilization on areas where construction has completed.

12. Complete final grading and installation of permanent stabilization over all areas.

13. Obtain concurrence from the owner and the town that the site has been fully stabilized.

14. Remove all remaining temporary erosion and sediment control devices.

15. Stabilize all areas disturbed by BMP removal.

2.0 EROSION AND SEDIMENT CONTROL MEASURES

2.1 GENERAL

Various erosion and sediment control measures have been incorporated into the design of the project. These measures will be implemented during construction to minimize soil erosion and to protect the character and integrity of the receiving water bodies. Several components will remain upon completion of the project to control the quality and quantity of stormwater runoff from the developed site.

The site development contractor shall take all appropriate precautions to prevent soil erosion and discharge of sediment and other pollutants to receiving water bodies. Specific measures are outlined in this plan. In general, disturbance areas shall be limited to the smallest practical areas at any given time, and the areas are to be reseeded as soon as possible. During construction the outlined measures are to be installed as described. Additional measures may be warranted or required by site and climatic conditions.

Specific erosion control measures, designed to minimize soil loss, and sediment control measures devised to retain eroded soil and prevent it from reaching water bodies or adjoining properties have been developed in accordance with the NYSDEC's *New York State Standards and Specifications for Erosion and Sediment Control* ("NYSDEC Blue Book").

The erosion and sediment control measures to be implemented on the site include structural and non-structural, as well as temporary and permanent measures. All stormwater management structures and erosion and sediment control features are depicted on the Erosion Control Plan for the project.

3.2 MEASURES DURING CONSTRUCTION

3.2.1 Stabilized Construction Entrance

Prior to the initiation of construction activities at the project site, a stabilized construction access consisting of aggregate underlain by geotextile will be constructed at all points of construction ingress and egress. The initial

stabilized construction entrance will be created at the approximate location of the proposed north easterly site entrance.

The stabilized construction entrance shall meet the following requirements:

- Aggregate size – 1 to 4 inch stone, or reclaimed or recycled concrete equivalent.
- Thickness – not less than 6 inches.
- Width – Stabilized construction entrance width shall be 40 FT as shown on Soil Erosion and Sediment Control Plans, or full width of point where ingress or egress occurs (minimum 24 feet for single site access).
- Length – Stabilized construction entrance length shall be 50 ft as shown on Soil Erosion and Sediment Control Plans.
- Geotextile – shall be in accordance with criteria shown in NYSDEC Blue Book page 2.30.

The entrance shall be maintained in a condition, which will prevent tracking of sediment onto public rights-of-way or streets. When necessary, the placement of additional aggregate atop the filter fabric will be done to assure the minimum 6-inch thickness is maintained. All sediments and soils spilled, dropped, or washed onto the public rights-of-way must be removed immediately.

When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with aggregate, and which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or watercourses.

Periodic inspection and needed maintenance shall be provided after each substantial rainfall event.

3.2.2 Sediment Barriers

3.2.2.1 Silt Fencing

Prior to the initiation of construction activities, a geotextile filter fabric (or silt fence) will be established along the perimeter of areas to be disturbed during demolition and construction that are up gradient of storm drainage inlets. These barriers may extend into non-impact areas to ensure adequate protection of adjacent lands.

Silt fence types include:

- Standard Silt Fence – fabric rolls stapled to wooden stakes driven 16 inches in the ground.

- Reinforced Silt Fence – fabric placed against welded wire fabric with anchored steel posts driven 16 inches in the ground.

- Super Silt Fence – fabric placed against chain link fence as support backing with posts driven 3 feet in the ground.

The type of silt fence specified for each location is determined by maximum slope length and maximum fence length requirements as provided by the NYSDEC Blue Book page 5.54. Refer to the approved Soil Erosion and Sediment Control Plan for required silt fence type.

Excavation of some areas may be performed only as necessary for the installation of the barrier. To ensure effectiveness of the silt fencing, regular inspections and inspections after significant storm events will be performed by site personnel. Maintenance of the fence will be performed as needed.

3.2.2.2 Silt Stock Barriers

Silt Sock barriers shall be installed in areas where silt fences are indicated on the plans but are not feasible. These areas may extend into non-impact areas to ensure adequate protection of adjacent lands or storm drainage inlets.

Excavation of some areas may be performed only as necessary for the installation of the barrier. To ensure effectiveness of the sediment barriers, regular inspections and inspections after significant storm events will be performed by site personnel. Maintenance of the barriers will be performed as needed.

3.2.2.3 Hay Bales

Hay bales are not permitted as sediment barriers.

3.2.3 Temporary Soil Stockpiles

Soil material temporarily stockpiled on the site during the construction process will be located in areas away from active construction. All stockpiles shall be properly protected from erosion by a surrounding silt fence barrier. Silt fence barrier shall be repaired at the end of each

workday for active soil stockpiles. Soil and topsoil stockpiles should be seeded if they are to remain dormant for 7 days.

3.2.4 Inlet protection

This practice shall be used where an area to an inlet is disturbed, when it is not possible to temporarily divert the storm drain outfall into a trapping device, and watertight blocking of inlets is not advisable. There are (4) types of inlet protection practices; excavated drop inlet protection, fabric drop inlet protection, stone & block drop inlet protection and curb drop inlet protection.

3.2.5 Dust Control

Dust control will be achieved through the use of a dedicated water sprinkler system or on-site water truck for site dampening.

3.2.6 Concrete Washout

A concrete washout facility shall be provided. The minimum facility size shall be 8 ft x 8ft x 2 ft deep. The concrete washout shall be located a minimum of 100 ft from drainage swales, storm drain inlets, wetlands, streams and other surface waters. Prevent surface water from entering the facility.

Refer to concrete washout maintenance and disposal requirements.

3.2.7 Portable Restrooms

An adequate number of portable restrooms shall be provided to properly service the number of workers on-site at any given time. The restrooms shall be emptied and cleaned weekly or more frequently as needed. Restrooms shall not be cleaned by hose washing with the discharge to the ground surface.

4.0 INSPECTION AND MAINTENANCE

4.1 PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITY

The operator shall identify the contractor(s) responsible for installing, construction, repairing, replacing, inspecting and maintaining the erosion control plans included in the SWPPP as well as responsible for constructing the post-construction stormwater management measures. This person shall be known as the trained contractor. One trained contractor must be on site on a daily basis when soil disturbance activities are being performed.

4.2 DURING CONSTRUCTION INSPECTION AND MAINTENANCE

The operator shall have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in the SWPPP and required by SPDES Permit GP-0-25-001 have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction. Following the commencement of construction, site inspections shall be conducted by the qualified professional at least two (2) inspections every seven (7) calendar days. During each inspection, the qualified professional shall record the following information:

- 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 seven (7) day period.

- Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization.

- Indicate all disturbed site areas that have not undergone active site work during the previous seven (7) day period.

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

- 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). Identify and evidence or 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 and any erosion near outlet.

- Record all deficiencies that are identified with the implementation of the SWPPP.

  The operator shall maintain a record of all inspection reports in a site logbook. The site logbook shall be maintained on site and be made available to the permitting authority upon request. Prior to the commencement of construction, the operator shall certify in the site logbook that the SWPPP,

[1] "Qualified inspector" means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or soil scientist.

prepared in accordance with SPDES Permit GP-0-25-001 meets all federal, state and local erosion and sediment control requirements.

The operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis.

Prior to filing of the Notice of Termination with the regulated, the operator shall have the qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

The *owner or operator* must ensure that all erosion and sediment control practices and all post-construction storm water management practices identified in the SWPPP are inspected and maintained in accordance with GP-0-25-001.

4.3 STABILIZATION

The majority of the project drains to receiving waters determined to be impaired by pollutants and the majority of the project site is located in a watershed requiring enhanced phosphorus removal as indicated in the General Permit No. GP-0-25-001.

In areas where soil disturbance activity has <u>temporarily</u> 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.

In areas where soil disturbance activity has <u>permanently</u> ceased, the disturbed areas shall be stabilized and sodded/landscaped per plans. 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.

These requirements do not apply in the following instances:

- Where the initiation of stabilization measures by the seventh (7^{th}) day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.

- Where construction activity on a portion of the site is temporarily ceased, and temporary stabilization measures have been applied to all disturbed areas, the qualified inspector shall conduct a site inspection at least once ever thirty (30) days. The owner or operator must contact the regulated traditional land use control MS4 in writing prior to reducing the frequency of inspections.

“Stabilization” means covering or maintaining an existing cover over soil. Cover can be vegetative (e.g., grass, trees, seed and mulch, shrubs or turf) or non-vegetative (e.g., geotextiles, riprap or gabions).

4.4 MAINTENANCE

Silt barriers and other measures shall be repaired as required immediately after any damage has occurred or has been detected during site inspections or whenever their capacity has been reduced by twenty-five (25) percent from the design capacity.

Additional measures, beyond those required here, shall be placed if necessary due to site conditions.

4.5 POST-CONSTRUCTION INSPECTION AND MAINTENANCE

Upon completion of construction, the responsibility of the on-site stormwater management systems for the project becomes that of the owner. The owner will be responsible for the inspection and maintenance of the site stormwater management system. Refer to Section 6.0 for more specific requirements.

5.0 LITTER AND DEBRIS MANAGEMENT

5.1 GENERAL

Dumpsters shall be provided for disposal of debris, trash, scraps, and wasted materials. All dumpsters shall be emptied once per week or when full.

Any toxic chemicals or materials requiring disposal shall be disposed of in a manner conforming to applicable local, state and federal regulations. Any toxic chemicals or materials shall be disposed of immediately.

A summary of construction materials inventory, storage and spill prevention response is provided in Section 7.3.

5.2 CONCRETE WASHOUT AREA

Prior to the placement of any concrete on the project site a concrete washout area shall be constructed. The purpose of the concrete washout area is to control the runoff created from disposing of concrete waste. This process uses large amounts of water to remove the remaining concrete from the mixer and to clean the truck before entering public right-of-ways.

A concrete washout facility shall be provided. The minimum facility size shall be 8 ft x 8ft x 2 ft deep. The concrete washout shall be located a minimum of 100 ft

from drainage swales, storm drain inlets, wetlands, streams and other surface waters. Prevent surface water from entering the facility.

Provide appropriate access with gravel access road sloped down to the facility. Signage shall be placed to direct drivers to the facility after their load is discharged.

The concrete washout facility shall be inspected daily. Damaged or leaking facilities shall be deactivated and repaired or replaced immediately. Excess rainwater that has accumulated over hardened concrete shall be pumped to a stabilized area, such as a grass filter strip. Accumulated hardened material shall be removed when 75% of the storage capacity of the facility is filled. Any excess wash water shall be pumped into a containment vessel and properly disposed of off-site.

Dispose of the hardened material off-site at an approved facility. Inspect the project site frequently to ensure that no concrete discharges are taking place in non-designated areas.

5.3 CONSTRUCTION MATERIALS STORAGE AND SPILL PREVENTION RESPONSE

During construction, building and waste materials are expected to be stored on site. A description of the controls to reduce pollutants from these materials, and storage practices to minimize exposure of materials and spill prevention response (SPR) are discussed below.

5.3.1 Non-Stormwater Discharges

The following non-storm water discharges are anticipated during the course of the project: discharges from water line flushing, pavement wash-water (where no spills or leaks of toxic or hazardous materials have occurred), and uncontaminated ground water (if encountered).

5.3.2 Materials Inventory

The following materials or substances are expected to be present on site during the construction period. These will be handled and stored appropriately, and in accordance with local, state and federal regulations.

- Concrete and Portland cement
- Detergents
- Paints
- Metals
- Bituminous materials

- Petroleum based products
- Cleaning solvents
- Wood
- Epoxy based mortars, grouts, etc.

5.3.3 Spill Prevention Housekeeping

Only needed products will be stored on site by the Contractor. Except for bulk materials, the Contractor will store all materials under cover and in appropriate containers. Products must be stored in original containers and labeled. Material mixing must be conducted in accordance with the manufacturer's recommendations. When possible, all products will be completely used before properly disposing of the container off site. The manufacturer's directions for disposal of materials and containers will be followed. The Contractor's site superintendent will inspect materials storage regularly to ensure proper use and disposal.

5.3.4 Hazardous Materials

- Products will be kept in original containers unless the container is not resealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, and mixer washout waters will be collected on site.
- All on-site vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

- All paint containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and applicable state and local regulations.
- Contractors will provide designated concrete truck washout area on site as depicted on civil drawing C2.0 "Erosion Control Plan". This washout area must be self-contained and not connected to any storm water outlet on site.

5.3.5 Spill Control Practices

In addition to the housekeeping and material management practices, the following practices will be followed for spill prevention and cleanup, if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures, and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on site. As appropriate, equipment and materials may include items such as brooms, dust pans, rags, gloves, goggles, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated, and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill, a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The Contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management and cleanup.

5.3.6 Spill Response

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted onsite stormwater, it is critical to contain the released materials onsite and prevent their release into the receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent shall be notified immediately when a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup shall be maintained by the Contractor at the site.
- If oil sheen is observed on surface water, action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs, the superintendent will be responsible for reporting the spills to the contacts listed below.
- Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor's superintendent. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.
- A reportable spill is a quantity of five (5) gallons or more of any spill of oil which violates water quality standards, or, produces a sheen on a surface water, or, causes a sludge or emulsion. This spill must be reported immediately to the agencies listed below.
- Any spill of oil or hazardous substance to waters of the state must be reported immediately by telephone to the following agencies:

AGENCY	PHONE NUMBER
Police, Fire and EMS	911
Genesee County Sheriff's Office	585-345-3000
Town of Alabama Fire Department	585-948-5760
NYS Department of Environmental Conservation Spill Reporting Hotline (NYSDEC)	800-457-7362
National Response Center (EPA)	800-424-8802
Genessee County Office of Emergency Management	585-344-0078
USEPA EPCRA Information Hotline	800-535-0202
US Department of Labor and Occupational Safety and Health Administration (OSHA)	914-524-7510

6.0 MAINTENANCE MEASURES DURING FACILITY OPERATION

6.1 GENERAL

After construction, the permanent erosion control measures will be maintained consistent with the recommendations in the *New York State Standards and Specifications for Erosion and Sediment Control*.

The owner will remain responsible for the above maintenance and inspections of the site storm water management system.

6.2 INSPECTION AND MAINTENANCE DURING FACILITY OPERATION

Maintenance of all site stormwater pollution prevention measures should occur quarterly and after significant storm events. Specific measures and schedules will be developed for implementation during the operation of the facility.

7.0 CONTRACTORS

7.1 CONTRACTOR(S)

The following contractor(s) is (are) responsible for the installation and maintenance of the measures required in the SWPPP:

To be revised at the time of contractor selection

7.2 SUBCONTRACTOR(S)

The following subcontractor(s) is (are) responsible for the installation and maintenance of the measures required in the SWPPP:

To be revised at the time of subcontractor selection

7.3 TRAINED CONTRACTOR(S)

The following subcontractor(s) is (are) responsible for the installation and maintenance of the measures required in the SWPPP:

To be revised at the time of subcontractor selection

Required Training: Effective April 30, 2010, the SPDES General Permit also requires the Prime Contractor and all subcontractors ***performing earthwork or soil-disturbing activities*** to identify at least one trained individual ***from each company*** who will be responsible for implementing the SWPPP and who shall be on-site on a daily basis when the company is performing soil disturbance activities. These activities include clearing, grubbing, grading, filling, excavation, stockpiling, demolition, landscaping, and installation and maintenance of Erosion & Sediment Control practices. Training must consist of 4 hours of NYSDEC-endorsed Erosion & Sediment Control Training every 3 years. (Training is not required if the individual is a licensed Professional Engineer, registered licensed Landscape Architect, or CPESC.) Provide the information below for trained individuals who will be on-site and responsible for SWPPP implementation on this Contract (attach a separate sheet if needed for additional Trained Individuals):

Trained Individual Name/Title : _____

Name of Training Course: _____

Trainee Number: _____ Date of Training: _____

Trained Individual Name/Title : _____

Name of Training Course: _____

Trainee Number: _____ Date of Training: _____

Print Form | Make Form Read-Only (Cannot be undone)

7.4 CONTRACTOR/SUBCONTRACTOR CERTIFICATION

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the 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 storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.;"

Name_____

Signature*_____

Title_____

Firm_____

Address_____

_____

Telephone_____

Date_____

*Signature of an officer of the corporation authorized in policy or decision-making functions of the corporation.

Contractor / Subcontractor SPDES Permit Certification Forms are provided in Appendix

REFERENCES

The following documents were relied upon during the preparation of the project's stormwater management plan:

1. New York State Stormwater Management Design Manual, originally prepared by Center for Watershed Protection, updated by New York State Department of Environmental Conservation, dated July 31, 2024.

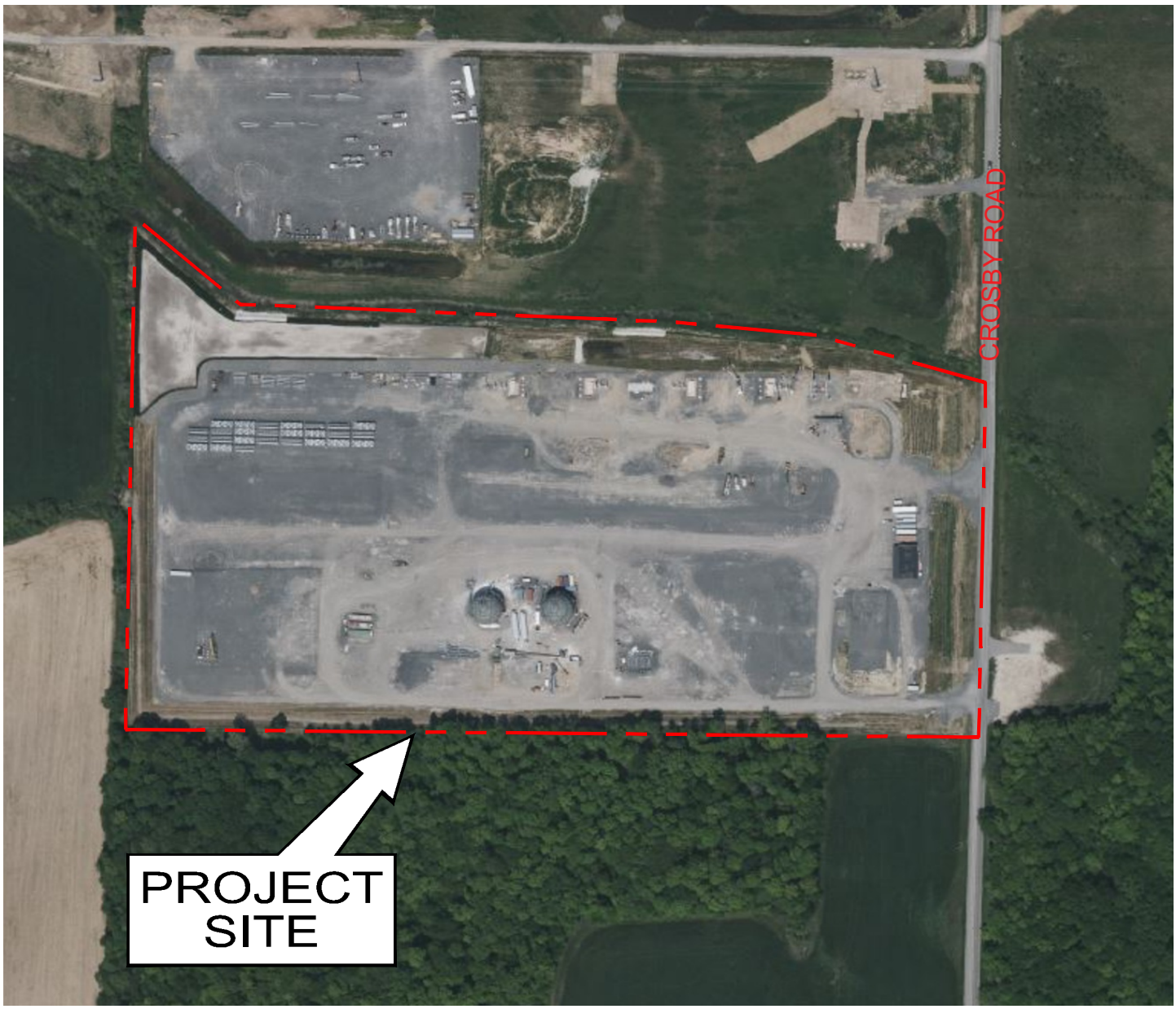
2. New York State Standards and Specifications for Erosion and Sediment Control, New York Department of Environmental Protection, dated November 2016.

3. Urban Hydrology For Small Watersheds, TR-55, United States Department of Agriculture, Natural Resources Conservation Service, Conservation Engineering Division, Technical Release 55, dated June 1986

4. New York State Department of Environmental Conservation (NYSDEC) SPES General Permit For Stormwater Discharges From Construction Activity Permit No. GP-0-25-001, Construction General Permit (CGP). Effective Date: January 29, 2025; Expiration Date: January 28, 2030

APPENDIX A

FIGURES



SOURCE: 2026 MICROSOFT CORP.

SCALE: 1"=300'

0 300 600

Bowman Consulting Group Ltd
6 Campus Drive, Suite 302
Parsippany, New Jersey 07054
bowman.com
E-mail: NJ@Bowman.com
Phone: 973-359-8400
FAX: 973-359-8455
NJ Certificate of Authorization
No. 24GA28222600

DATE: 1/9/26 SCALE: 1"=300' CHKD.:

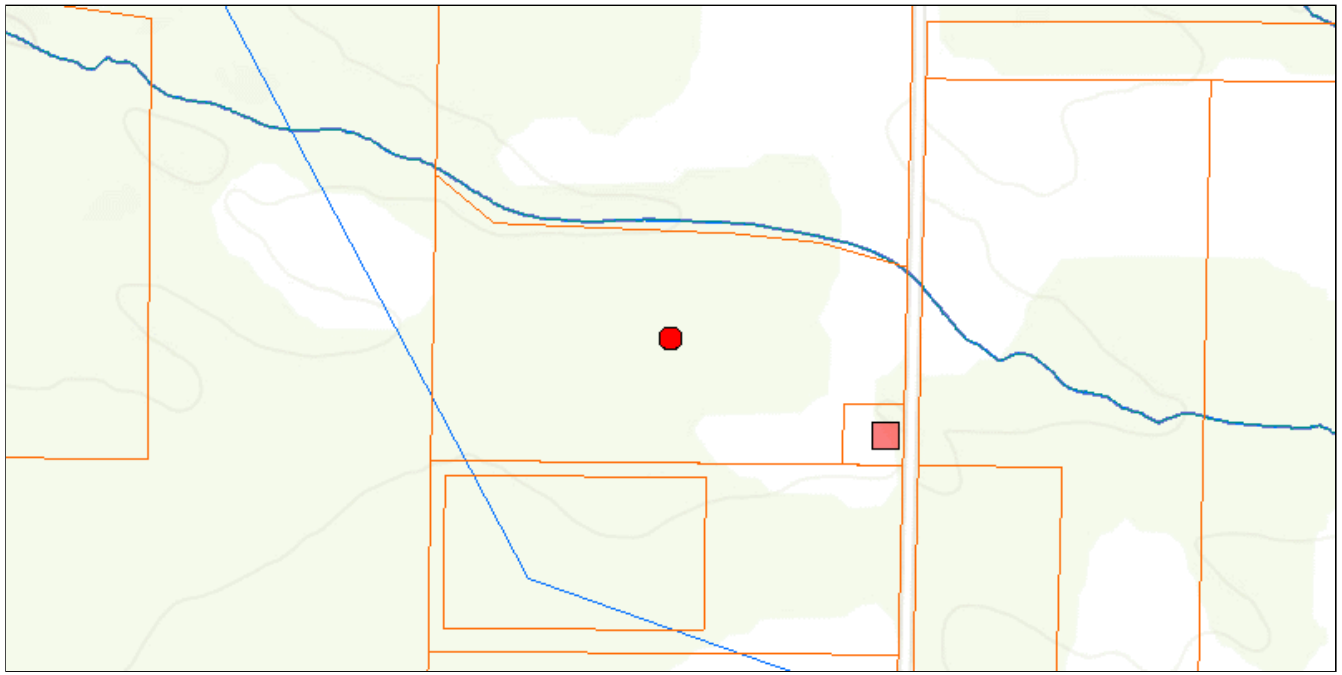
PROJ.: 081591-01-001

BUFA - PROJECT DOUBLE REED
AERIAL SITE LOCATION MAP

SOUTH CAMPUS

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

Stormwater Interactive Map



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UTM 18	**Easting:**	222672.768	**Northing:**	4775677.406
Longitude/Latitude	**Latitude:**	43.083	**Longitude:**	-78.407

The approximate address of the point you clicked on is:
14013, Basom, New York

County: Genesee
Town: Alabama
USGS Quad: AKRON

DEC Administrative Boundaries

Region 8:
(Western Finger Lakes) Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne and Yates counties. For more information visit **http://www.dec.ny.gov/about/617.html**.

Section 4.2 Water Quality Volume (WQ_v)

The Water Quality Volume (WQ_v) is intended to improve water quality by capturing and treating runoff from small, frequent design storms that tend to contain higher pollutant levels. New York has defined the WQ_v as the volume of stormwater runoff, generated from the 90th percentile rain event (90% of all 24-hr design storms, in a given year), that shall be captured and treated by stormwater management practice(s). The WQ_v is directly related to the amount of impervious cover constructed at a site. Contour lines of the 90% rainfall event are presented in **Figure 4.1**. The minimum 90% rainfall value shall be 1.0 inch.

The following equation shall be used to determine the water quality storage volume WQ_v (in acre-feet of storage):

$$WQv = \frac{P * R_v * A}{12}$$

Where:

WQ_v = water quality volume (in acre-feet)

P = 90% Rainfall Event Number (see **Figure 4.1**)

R_v = 0.05 + 0.009(I), where I is percent impervious cover

A = contributing area (acres)

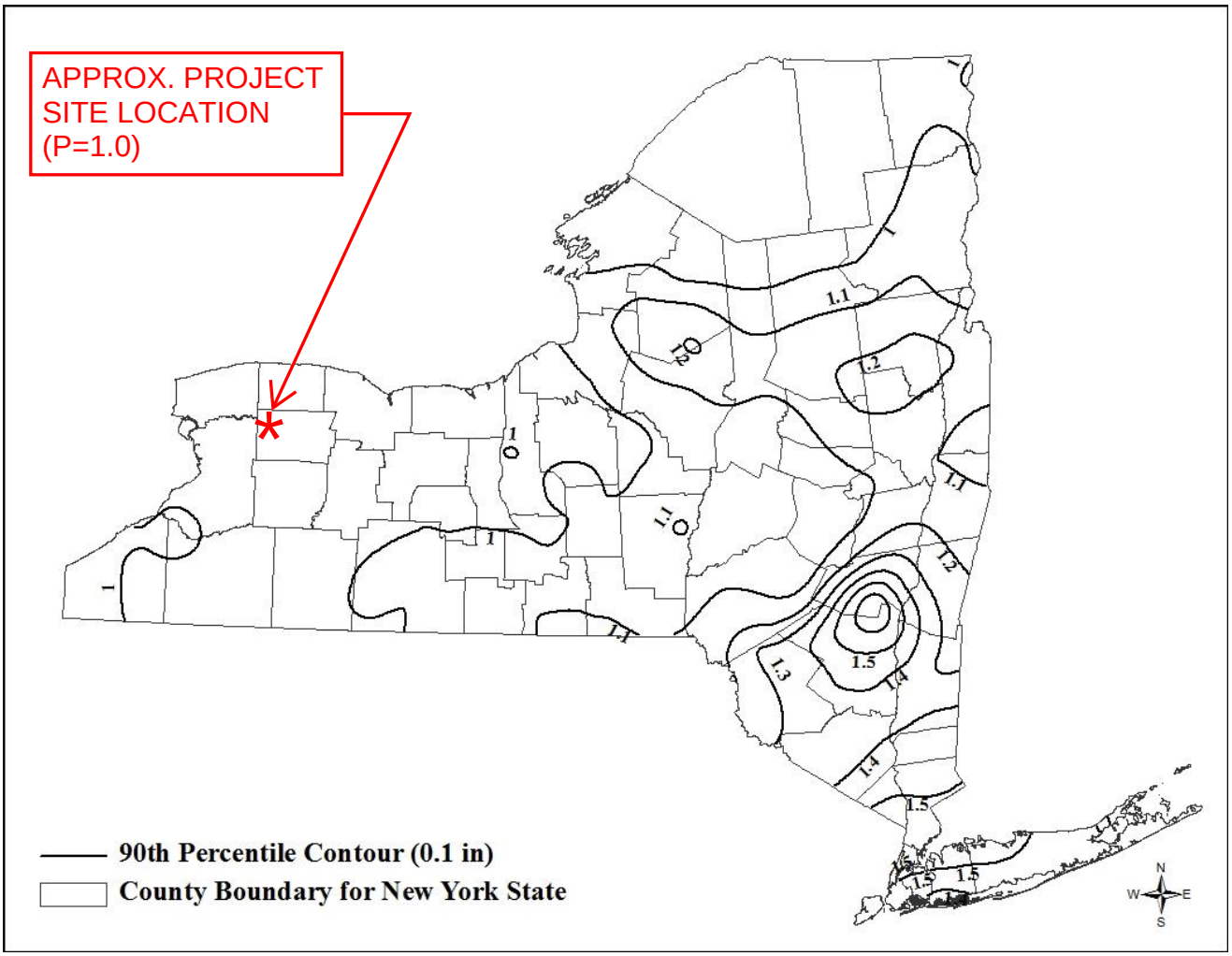

Figure 4.1 90th Percentile Rainfall in New York State (NYSDEC, 2013)

APPENDIX B

SOIL SURVEY REPORT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Genesee County, New York

December 16, 2025

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

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

Contents

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: 1:5,920 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N 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: Genesee County, New York
Survey Area Data: Version 26, Sep 2, 2025

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

Date(s) aerial images were photographed: May 13, 2023—May 27, 2023

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
ArB	Arkport very fine sandy loam, 1 to 6 percent slopes	0.5	0.3%
CaA	Canandaigua silt loam, 0 to 2 percent slopes	26.0	16.9%
ClB	Collamer silt loam, 2 to 6 percent slopes	20.8	13.5%
La	Lakemont silty clay loam, 0 to 3 percent slopes	21.2	13.8%
NgA	Niagara silt loam, 0 to 2 percent slopes	10.2	6.6%
OdA	Odessa silt loam, 0 to 3 percent slopes	9.4	6.1%
OdB	Odessa silt loam, 3 to 8 percent slopes	63.6	41.2%
OnB	Ontario loam, 3 to 8 percent slopes	1.6	1.1%
Wy	Wayland soils complex, 0 to 3 percent slopes, frequently flooded	0.8	0.5%
Totals for Area of Interest		**154.2**	**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.

Genesee County, New York

ArB—Arkport very fine sandy loam, 1 to 6 percent slopes

Map Unit Setting

National map unit symbol: b3x8
Elevation: 300 to 900 feet
Mean annual precipitation: 31 to 38 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 140 to 175 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Arkport

Setting

Landform: Deltas on lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Glaciofluvial or deltaic deposits with a high content of fine and very fine sand

Typical profile

H1 - 0 to 9 inches: very fine sandy loam
H2 - 9 to 20 inches: very fine sandy loam
H3 - 20 to 42 inches: loamy very fine sand
H4 - 42 to 72 inches: stratified loamy fine sand to very fine sand

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

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

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

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

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

CaA—Canandaigua silt loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: b3xk
Elevation: 100 to 1,000 feet
Mean annual precipitation: 31 to 38 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 140 to 175 days
Farmland classification: Farmland of statewide importance

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

Description of Canandaigua

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

Typical profile
H1 - 0 to 9 inches: silt loam
H2 - 9 to 39 inches: silt loam
H3 - 39 to 72 inches: silt loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Lamson

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

Halsey

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

Madalin

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

Bergen

Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Unnamed soils

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

CIB—Collamer silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: b3xw
Elevation: 570 to 1,080 feet
Mean annual precipitation: 31 to 38 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 140 to 175 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Collamer

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 22 inches: silt loam
H3 - 22 to 38 inches: silt loam
H4 - 38 to 72 inches: silt loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Scio

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

Dunkirk

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

Galen

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

Niagara

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

La—Lakemont silty clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2spjw
Elevation: 260 to 1,800 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

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

Description of Lakemont

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Red clayey glaciolacustrine deposits derived from calcareous shale

Typical profile

Ap - 0 to 6 inches: silty clay loam
Eg - 6 to 10 inches: silty clay loam
Btg1 - 10 to 15 inches: silty clay
Btg2 - 15 to 31 inches: silty clay
C - 31 to 79 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D

Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Odessa
Percent of map unit: 5 percent
Landform: Lake terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Canandaigua
Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Fonda
Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Barre
Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

NgA—Niagara silt loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: p9fp
Elevation: 750 to 1,740 feet
Mean annual precipitation: 31 to 38 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 175 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Niagara

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 26 inches: silty clay loam
H3 - 26 to 72 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Rhinebeck

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

Minoa

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

Canandaigua

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

Unnamed soils

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

Collamer

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

OdA—Odessa silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wrd8
Elevation: 260 to 1,540 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

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

Description of Odessa

Setting

Landform: Lake terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Red clayey glaciolacustrine deposits derived from calcareous shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bt/E - 8 to 10 inches: silty clay loam
Bt1 - 10 to 15 inches: silty clay
Bt2 - 15 to 25 inches: silty clay
C - 25 to 79 inches: silty clay

Properties and qualities

Slope: 0 to 3 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): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Lakemont

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

Schoharie

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

Churchville

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

Rhinebeck

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

OdB—Odessa silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wrdk
Elevation: 250 to 1,280 feet

Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Odessa

Setting

Landform: Lake terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Red clayey glaciolacustrine deposits derived from calcareous shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bt/E - 8 to 10 inches: silty clay loam
Bt1 - 10 to 15 inches: silty clay
Bt2 - 15 to 25 inches: silty clay
C - 25 to 79 inches: silty clay

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): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Schoharie

Percent of map unit: 6 percent
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex

Hydric soil rating: No

Lakemont

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Churchville

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

Rhinebeck

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

OnB—Ontario loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w3ps
Elevation: 250 to 1,490 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Ontario

Setting

Landform: Till plains, ridges, drumlins
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
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: loam
E - 8 to 14 inches: loam
Bt/E - 14 to 21 inches: loam
Bt - 21 to 39 inches: gravelly loam
C1 - 39 to 48 inches: gravelly loam
C2 - 48 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 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 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Honeoye

Percent of map unit: 5 percent
Landform: Till plains, ridges, drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Hilton

Percent of map unit: 5 percent
Landform: Till plains, ridges, drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex, concave
Hydric soil rating: No

Cazenovia

Percent of map unit: 3 percent
Landform: Reworked lake plains, till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest

Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Appleton

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

Wy—Wayland soils complex, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2srgv
Elevation: 160 to 1,970 feet
Mean annual precipitation: 31 to 68 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Wayland and similar soils: 60 percent
Wayland, very poorly drained, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wayland

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 6 inches: silt loam
Bg1 - 6 to 12 inches: silt loam
Bg2 - 12 to 18 inches: silt loam
C1 - 18 to 46 inches: silt loam
C2 - 46 to 72 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F139XY009OH - Wet Floodplain
Hydric soil rating: Yes

Description of Wayland, Very Poorly Drained

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 6 inches: mucky silt loam
Bg1 - 6 to 12 inches: silt loam
Bg2 - 12 to 18 inches: silt loam
C1 - 18 to 46 inches: silt loam
C2 - 46 to 72 inches: silty clay loam

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 high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F139XY009OH - Wet Floodplain
Hydric soil rating: Yes

Minor Components

Wakeville

Percent of map unit: 10 percent

Landform: Flood plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

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APPENDIX C

STORMWATER DESIGN PARAMETERS

NOAA Atlas 14, Volume 10, Version 3
Location name: Basom, New York, USA*
Latitude: 43.0822°, Longitude: -78.4041°
Elevation: 676 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.268** (0.205-0.350)	**0.328** (0.250-0.429)	**0.426** (0.323-0.558)	**0.507** (0.383-0.667)	**0.619** (0.456-0.846)	**0.702** (0.509-0.977)	**0.791** (0.561-1.14)	**0.898** (0.600-1.30)	**1.06** (0.684-1.57)	**1.20** (0.757-1.80)
10-min	**0.380** (0.290-0.496)	**0.465** (0.354-0.607)	**0.604** (0.459-0.791)	**0.719** (0.544-0.946)	**0.877** (0.646-1.20)	**0.994** (0.721-1.38)	**1.12** (0.795-1.61)	**1.27** (0.851-1.84)	**1.50** (0.970-2.23)	**1.69** (1.07-2.55)
15-min	**0.447** (0.341-0.584)	**0.547** (0.417-0.714)	**0.710** (0.539-0.930)	**0.845** (0.639-1.11)	**1.03** (0.760-1.41)	**1.17** (0.847-1.63)	**1.32** (0.935-1.90)	**1.50** (1.00-2.16)	**1.76** (1.14-2.62)	**1.99** (1.26-3.00)
30-min	**0.617** (0.471-0.806)	**0.755** (0.575-0.987)	**0.981** (0.745-1.28)	**1.17** (0.883-1.54)	**1.43** (1.05-1.95)	**1.62** (1.17-2.25)	**1.82** (1.29-2.62)	**2.07** (1.38-2.99)	**2.44** (1.58-3.62)	**2.75** (1.74-4.14)
60-min	**0.788** (0.601-1.03)	**0.964** (0.734-1.26)	**1.25** (0.951-1.64)	**1.49** (1.13-1.96)	**1.82** (1.34-2.49)	**2.06** (1.50-2.87)	**2.33** (1.65-3.35)	**2.64** (1.76-3.82)	**3.11** (2.01-4.62)	**3.51** (2.22-5.29)
2-hr	**0.979** (0.753-1.27)	**1.19** (0.915-1.54)	**1.54** (1.18-2.00)	**1.83** (1.39-2.38)	**2.22** (1.65-3.01)	**2.52** (1.84-3.47)	**2.83** (2.02-4.03)	**3.21** (2.16-4.59)	**3.76** (2.44-5.53)	**4.23** (2.69-6.31)
3-hr	**1.10** (0.851-1.42)	**1.34** (1.03-1.72)	**1.72** (1.32-2.22)	**2.03** (1.56-2.64)	**2.47** (1.84-3.32)	**2.80** (2.05-3.82)	**3.14** (2.25-4.44)	**3.55** (2.40-5.06)	**4.16** (2.71-6.08)	**4.67** (2.98-6.93)
6-hr	**1.33** (1.04-1.70)	**1.60** (1.25-2.05)	**2.05** (1.59-2.62)	**2.42** (1.87-3.11)	**2.93** (2.20-3.90)	**3.31** (2.44-4.48)	**3.71** (2.67-5.19)	**4.19** (2.85-5.90)	**4.90** (3.21-7.08)	**5.49** (3.52-8.07)
12-hr	**1.60** (1.26-2.01)	**1.91** (1.50-2.41)	**2.42** (1.90-3.07)	**2.85** (2.22-3.62)	**3.43** (2.60-4.52)	**3.87** (2.88-5.19)	**4.33** (3.14-6.00)	**4.88** (3.34-6.81)	**5.70** (3.76-8.16)	**6.39** (4.12-9.29)
24-hr	**1.89** (1.50-2.36)	**2.24** (1.77-2.80)	**2.80** (2.21-3.51)	**3.26** (2.57-4.11)	**3.91** (2.98-5.10)	**4.39** (3.28-5.82)	**4.90** (3.57-6.71)	**5.50** (3.78-7.59)	**6.38** (4.23-9.05)	**7.12** (4.61-10.3)
2-day	**2.23** (1.79-2.76)	**2.59** (2.07-3.21)	**3.18** (2.53-3.94)	**3.66** (2.90-4.56)	**4.33** (3.33-5.58)	**4.83** (3.64-6.32)	**5.36** (3.92-7.23)	**5.96** (4.13-8.14)	**6.83** (4.56-9.59)	**7.56** (4.92-10.8)
3-day	**2.49** (2.00-3.06)	**2.85** (2.30-3.51)	**3.45** (2.76-4.26)	**3.94** (3.14-4.88)	**4.62** (3.56-5.91)	**5.13** (3.88-6.67)	**5.66** (4.16-7.58)	**6.27** (4.36-8.51)	**7.14** (4.78-9.96)	**7.86** (5.13-11.1)
4-day	**2.70** (2.19-3.31)	**3.07** (2.48-3.77)	**3.68** (2.96-4.53)	**4.18** (3.35-5.17)	**4.88** (3.78-6.22)	**5.40** (4.10-6.99)	**5.95** (4.38-7.92)	**6.56** (4.58-8.87)	**7.43** (4.98-10.3)	**8.14** (5.32-11.5)
7-day	**3.24** (2.64-3.94)	**3.65** (2.97-4.44)	**4.31** (3.50-5.26)	**4.86** (3.92-5.96)	**5.62** (4.38-7.09)	**6.20** (4.72-7.94)	**6.80** (5.00-8.92)	**7.42** (5.21-9.95)	**8.29** (5.59-11.4)	**8.97** (5.89-12.6)
10-day	**3.74** (3.06-4.53)	**4.18** (3.42-5.07)	**4.91** (4.00-5.96)	**5.51** (4.46-6.72)	**6.34** (4.96-7.94)	**6.98** (5.33-8.86)	**7.62** (5.62-9.91)	**8.28** (5.83-11.0)	**9.16** (6.20-12.5)	**9.83** (6.48-13.7)
20-day	**5.27** (4.36-6.31)	**5.82** (4.80-6.97)	**6.71** (5.52-8.06)	**7.45** (6.09-8.99)	**8.48** (6.68-10.5)	**9.27** (7.13-11.6)	**10.0** (7.44-12.9)	**10.8** (7.68-14.3)	**11.8** (8.04-16.0)	**12.5** (8.29-17.2)
30-day	**6.56** (5.46-7.81)	**7.19** (5.97-8.57)	**8.21** (6.79-9.81)	**9.06** (7.45-10.9)	**10.2** (8.10-12.6)	**11.1** (8.61-13.9)	**12.0** (8.94-15.3)	**12.9** (9.18-16.9)	**14.0** (9.54-18.8)	**14.7** (9.78-20.1)
45-day	**8.19** (6.85-9.70)	**8.91** (7.44-10.6)	**10.1** (8.39-12.0)	**11.1** (9.14-13.2)	**12.4** (9.87-15.1)	**13.5** (10.4-16.6)	**14.5** (10.8-18.2)	**15.4** (11.0-20.1)	**16.6** (11.4-22.2)	**17.4** (11.6-23.6)
60-day	**9.58** (8.04-11.3)	**10.4** (8.69-12.2)	**11.7** (9.74-13.8)	**12.7** (10.6-15.1)	**14.2** (11.3-17.2)	**15.4** (12.0-18.9)	**16.5** (12.3-20.7)	**17.5** (12.6-22.7)	**18.7** (12.9-24.9)	**19.5** (13.1-26.4)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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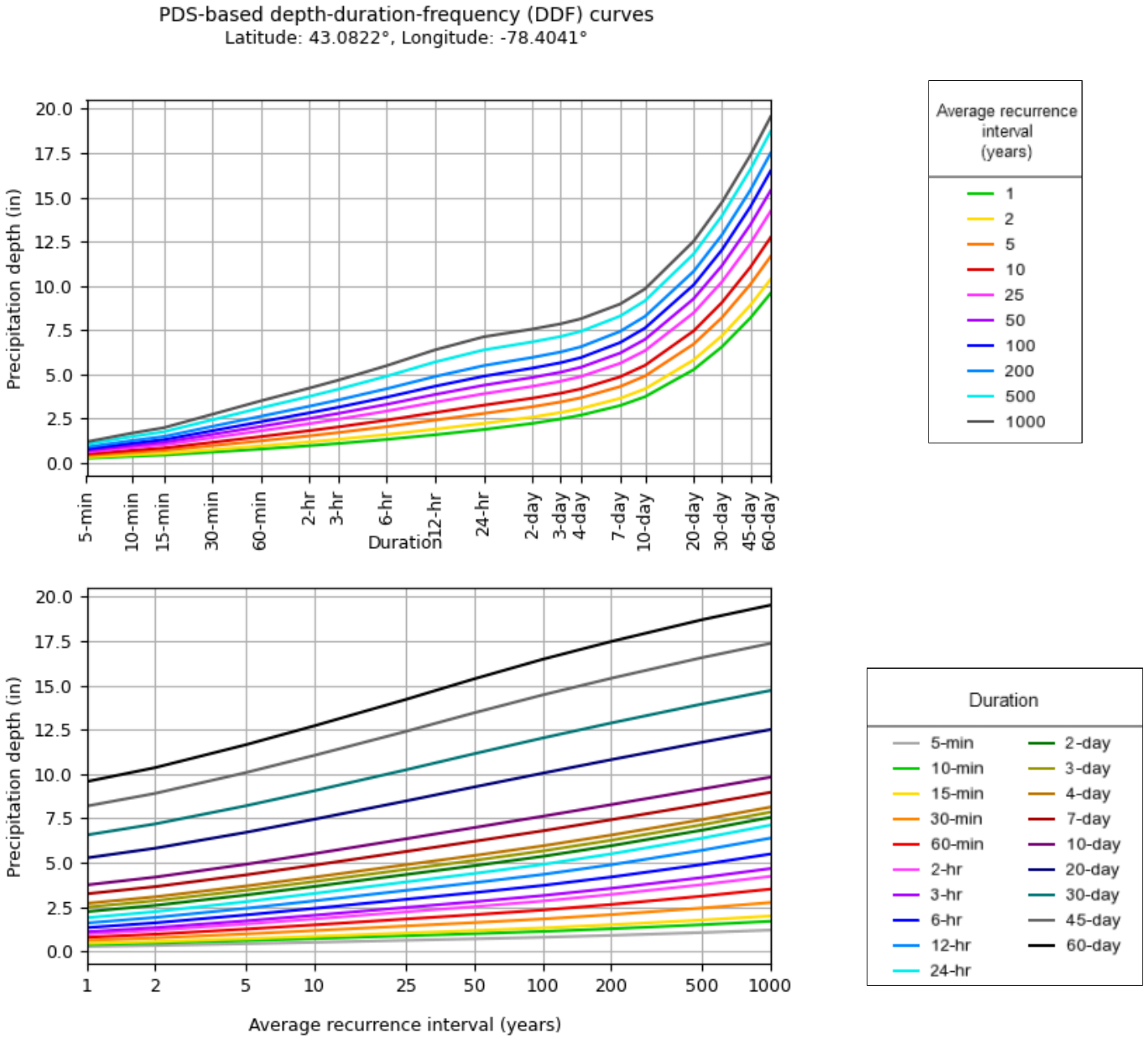
PF graphical



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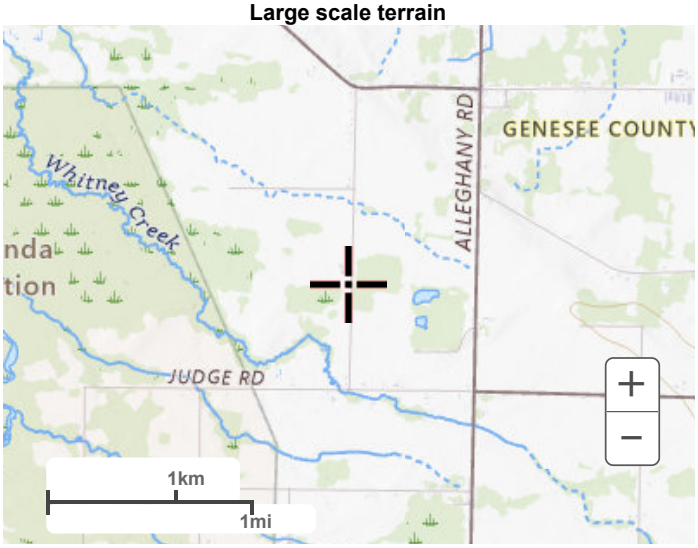
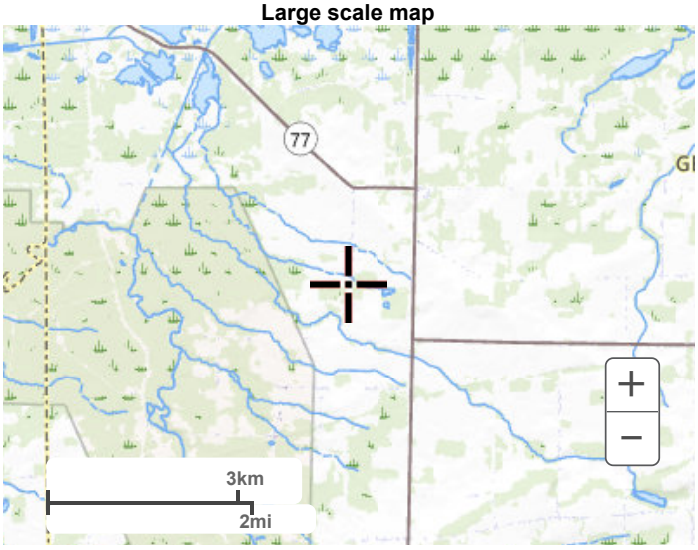
Maps & aerials

Small scale terrain

Large scale terrain



Large scale map



Large scale aerial

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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

NOAA Atlas 14, Volume 10, Version 3
Location name: Basom, New York, USA*
Latitude: 43.0822°, Longitude: -78.4041°
Elevation: 676 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**3.22** (2.46-4.20)	**3.94** (3.00-5.15)	**5.11** (3.88-6.70)	**6.08** (4.60-8.00)	**7.43** (5.47-10.2)	**8.42** (6.11-11.7)	**9.49** (6.73-13.7)	**10.8** (7.20-15.6)	**12.7** (8.21-18.9)	**14.3** (9.08-21.6)
10-min	**2.28** (1.74-2.98)	**2.79** (2.12-3.64)	**3.62** (2.75-4.75)	**4.31** (3.26-5.68)	**5.26** (3.88-7.19)	**5.96** (4.33-8.30)	**6.73** (4.77-9.68)	**7.63** (5.11-11.0)	**9.00** (5.82-13.4)	**10.2** (6.43-15.3)
15-min	**1.79** (1.36-2.34)	**2.19** (1.67-2.86)	**2.84** (2.16-3.72)	**3.38** (2.56-4.45)	**4.12** (3.04-5.64)	**4.68** (3.39-6.51)	**5.27** (3.74-7.59)	**5.98** (4.00-8.65)	**7.06** (4.56-10.5)	**7.97** (5.04-12.0)
30-min	**1.23** (0.942-1.61)	**1.51** (1.15-1.97)	**1.96** (1.49-2.57)	**2.34** (1.77-3.07)	**2.85** (2.10-3.90)	**3.23** (2.34-4.50)	**3.65** (2.58-5.24)	**4.14** (2.77-5.98)	**4.88** (3.15-7.24)	**5.50** (3.48-8.29)
60-min	**0.788** (0.601-1.03)	**0.964** (0.734-1.26)	**1.25** (0.951-1.64)	**1.49** (1.13-1.96)	**1.82** (1.34-2.49)	**2.06** (1.50-2.87)	**2.33** (1.65-3.35)	**2.64** (1.76-3.82)	**3.11** (2.01-4.62)	**3.51** (2.22-5.29)
2-hr	**0.489** (0.376-0.633)	**0.595** (0.457-0.771)	**0.769** (0.589-0.998)	**0.913** (0.695-1.19)	**1.11** (0.824-1.50)	**1.26** (0.918-1.73)	**1.42** (1.01-2.01)	**1.60** (1.08-2.29)	**1.88** (1.22-2.76)	**2.12** (1.34-3.16)
3-hr	**0.366** (0.283-0.471)	**0.444** (0.343-0.572)	**0.571** (0.440-0.737)	**0.677** (0.518-0.877)	**0.822** (0.613-1.10)	**0.930** (0.681-1.27)	**1.05** (0.748-1.48)	**1.18** (0.798-1.68)	**1.38** (0.902-2.02)	**1.56** (0.992-2.31)
6-hr	**0.222** (0.173-0.283)	**0.268** (0.208-0.341)	**0.342** (0.266-0.437)	**0.404** (0.312-0.518)	**0.489** (0.367-0.651)	**0.552** (0.407-0.748)	**0.620** (0.446-0.867)	**0.699** (0.475-0.986)	**0.817** (0.535-1.18)	**0.916** (0.587-1.35)
12-hr	**0.132** (0.104-0.167)	**0.158** (0.124-0.200)	**0.201** (0.157-0.254)	**0.236** (0.184-0.300)	**0.284** (0.215-0.375)	**0.321** (0.238-0.430)	**0.359** (0.260-0.498)	**0.405** (0.277-0.565)	**0.473** (0.311-0.677)	**0.530** (0.341-0.771)
24-hr	**0.078** (0.062-0.098)	**0.093** (0.073-0.116)	**0.116** (0.092-0.146)	**0.136** (0.106-0.171)	**0.162** (0.124-0.212)	**0.182** (0.136-0.242)	**0.204** (0.148-0.279)	**0.229** (0.157-0.316)	**0.265** (0.176-0.377)	**0.296** (0.192-0.427)
2-day	**0.046** (0.037-0.057)	**0.053** (0.043-0.066)	**0.066** (0.052-0.082)	**0.076** (0.060-0.095)	**0.090** (0.069-0.116)	**0.100** (0.075-0.131)	**0.111** (0.081-0.150)	**0.124** (0.085-0.169)	**0.142** (0.094-0.199)	**0.157** (0.102-0.224)
3-day	**0.034** (0.027-0.042)	**0.039** (0.031-0.048)	**0.047** (0.038-0.059)	**0.054** (0.043-0.067)	**0.064** (0.049-0.082)	**0.071** (0.053-0.092)	**0.078** (0.057-0.105)	**0.087** (0.060-0.118)	**0.099** (0.066-0.138)	**0.109** (0.071-0.154)
4-day	**0.028** (0.022-0.034)	**0.032** (0.025-0.039)	**0.038** (0.030-0.047)	**0.043** (0.034-0.053)	**0.050** (0.039-0.064)	**0.056** (0.042-0.072)	**0.061** (0.045-0.082)	**0.068** (0.047-0.092)	**0.077** (0.051-0.107)	**0.084** (0.055-0.119)
7-day	**0.019** (0.015-0.023)	**0.021** (0.017-0.026)	**0.025** (0.020-0.031)	**0.028** (0.023-0.035)	**0.033** (0.026-0.042)	**0.036** (0.028-0.047)	**0.040** (0.029-0.053)	**0.044** (0.031-0.059)	**0.049** (0.033-0.067)	**0.053** (0.035-0.074)
10-day	**0.015** (0.012-0.018)	**0.017** (0.014-0.021)	**0.020** (0.016-0.024)	**0.022** (0.018-0.027)	**0.026** (0.020-0.033)	**0.029** (0.022-0.036)	**0.031** (0.023-0.041)	**0.034** (0.024-0.045)	**0.038** (0.025-0.052)	**0.040** (0.026-0.056)
20-day	**0.010** (0.009-0.013)	**0.012** (0.010-0.014)	**0.013** (0.011-0.016)	**0.015** (0.012-0.018)	**0.017** (0.013-0.021)	**0.019** (0.014-0.024)	**0.020** (0.015-0.026)	**0.022** (0.015-0.029)	**0.024** (0.016-0.033)	**0.026** (0.017-0.035)
30-day	**0.009** (0.007-0.010)	**0.009** (0.008-0.011)	**0.011** (0.009-0.013)	**0.012** (0.010-0.015)	**0.014** (0.011-0.017)	**0.015** (0.011-0.019)	**0.016** (0.012-0.021)	**0.017** (0.012-0.023)	**0.019** (0.013-0.026)	**0.020** (0.013-0.027)
45-day	**0.007** (0.006-0.008)	**0.008** (0.006-0.009)	**0.009** (0.007-0.011)	**0.010** (0.008-0.012)	**0.011** (0.009-0.014)	**0.012** (0.009-0.015)	**0.013** (0.009-0.016)	**0.014** (0.010-0.018)	**0.015** (0.010-0.020)	**0.016** (0.010-0.021)
60-day	**0.006** (0.005-0.007)	**0.007** (0.006-0.008)	**0.008** (0.006-0.009)	**0.008** (0.007-0.010)	**0.009** (0.007-0.011)	**0.010** (0.008-0.013)	**0.011** (0.008-0.014)	**0.012** (0.008-0.015)	**0.012** (0.008-0.017)	**0.013** (0.009-0.018)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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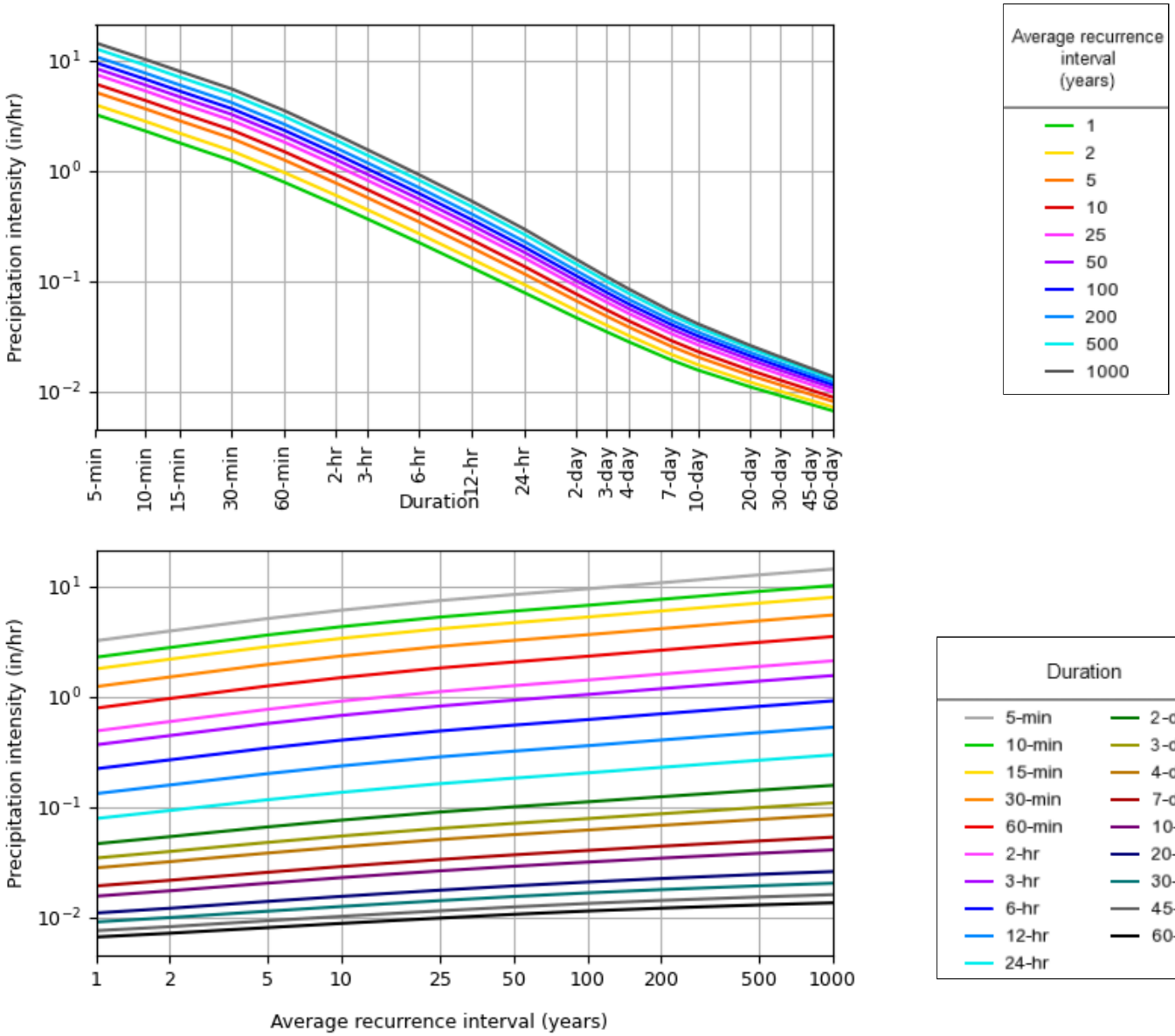
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 43.0822°, Longitude: -78.4041°



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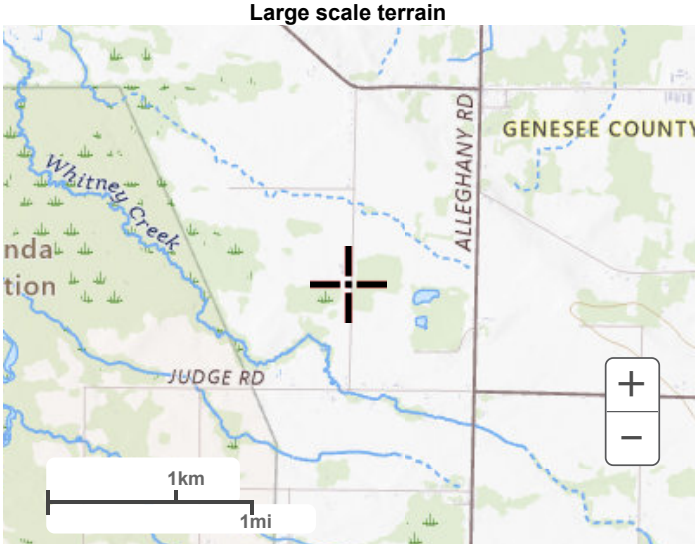
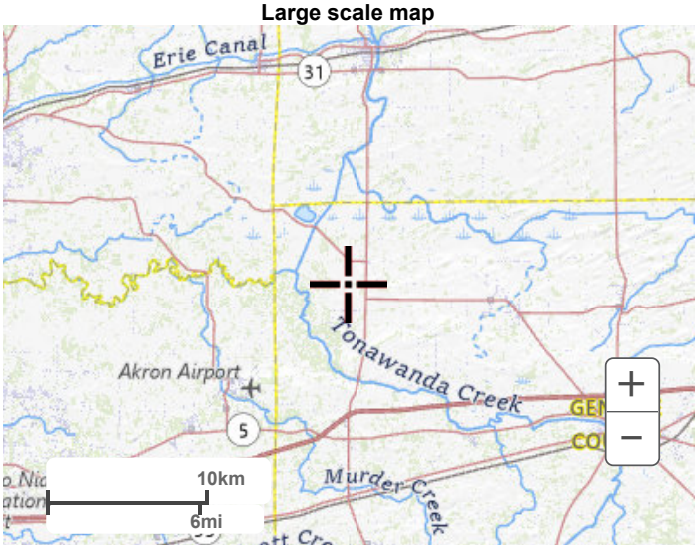
Maps & aerials

Small scale terrain

Large scale terrain



Large scale map



Large scale aerial

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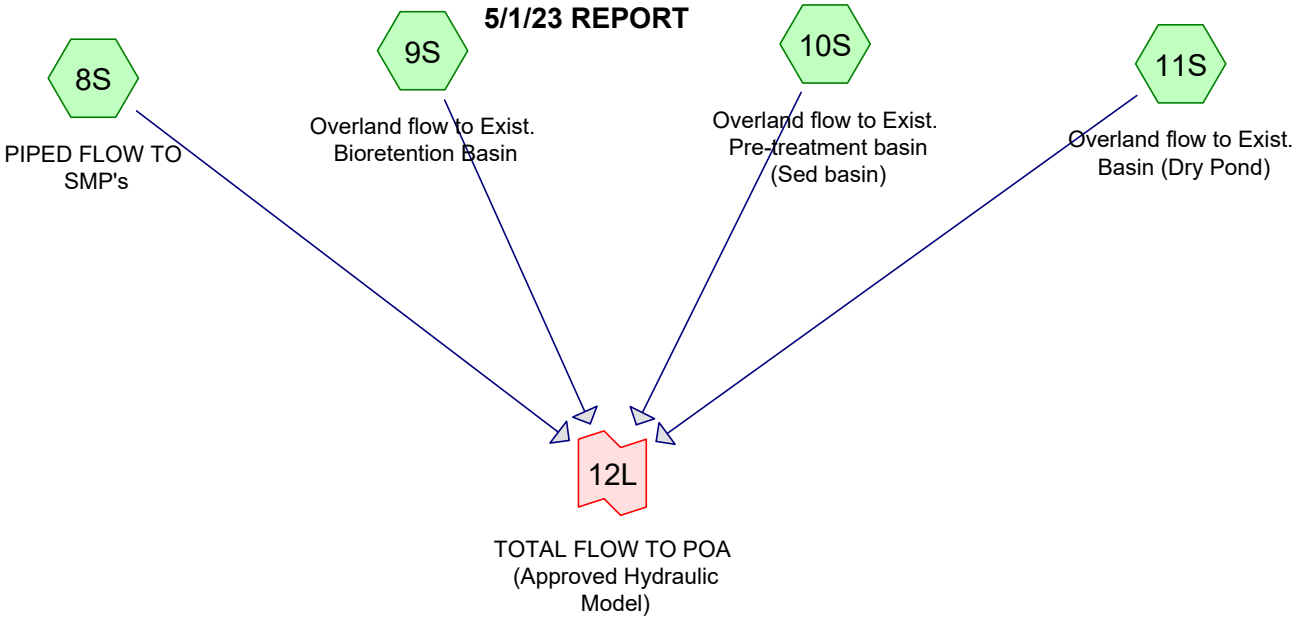
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

APPENDIX D

APPROVED DESIGN HYDROGRAPHS & TIME OF CONCENTRATION CALCULATIONS

APPROVED POST-DEVELOPMENT DESIGN TAKEN FROM INVICTUS 5/1/23 REPORT



Subcat Reach Pond Link

Routing Diagram for 081591-SWM
Prepared by Bowman Consulting Group, Printed 1/9/2026

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.994	80	>75% Grass cover, Good, HSG D (10S, 11S)
3.086	80	GRASS, GOOD, HSG D (8S)
8.273	91	GRAVEL, HSG D (8S)
1.180	91	Gravel, HSG D (9S, 10S, 11S)
1.727	78	Meadow, non-grazed, HSG D (8S, 9S)
6.214	98	PAVED PARKING, HSG D (8S)
2.352	98	ROOF, HSG D (8S)
1.202	98	Unconnected pavement, HSG D (8S)
25.029	**91**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment8S: PIPED FLOW TO Runoff Area=921,452 sf 46.18% Impervious Runoff Depth=1.26"
Flow Length=210' Slope=0.0100 '/' Tc=23.6 min CN=WQ Runoff=25.55 cfs 2.221 af

Subcatchment9S: Overland flow to Exist. Runoff Area=103,265 sf 0.00% Impervious Runoff Depth=0.61"
Flow Length=30' Tc=5.3 min CN=WQ Runoff=2.67 cfs 0.120 af

Subcatchment10S: Overland flow to Exist. Runoff Area=17,565 sf 0.00% Impervious Runoff Depth=0.75"
Tc=5.0 min CN=WQ Runoff=0.59 cfs 0.025 af

Subcatchment11S: Overland flow to Exist. Runoff Area=47,965 sf 0.00% Impervious Runoff Depth=0.67"
Flow Length=300' Tc=19.3 min CN=WQ Runoff=0.79 cfs 0.061 af

Link 12L: TOTAL FLOW TO POA (Approved Hydraulic Model) Inflow=27.15 cfs 2.427 af
Primary=27.15 cfs 2.427 af

Total Runoff Area = 25.029 ac Runoff Volume = 2.427 af Average Runoff Depth = 1.16"
60.97% Pervious = 15.260 ac 39.03% Impervious = 9.768 ac

Summary for Subcatchment 8S: PIPED FLOW TO SMP's

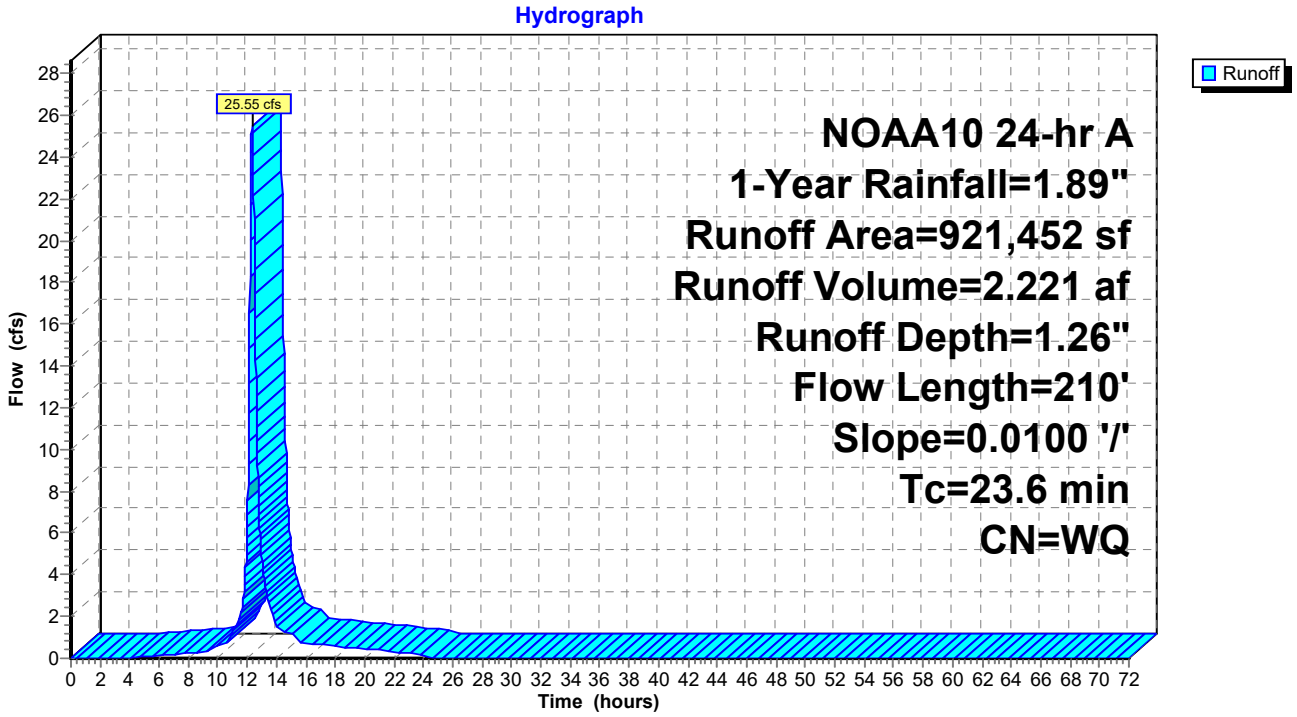
Runoff = 25.55 cfs @ 12.34 hrs, Volume= 2.221 af, Depth= 1.26"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 1-Year Rainfall=1.89"

	Area (sf)	CN	Description
*	102,465	98	ROOF, HSG D
*	270,693	98	PAVED PARKING, HSG D
*	360,390	91	GRAVEL, HSG D
*	134,409	80	GRASS, GOOD, HSG D
	52,350	98	Unconnected pavement, HSG D
	1,145	78	Meadow, non-grazed, HSG D
	921,452		Weighted Average
	495,944		53.82% Pervious Area
	425,508		46.18% Impervious Area
	52,350		12.30% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.5	100	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
0.9	80	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
23.6	210	Total			

Subcatchment 8S: PIPED FLOW TO SMP's



Summary for Subcatchment 9S: Overland flow to Exist. Bioretention Basin

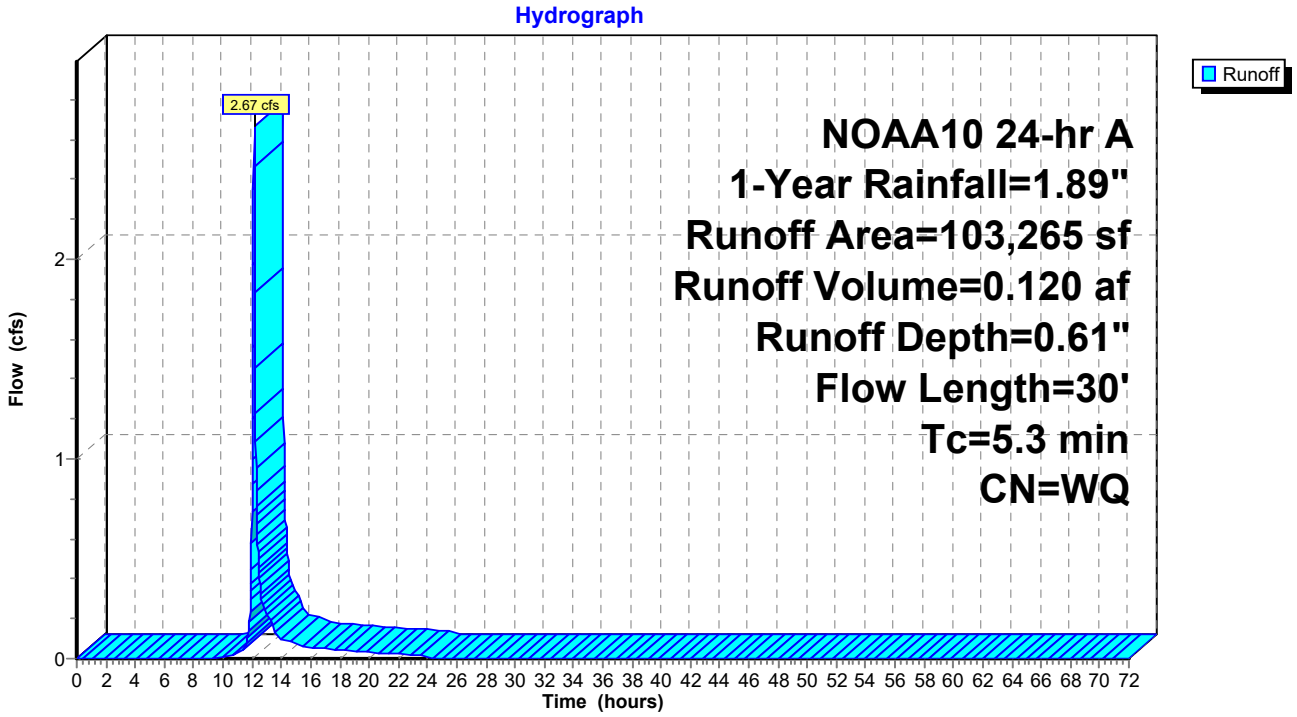
Runoff = 2.67 cfs @ 12.13 hrs, Volume= 0.120 af, Depth= 0.61"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 1-Year Rainfall=1.89"

	Area (sf)	CN	Description
	74,095	78	Meadow, non-grazed, HSG D
*	29,170	91	Gravel, HSG D
	103,265		Weighted Average
	103,265		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	10	0.0100	0.05		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
1.7	20	0.2500	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
5.3	30	Total			

Subcatchment 9S: Overland flow to Exist. Bioretention Basin



Summary for Subcatchment 10S: Overland flow to Exist. Pre-treatment basin (Sed basin)

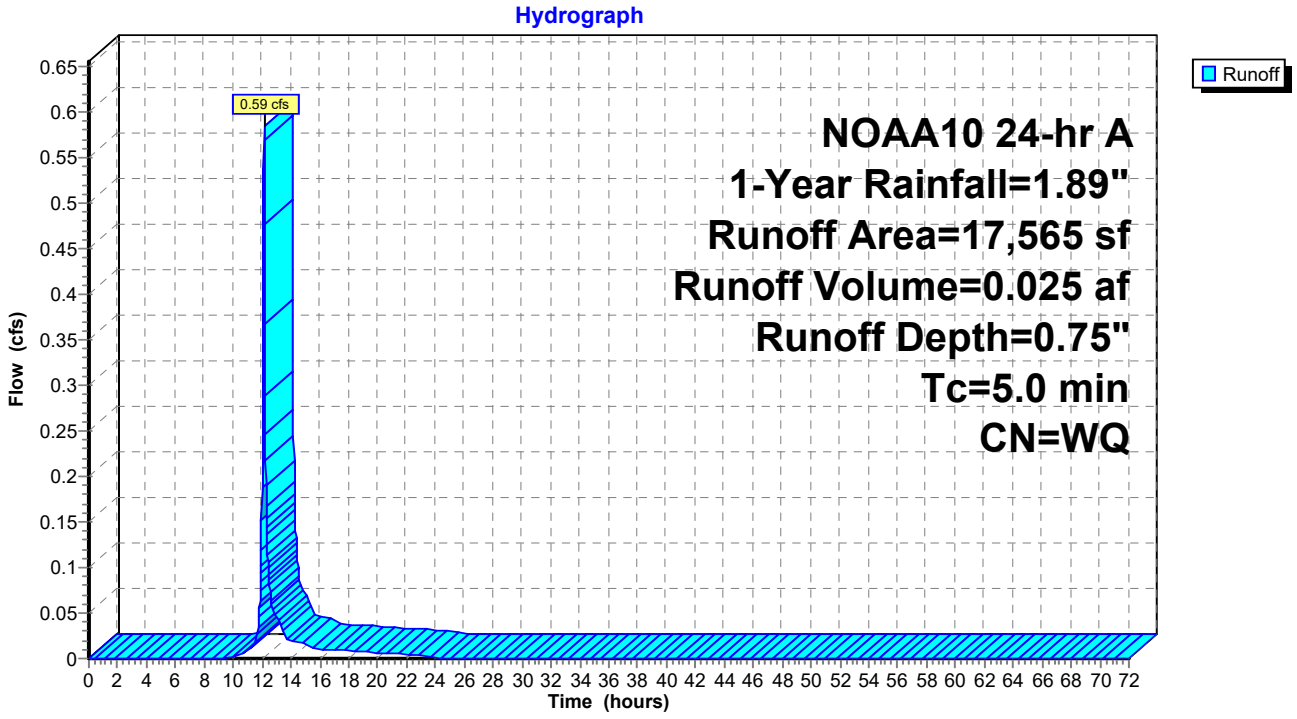
Runoff = 0.59 cfs @ 12.13 hrs, Volume= 0.025 af, Depth= 0.75"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 1-Year Rainfall=1.89"

	Area (sf)	CN	Description
	9,675	80	>75% Grass cover, Good, HSG D
*	7,890	91	Gravel, HSG D
	17,565		Weighted Average
	17,565		100.00% Pervious Area

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

Subcatchment 10S: Overland flow to Exist. Pre-treatment basin (Sed basin)



Summary for Subcatchment 11S: Overland flow to Exist. Basin (Dry Pond)

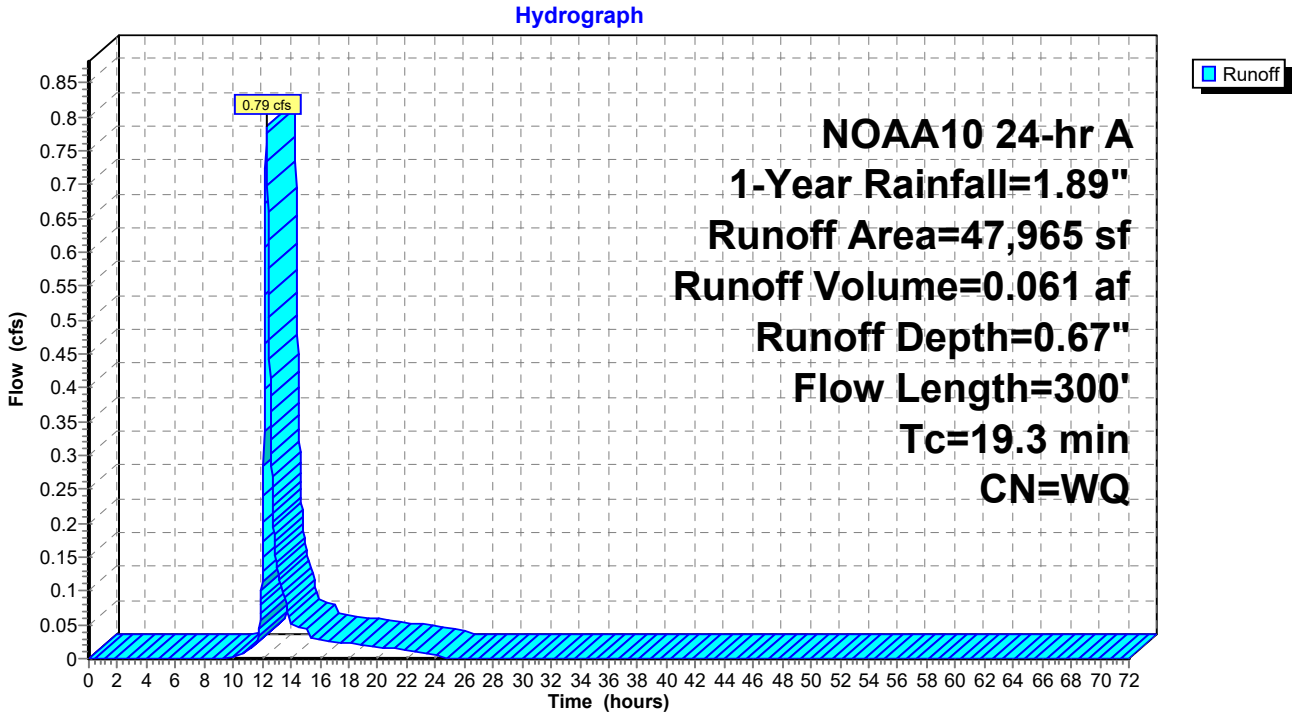
Runoff = 0.79 cfs @ 12.30 hrs, Volume= 0.061 af, Depth= 0.67"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 1-Year Rainfall=1.89"

	Area (sf)	CN	Description
	33,630	80	>75% Grass cover, Good, HSG D
*	14,335	91	Gravel, HSG D
	47,965		Weighted Average
	47,965		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
2.2	200	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
19.3	300	Total			

Subcatchment 11S: Overland flow to Exist. Basin (Dry Pond)

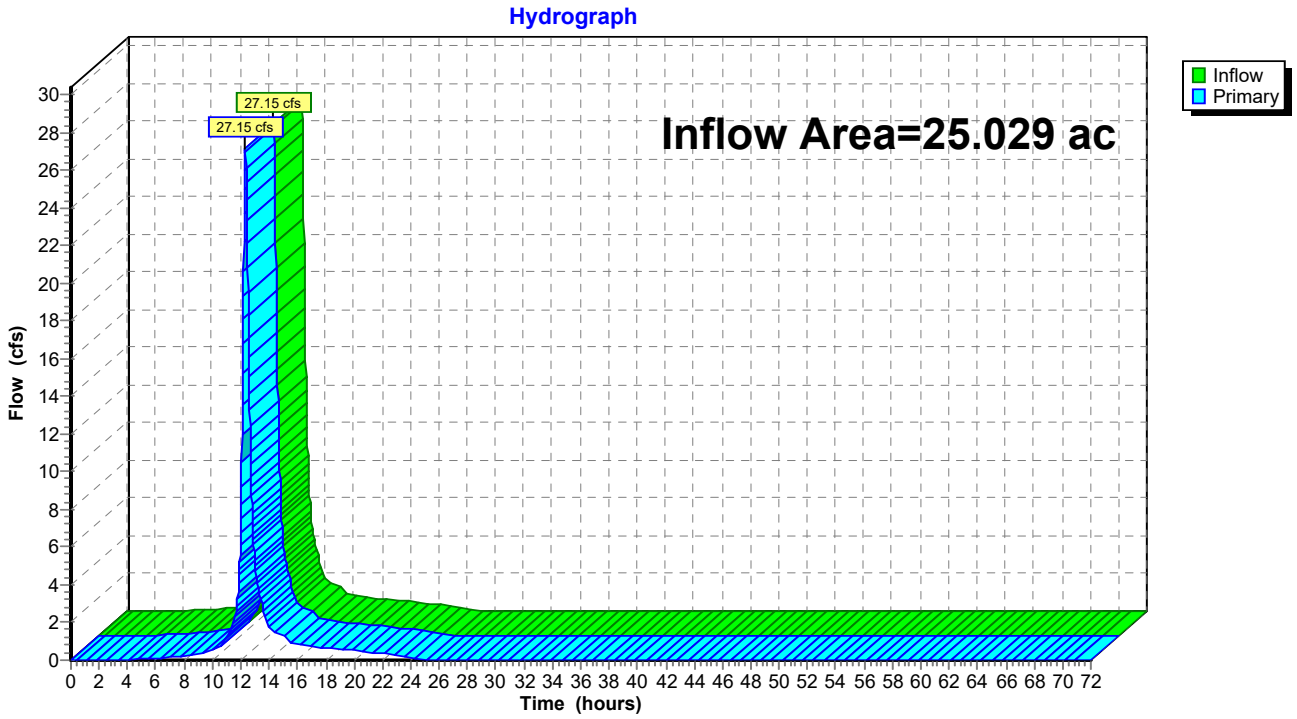


Summary for Link 12L: TOTAL FLOW TO POA (Approved Hydraulic Model)

Inflow Area = 25.029 ac, 39.03% Impervious, Inflow Depth = 1.16" for 1-Year event
Inflow = 27.15 cfs @ 12.33 hrs, Volume= 2.427 af
Primary = 27.15 cfs @ 12.33 hrs, Volume= 2.427 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link 12L: TOTAL FLOW TO POA (Approved Hydraulic Model)



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment8S: PIPED FLOW TO Runoff Area=921,452 sf 46.18% Impervious Runoff Depth=2.52"
Flow Length=210' Slope=0.0100 '/' Tc=23.6 min CN=WQ Runoff=50.47 cfs 4.435 af

Subcatchment9S: Overland flow to Exist. Runoff Area=103,265 sf 0.00% Impervious Runoff Depth=1.60"
Flow Length=30' Tc=5.3 min CN=WQ Runoff=7.20 cfs 0.316 af

Subcatchment10S: Overland flow to Exist. Runoff Area=17,565 sf 0.00% Impervious Runoff Depth=1.84"
Tc=5.0 min CN=WQ Runoff=1.42 cfs 0.062 af

Subcatchment11S: Overland flow to Exist. Runoff Area=47,965 sf 0.00% Impervious Runoff Depth=1.71"
Flow Length=300' Tc=19.3 min CN=WQ Runoff=2.10 cfs 0.157 af

Link 12L: TOTAL FLOW TO POA (Approved Hydraulic Model) Inflow=54.51 cfs 4.970 af
Primary=54.51 cfs 4.970 af

Total Runoff Area = 25.029 ac Runoff Volume = 4.970 af Average Runoff Depth = 2.38"
60.97% Pervious = 15.260 ac 39.03% Impervious = 9.768 ac

Summary for Subcatchment 8S: PIPED FLOW TO SMP's

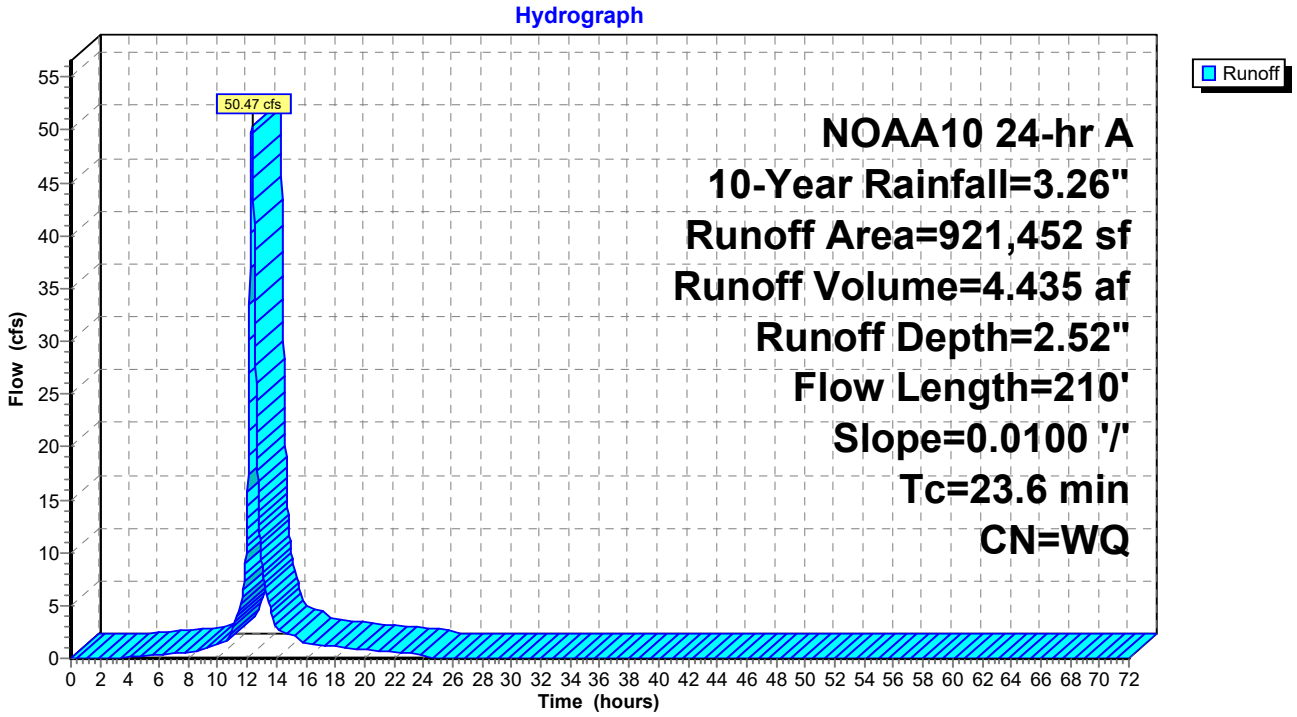
Runoff = 50.47 cfs @ 12.33 hrs, Volume= 4.435 af, Depth= 2.52"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 10-Year Rainfall=3.26"

	Area (sf)	CN	Description
*	102,465	98	ROOF, HSG D
*	270,693	98	PAVED PARKING, HSG D
*	360,390	91	GRAVEL, HSG D
*	134,409	80	GRASS, GOOD, HSG D
	52,350	98	Unconnected pavement, HSG D
	1,145	78	Meadow, non-grazed, HSG D
	921,452		Weighted Average
	495,944		53.82% Pervious Area
	425,508		46.18% Impervious Area
	52,350		12.30% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.5	100	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
0.9	80	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
23.6	210	Total			

Subcatchment 8S: PIPED FLOW TO SMP's



Summary for Subcatchment 9S: Overland flow to Exist. Bioretention Basin

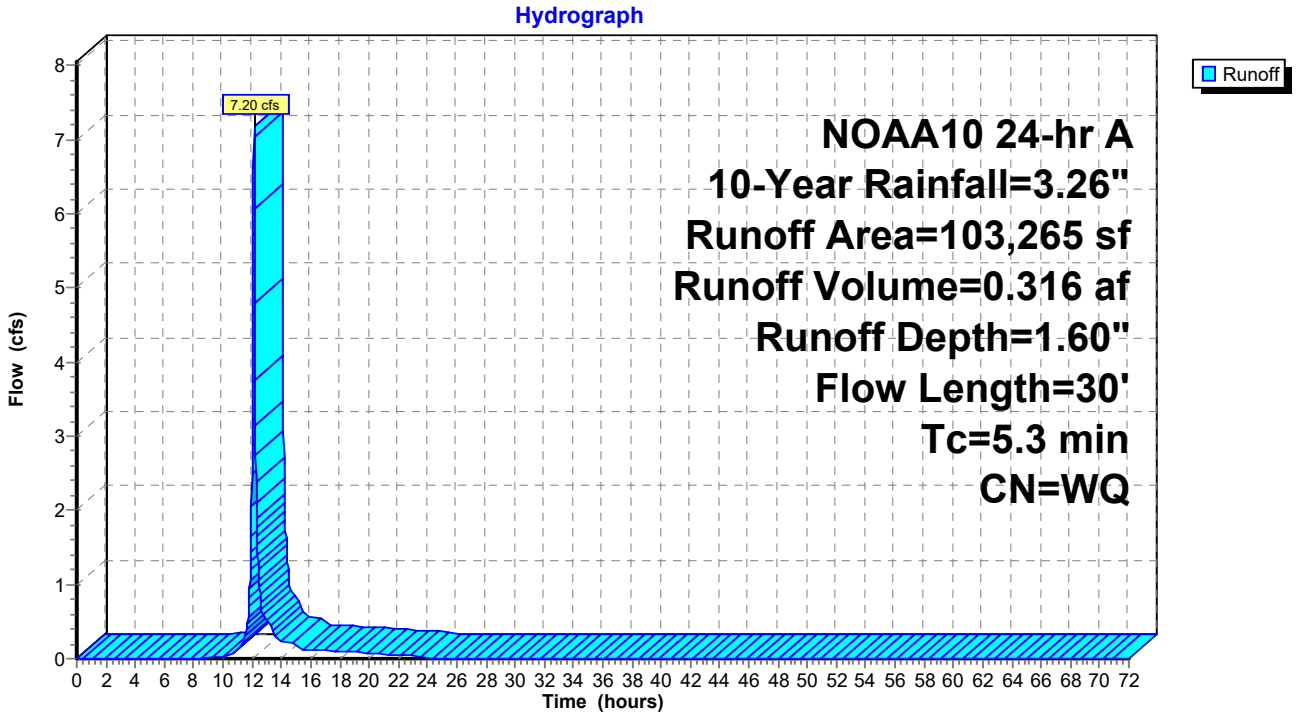
Runoff = 7.20 cfs @ 12.13 hrs, Volume= 0.316 af, Depth= 1.60"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 10-Year Rainfall=3.26"

	Area (sf)	CN	Description
	74,095	78	Meadow, non-grazed, HSG D
*	29,170	91	Gravel, HSG D
	103,265		Weighted Average
	103,265		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	10	0.0100	0.05		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
1.7	20	0.2500	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
5.3	30	Total			

Subcatchment 9S: Overland flow to Exist. Bioretention Basin



Summary for Subcatchment 10S: Overland flow to Exist. Pre-treatment basin (Sed basin)

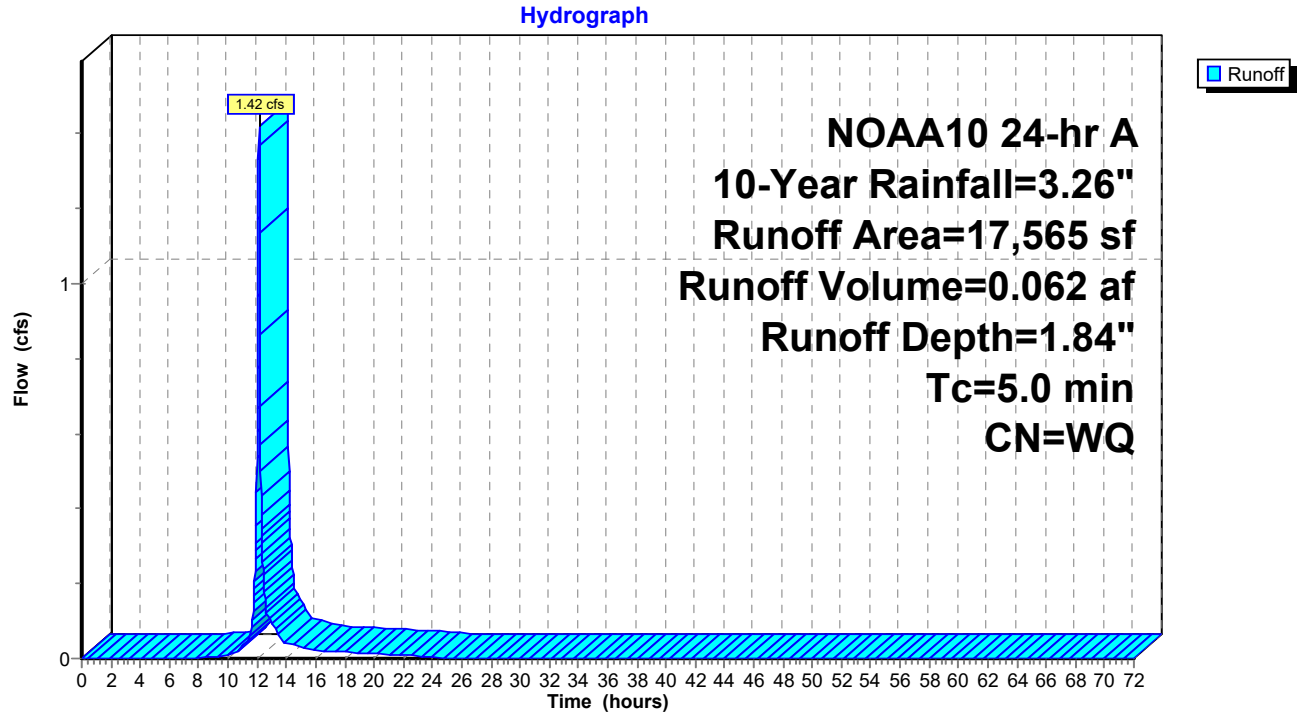
Runoff = 1.42 cfs @ 12.12 hrs, Volume= 0.062 af, Depth= 1.84"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 10-Year Rainfall=3.26"

	Area (sf)	CN	Description
	9,675	80	>75% Grass cover, Good, HSG D
*	7,890	91	Gravel, HSG D
	17,565		Weighted Average
	17,565		100.00% Pervious Area

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

Subcatchment 10S: Overland flow to Exist. Pre-treatment basin (Sed basin)



Summary for Subcatchment 11S: Overland flow to Exist. Basin (Dry Pond)

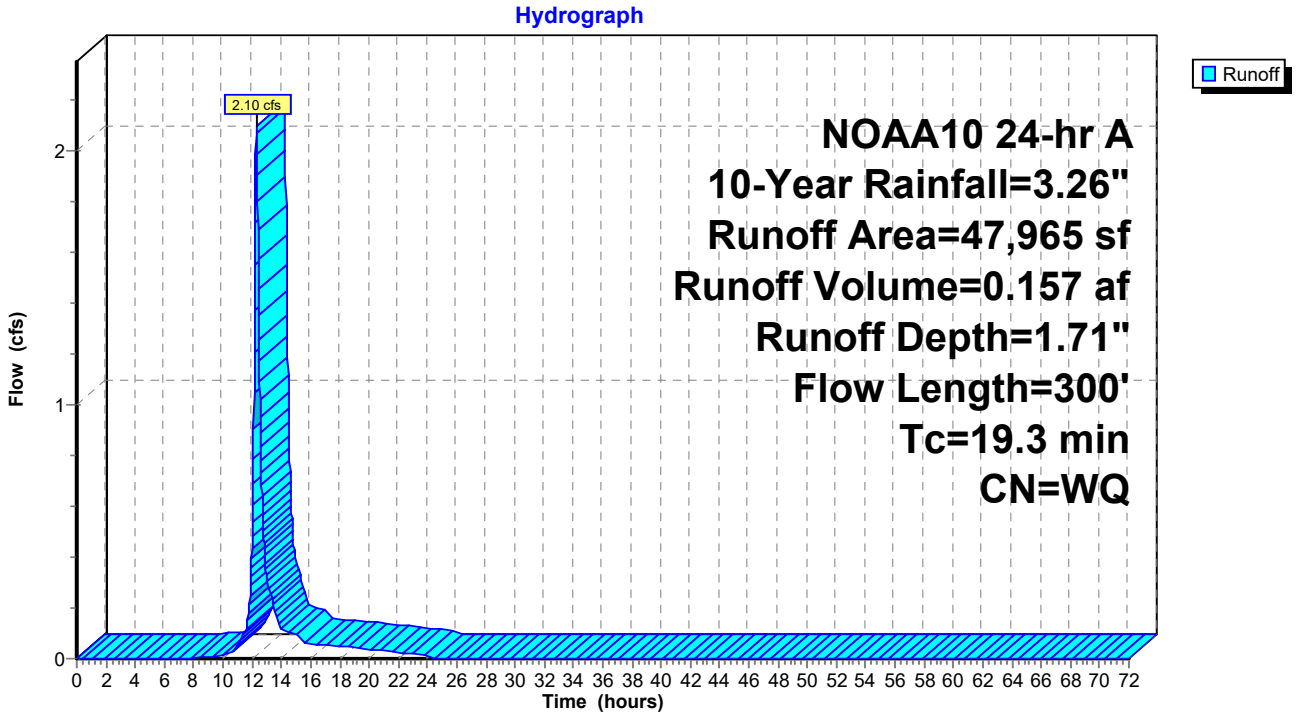
Runoff = 2.10 cfs @ 12.29 hrs, Volume= 0.157 af, Depth= 1.71"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 10-Year Rainfall=3.26"

	Area (sf)	CN	Description
	33,630	80	>75% Grass cover, Good, HSG D
*	14,335	91	Gravel, HSG D
	47,965		Weighted Average
	47,965		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
2.2	200	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
19.3	300	Total			

Subcatchment 11S: Overland flow to Exist. Basin (Dry Pond)

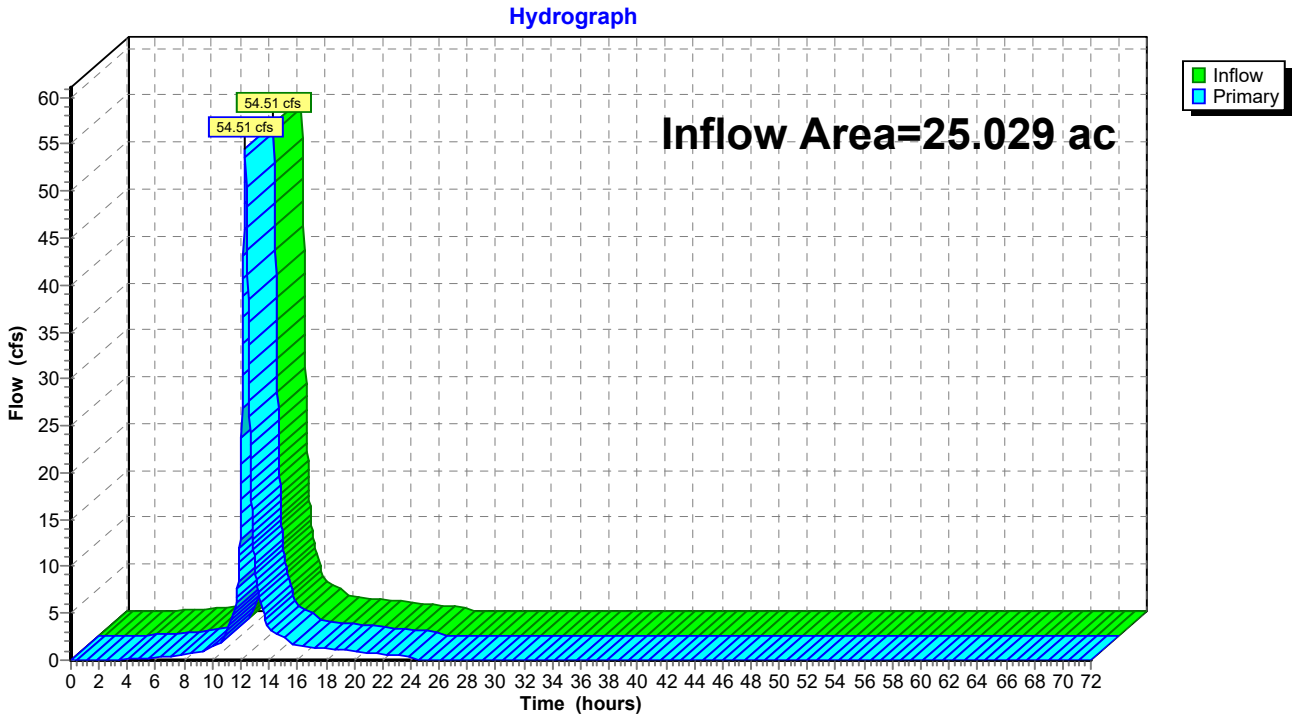


Summary for Link 12L: TOTAL FLOW TO POA (Approved Hydraulic Model)

Inflow Area = 25.029 ac, 39.03% Impervious, Inflow Depth = 2.38" for 10-Year event
Inflow = 54.51 cfs @ 12.33 hrs, Volume= 4.970 af
Primary = 54.51 cfs @ 12.33 hrs, Volume= 4.970 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link 12L: TOTAL FLOW TO POA (Approved Hydraulic Model)



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment8S: PIPED FLOW TO Runoff Area=921,452 sf 46.18% Impervious Runoff Depth=4.09"
Flow Length=210' Slope=0.0100 '/' Tc=23.6 min CN=WQ Runoff=80.87 cfs 7.202 af

Subcatchment9S: Overland flow to Exist. Runoff Area=103,265 sf 0.00% Impervious Runoff Depth=2.98"
Flow Length=30' Tc=5.3 min CN=WQ Runoff=13.24 cfs 0.589 af

Subcatchment10S: Overland flow to Exist. Runoff Area=17,565 sf 0.00% Impervious Runoff Depth=3.29"
Tc=5.0 min CN=WQ Runoff=2.49 cfs 0.111 af

Subcatchment11S: Overland flow to Exist. Runoff Area=47,965 sf 0.00% Impervious Runoff Depth=3.13"
Flow Length=300' Tc=19.3 min CN=WQ Runoff=3.83 cfs 0.287 af

Link 12L: TOTAL FLOW TO POA (Approved Hydraulic Model) Inflow=88.12 cfs 8.189 af
Primary=88.12 cfs 8.189 af

Total Runoff Area = 25.029 ac Runoff Volume = 8.189 af Average Runoff Depth = 3.93"
60.97% Pervious = 15.260 ac 39.03% Impervious = 9.768 ac

Summary for Subcatchment 8S: PIPED FLOW TO SMP's

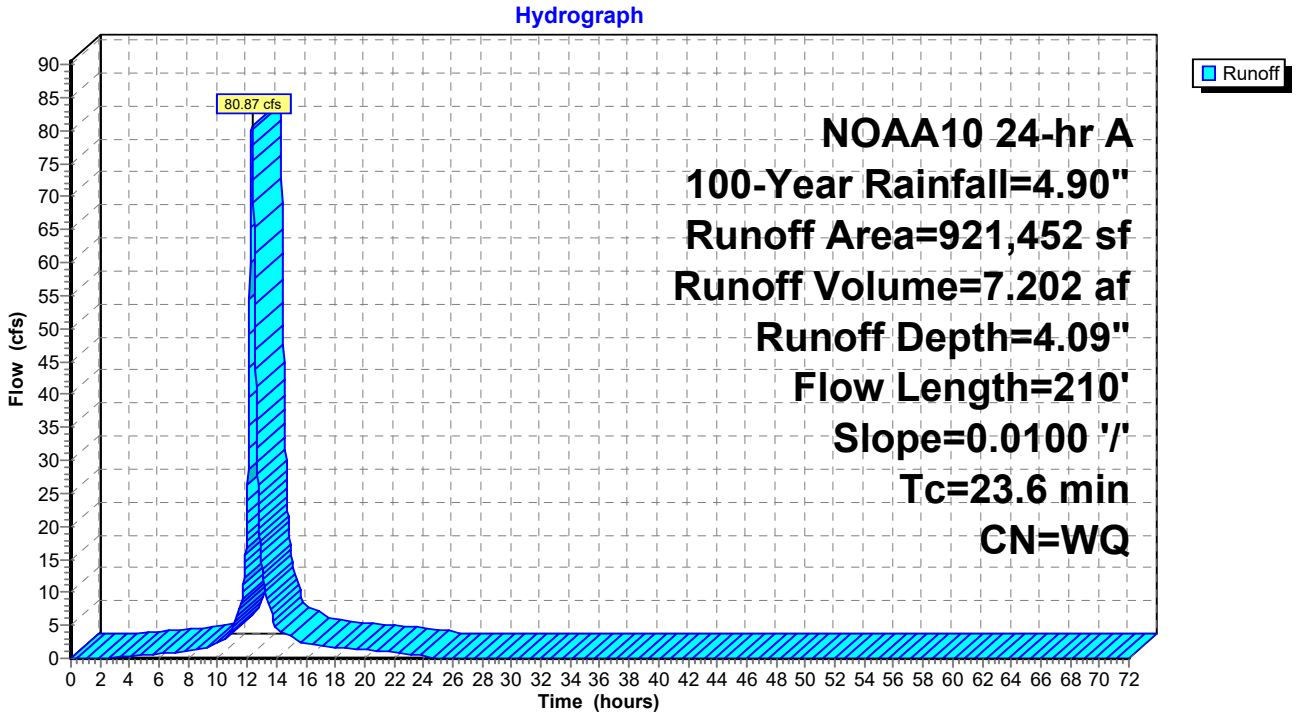
Runoff = 80.87 cfs @ 12.33 hrs, Volume= 7.202 af, Depth= 4.09"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 100-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	102,465	98	ROOF, HSG D
*	270,693	98	PAVED PARKING, HSG D
*	360,390	91	GRAVEL, HSG D
*	134,409	80	GRASS, GOOD, HSG D
	52,350	98	Unconnected pavement, HSG D
	1,145	78	Meadow, non-grazed, HSG D
	921,452		Weighted Average
	495,944		53.82% Pervious Area
	425,508		46.18% Impervious Area
	52,350		12.30% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.5	100	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
0.9	80	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
23.6	210	Total			

Subcatchment 8S: PIPED FLOW TO SMP's



Summary for Subcatchment 9S: Overland flow to Exist. Bioretention Basin

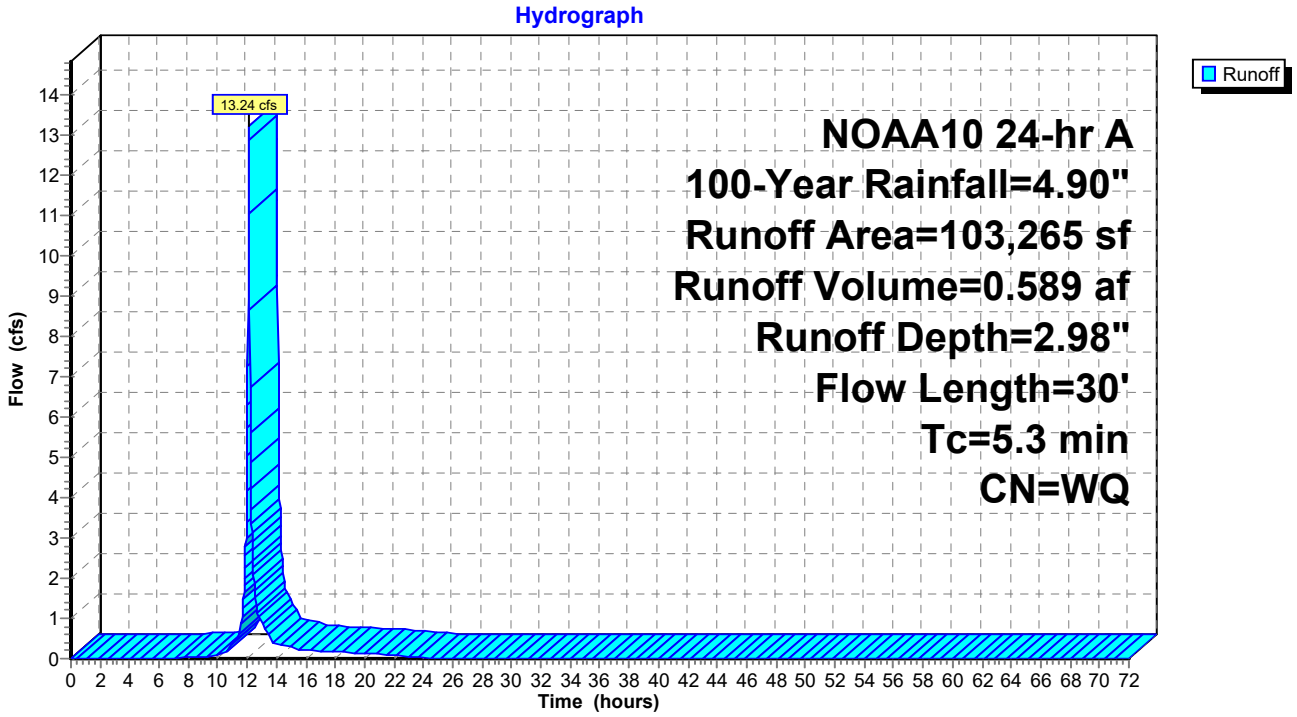
Runoff = 13.24 cfs @ 12.12 hrs, Volume= 0.589 af, Depth= 2.98"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 100-Year Rainfall=4.90"

	Area (sf)	CN	Description
	74,095	78	Meadow, non-grazed, HSG D
*	29,170	91	Gravel, HSG D
	103,265		Weighted Average
	103,265		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	10	0.0100	0.05		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
1.7	20	0.2500	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
5.3	30	Total			

Subcatchment 9S: Overland flow to Exist. Bioretention Basin



Summary for Subcatchment 10S: Overland flow to Exist. Pre-treatment basin (Sed basin)

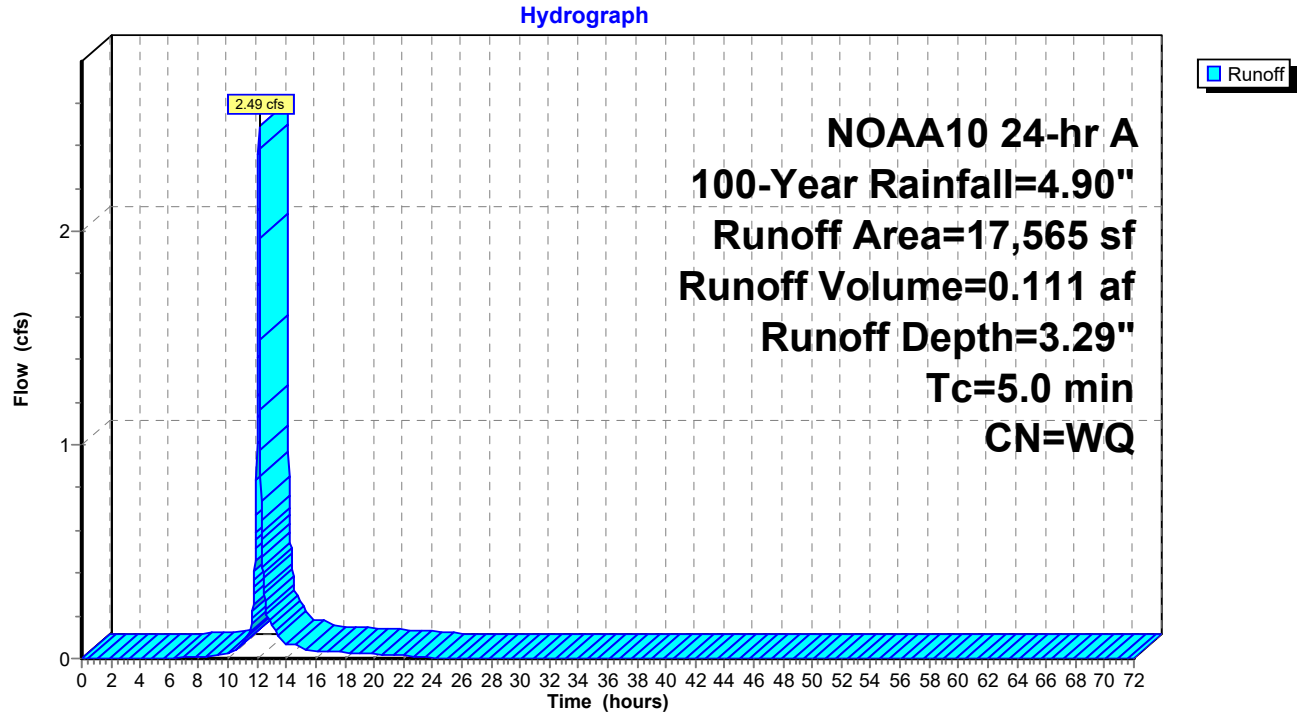
Runoff = 2.49 cfs @ 12.12 hrs, Volume= 0.111 af, Depth= 3.29"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 100-Year Rainfall=4.90"

	Area (sf)	CN	Description
	9,675	80	>75% Grass cover, Good, HSG D
*	7,890	91	Gravel, HSG D
	17,565		Weighted Average
	17,565		100.00% Pervious Area

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

Subcatchment 10S: Overland flow to Exist. Pre-treatment basin (Sed basin)



Summary for Subcatchment 11S: Overland flow to Exist. Basin (Dry Pond)

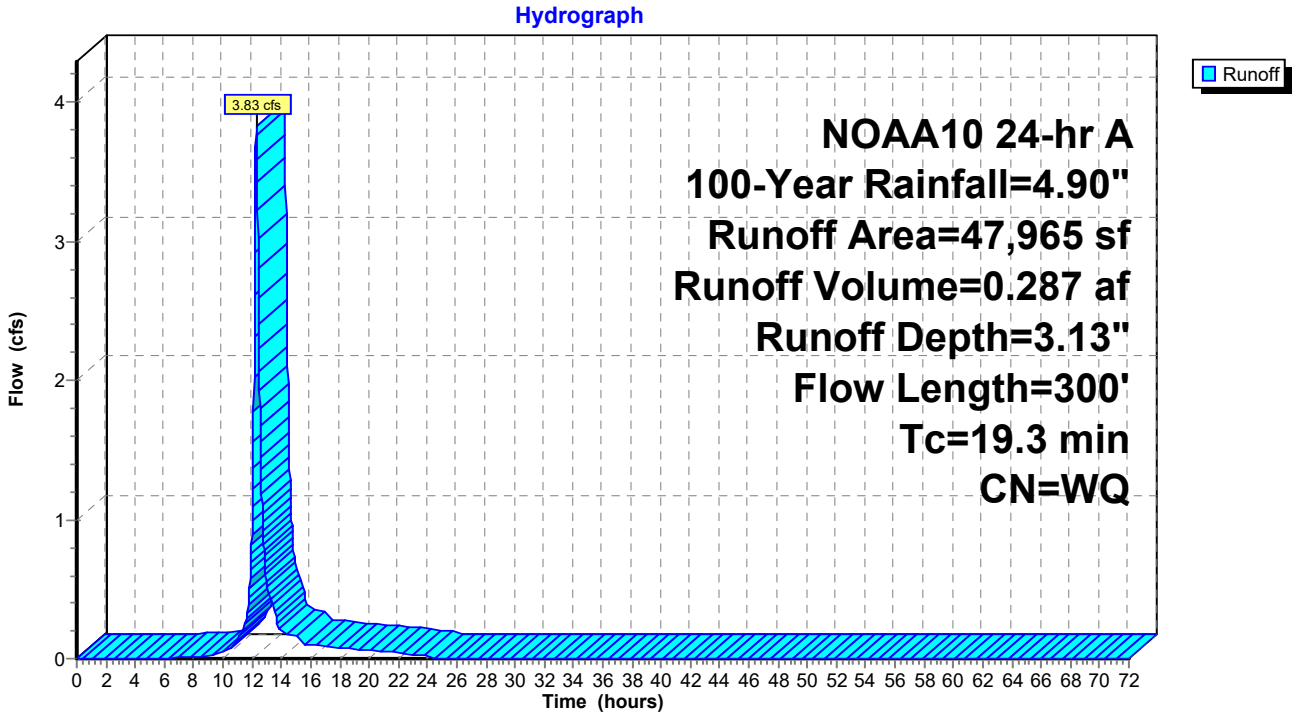
Runoff = 3.83 cfs @ 12.28 hrs, Volume= 0.287 af, Depth= 3.13"
Routed to Link 12L : TOTAL FLOW TO POA (Approved Hydraulic Model)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 100-Year Rainfall=4.90"

	Area (sf)	CN	Description
	33,630	80	>75% Grass cover, Good, HSG D
*	14,335	91	Gravel, HSG D
	47,965		Weighted Average
	47,965		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
2.2	200	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
19.3	300	Total			

Subcatchment 11S: Overland flow to Exist. Basin (Dry Pond)

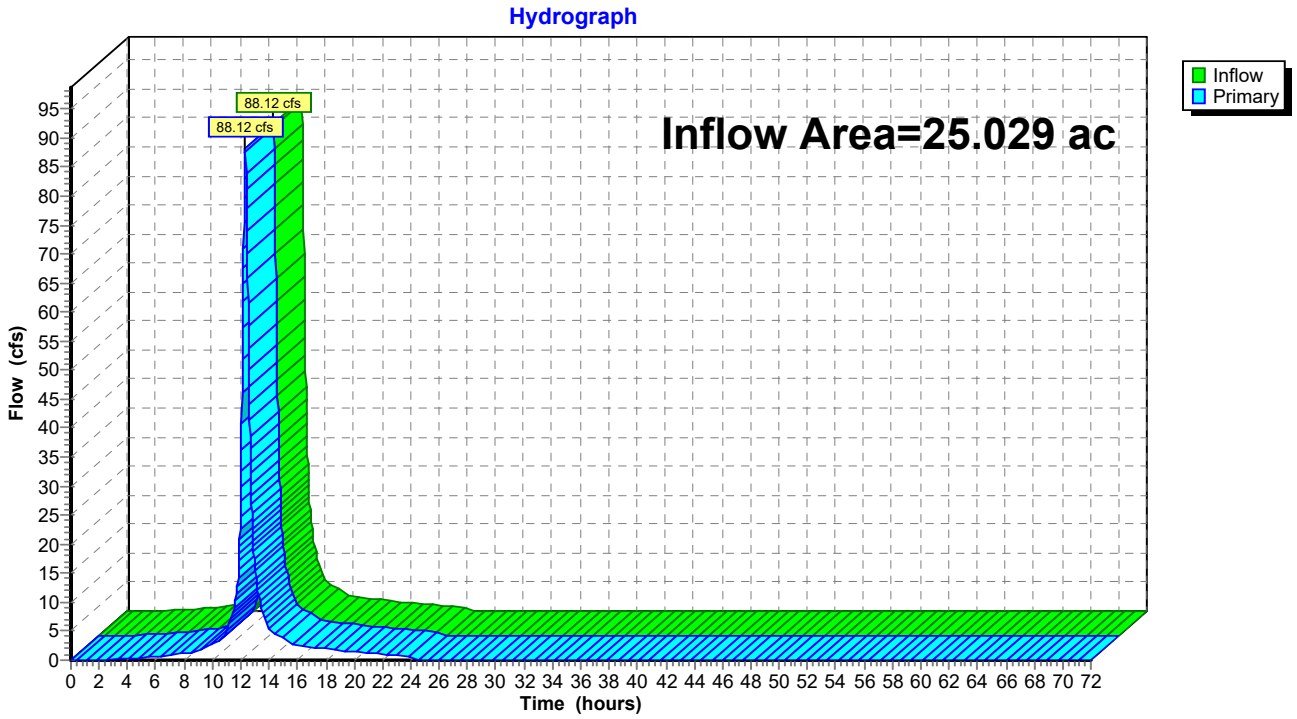


Summary for Link 12L: TOTAL FLOW TO POA (Approved Hydraulic Model)

Inflow Area = 25.029 ac, 39.03% Impervious, Inflow Depth = 3.93" for 100-Year event
Inflow = 88.12 cfs @ 12.32 hrs, Volume= 8.189 af
Primary = 88.12 cfs @ 12.32 hrs, Volume= 8.189 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

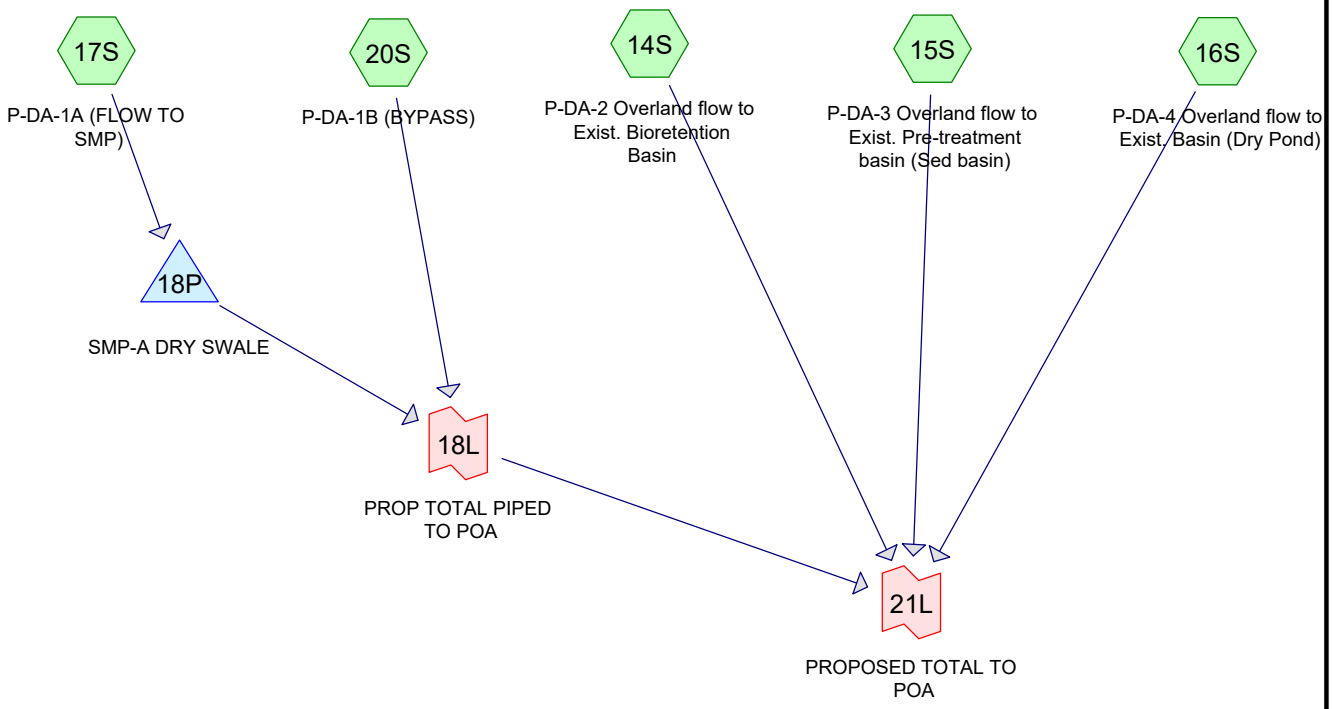
Link 12L: TOTAL FLOW TO POA (Approved Hydraulic Model)



APPENDIX E

POST-DEVELOPMENT HYDROGRAPHS & TIME OF CONCENTRATION CALCULATIONS

PROPOSED
POST-DEVELOPMENT
CONDITIONS



Subcat Reach Pond Link

Routing Diagram for 081591-SWM
Prepared by Bowman Consulting Group, Printed 1/9/2026

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.466	80	>75% Grass cover, Good, HSG D (14S, 15S, 16S, 17S, 20S)
0.041	98	CONCRETE, HSG D (20S)
0.469	91	Exist. Substation, Gravel, HSG D (20S)
2.659	91	GRAVEL, HSG D (20S)
0.452	91	Gravel, HSG D (15S, 16S)
1.701	78	Meadow, non-grazed, HSG D - Taken from Approved SWPPP (14S)
2.890	98	PAVEMENT, HSG D (20S)
0.830	98	Paved parking, HSG D (17S)
7.653	98	ROOF, HSG D (20S)
25.161	**90**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment14S: P-DA-2 Overland flow Runoff Area=104,803 sf 0.00% Impervious Runoff Depth=0.45"
Flow Length=84' Tc=14.5 min CN=WQ Runoff=1.25 cfs 0.089 af

Subcatchment15S: P-DA-3 Overland flow Runoff Area=18,458 sf 0.00% Impervious Runoff Depth=0.68"
Tc=5.0 min CN=WQ Runoff=0.55 cfs 0.024 af

Subcatchment16S: P-DA-4 Overland flow Runoff Area=42,003 sf 0.00% Impervious Runoff Depth=0.68"
Tc=19.3 min CN=WQ Runoff=0.71 cfs 0.055 af

Subcatchment17S: P-DA-1A (FLOW TO Runoff Area=81,753 sf 44.20% Impervious Runoff Depth=1.01"
Flow Length=64' Tc=10.5 min CN=WQ Runoff=2.63 cfs 0.158 af

Subcatchment20S: P-DA-1B (BYPASS) Runoff Area=848,980 sf 54.31% Impervious Runoff Depth=1.22"
Flow Length=1,110' Tc=26.9 min CN=WQ Runoff=20.80 cfs 1.986 af

Pond 18P: SMP-A DRY SWALE Peak Elev=672.26' Storage=1,183 cf Inflow=2.63 cfs 0.158 af
Outflow=1.33 cfs 0.158 af

Link 18L: PROP TOTAL PIPED TO POA Inflow=22.12 cfs 2.145 af
Primary=22.12 cfs 2.145 af

Link 21L: PROPOSED TOTAL TO POA Inflow=23.76 cfs 2.313 af
Primary=23.76 cfs 2.313 af

Total Runoff Area = 25.161 ac Runoff Volume = 2.313 af Average Runoff Depth = 1.10"
54.64% Pervious = 13.747 ac 45.36% Impervious = 11.414 ac

Summary for Subcatchment 14S: P-DA-2 Overland flow to Exist. Bioretention Basin

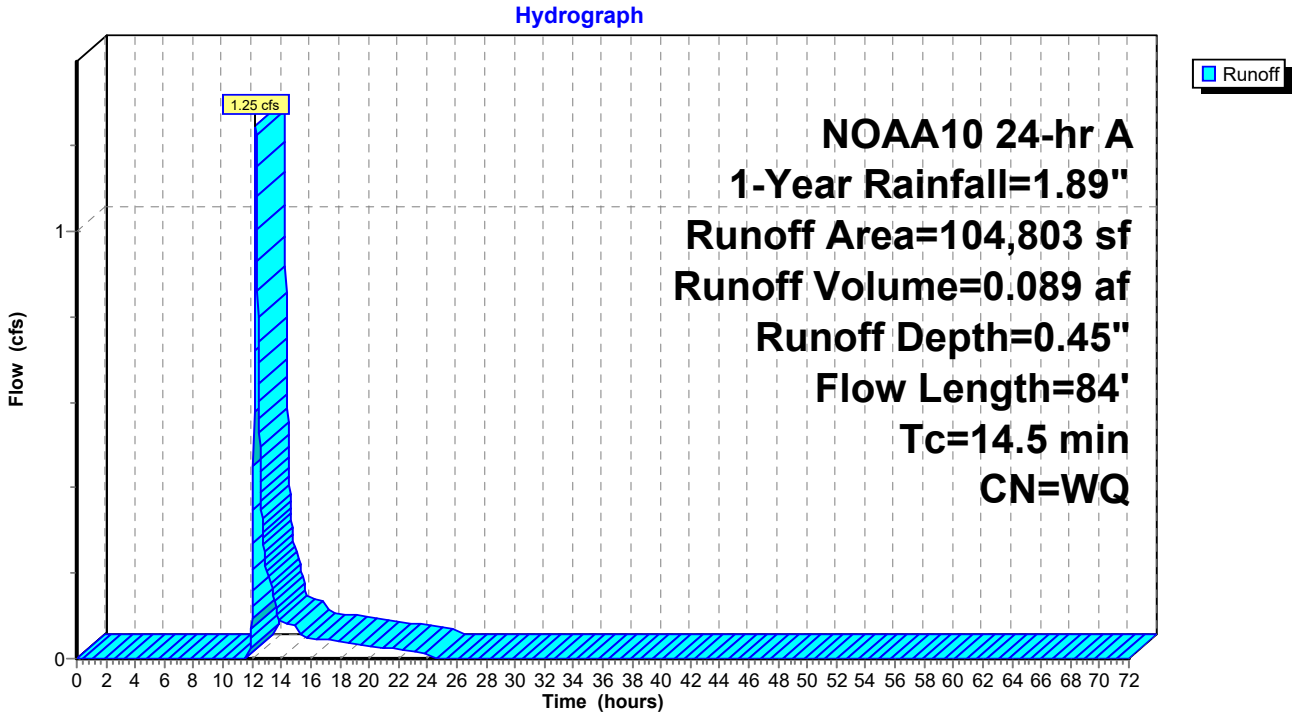
Runoff = 1.25 cfs @ 12.25 hrs, Volume= 0.089 af, Depth= 0.45"
Routed to Link 21L : PROPOSED TOTAL TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 1-Year Rainfall=1.89"

	Area (sf)	CN	Description
*	74,095	78	Meadow, non-grazed, HSG D - Taken from Approved SWPPP
	30,708	80	>75% Grass cover, Good, HSG D
	104,803		Weighted Average
	104,803		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	58	0.0150	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
2.1	26	0.2500	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
14.5	84	Total			

Subcatchment 14S: P-DA-2 Overland flow to Exist. Bioretention Basin



Summary for Subcatchment 15S: P-DA-3 Overland flow to Exist. Pre-treatment basin (Sed basin)

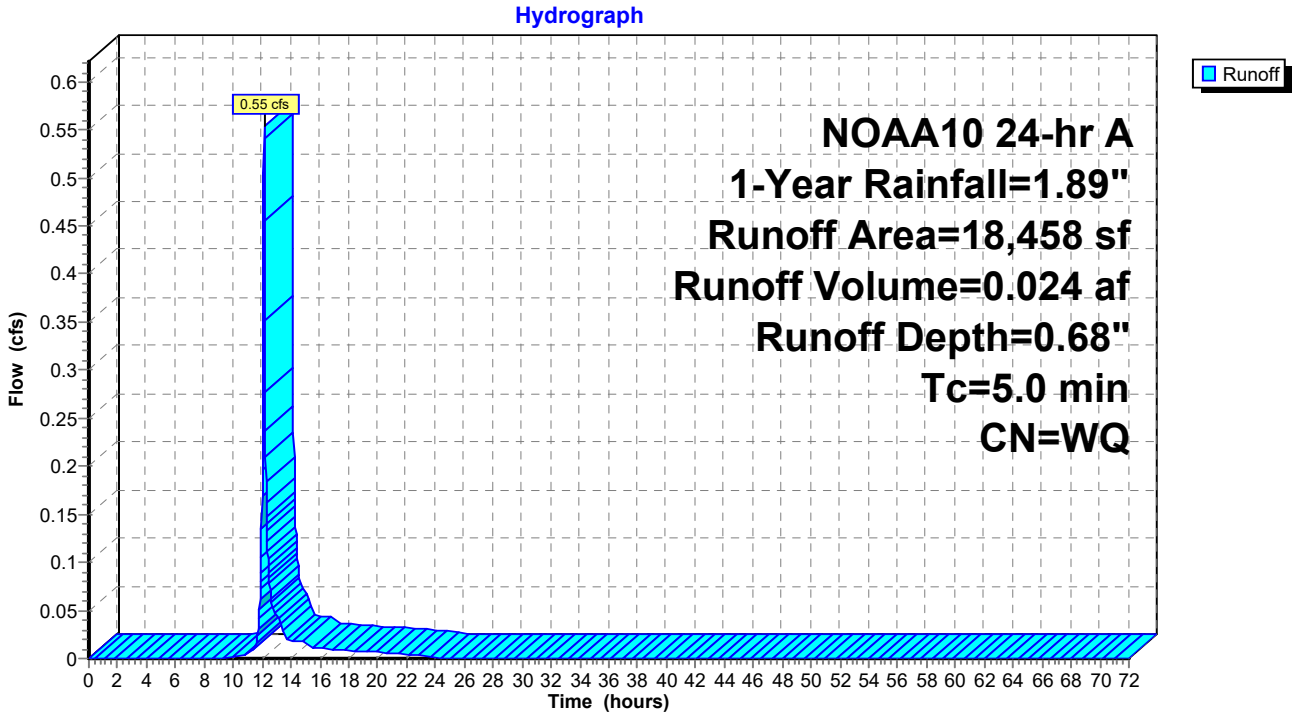
Runoff = 0.55 cfs @ 12.13 hrs, Volume= 0.024 af, Depth= 0.68"
Routed to Link 21L : PROPOSED TOTAL TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 1-Year Rainfall=1.89"

	Area (sf)	CN	Description
*	5,960	91	Gravel, HSG D
	12,498	80	>75% Grass cover, Good, HSG D
	18,458		Weighted Average
	18,458		100.00% Pervious Area

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

Subcatchment 15S: P-DA-3 Overland flow to Exist. Pre-treatment basin (Sed basin)



Summary for Subcatchment 16S: P-DA-4 Overland flow to Exist. Basin (Dry Pond)

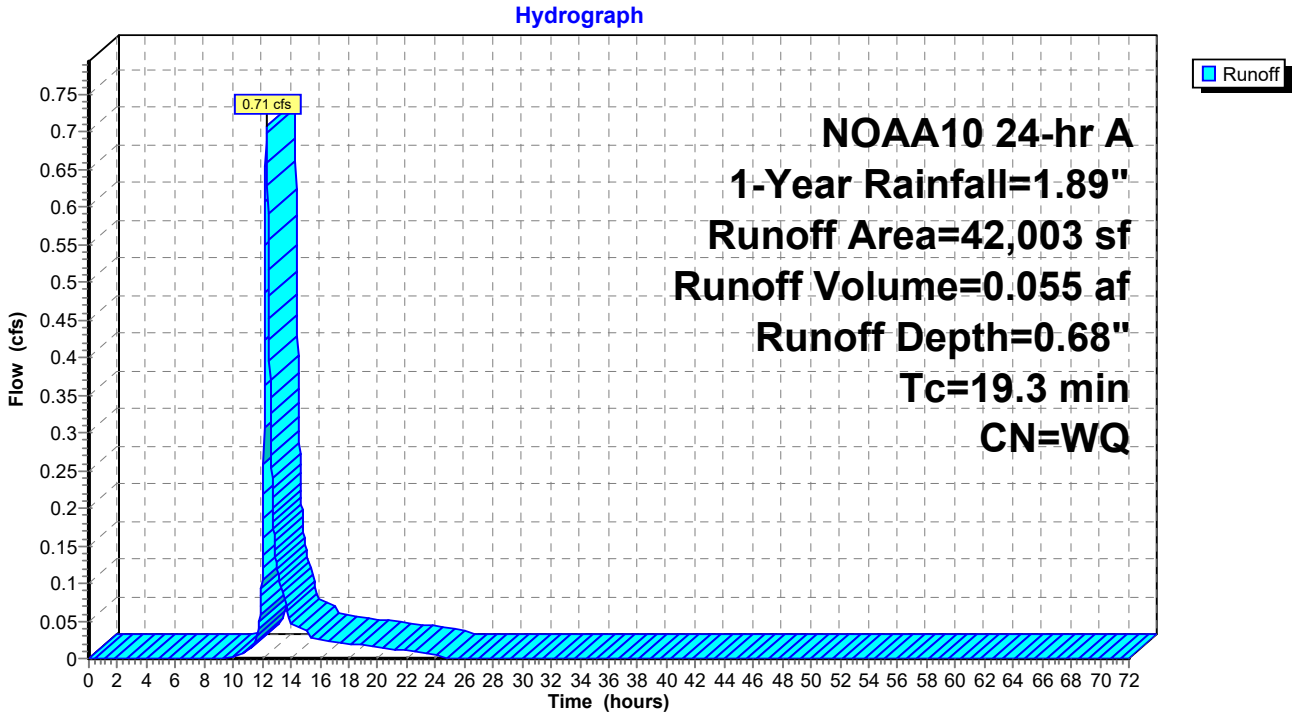
Runoff = 0.71 cfs @ 12.30 hrs, Volume= 0.055 af, Depth= 0.68"
Routed to Link 21L : PROPOSED TOTAL TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 1-Year Rainfall=1.89"

	Area (sf)	CN	Description
*	13,722	91	Gravel, HSG D
	28,281	80	>75% Grass cover, Good, HSG D
	42,003		Weighted Average
	42,003		100.00% Pervious Area

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

Subcatchment 16S: P-DA-4 Overland flow to Exist. Basin (Dry Pond)



Summary for Subcatchment 17S: P-DA-1A (FLOW TO SMP)

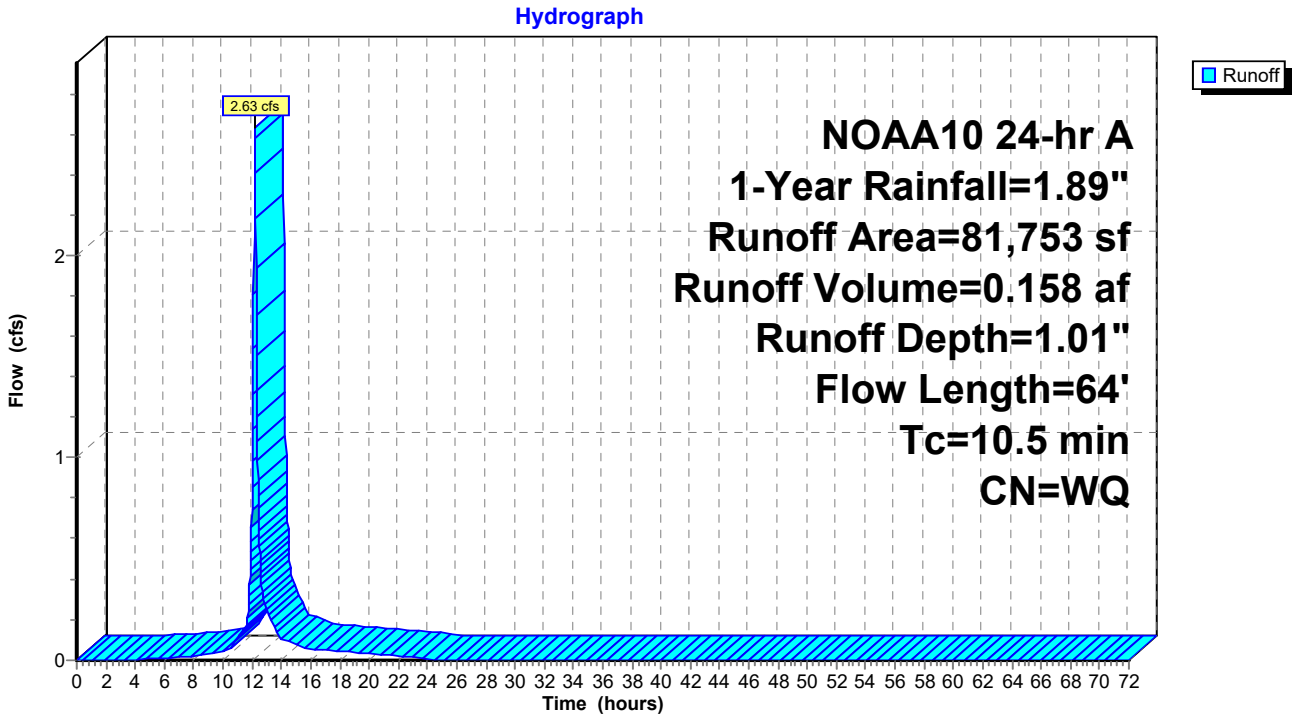
Runoff = 2.63 cfs @ 12.18 hrs, Volume= 0.158 af, Depth= 1.01"
Routed to Pond 18P : SMP-A DRY SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 1-Year Rainfall=1.89"

Area (sf)	CN	Description
45,617	80	>75% Grass cover, Good, HSG D
36,136	98	Paved parking, HSG D
81,753		Weighted Average
45,617		55.80% Pervious Area
36,136		44.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	38	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
0.1	26	0.1250	5.69		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.5	64	Total			

Subcatchment 17S: P-DA-1A (FLOW TO SMP)



Summary for Subcatchment 20S: P-DA-1B (BYPASS)

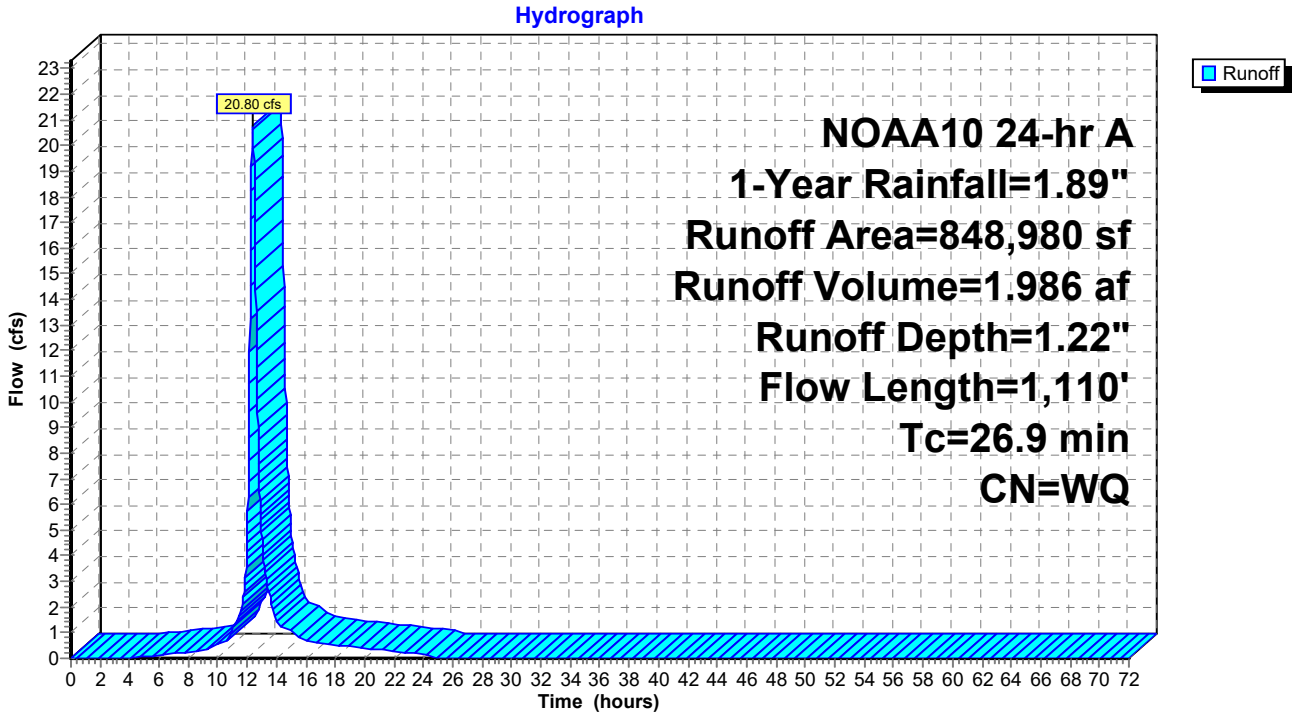
Runoff = 20.80 cfs @ 12.38 hrs, Volume= 1.986 af, Depth= 1.22"
Routed to Link 18L : PROP TOTAL PIPED TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 1-Year Rainfall=1.89"

	Area (sf)	CN	Description
*	333,375	98	ROOF, HSG D
*	125,906	98	PAVEMENT, HSG D
*	1,767	98	CONCRETE, HSG D
*	115,824	91	GRAVEL, HSG D
	251,666	80	>75% Grass cover, Good, HSG D
*	20,442	91	Exist. Substation, Gravel, HSG D
	848,980		Weighted Average
	387,932		45.69% Pervious Area
	461,048		54.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	20	0.0350	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
18.8	80	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
0.4	53	0.0020	2.35	2.89	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.0	154	0.0020	2.66	4.70	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.3	60	0.0020	3.22	10.12	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.3	78	0.0020	3.74	18.34	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.3	79	0.0020	4.68	44.99	**Pipe Channel,** 42.0" Round Area= 9.6 sf Perim= 11.0' r= 0.88' n= 0.013
1.4	388	0.0020	4.68	44.99	**Pipe Channel,** 42.0" Round Area= 9.6 sf Perim= 11.0' r= 0.88' n= 0.013
0.4	121	0.0020	5.11	64.24	**Pipe Channel,** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.2	77	0.0034	6.67	83.76	**Pipe Channel,** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
26.9	1,110	Total			

Subcatchment 20S: P-DA-1B (BYPASS)



Summary for Pond 18P: SMP-A DRY SWALE

Inflow Area = 1.877 ac, 44.20% Impervious, Inflow Depth = 1.01" for 1-Year event
Inflow = 2.63 cfs @ 12.18 hrs, Volume= 0.158 af
Outflow = 1.33 cfs @ 12.32 hrs, Volume= 0.158 af, Atten= 50%, Lag= 8.4 min
Primary = 1.33 cfs @ 12.32 hrs, Volume= 0.158 af
Routed to Link 18L : PROP TOTAL PIPED TO POA

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 672.26' @ 12.32 hrs Surf.Area= 2,962 sf Storage= 1,183 cf

Plug-Flow detention time= 8.5 min calculated for 0.158 af (100% of inflow)
Center-of-Mass det. time= 8.5 min (800.5 - 792.0)

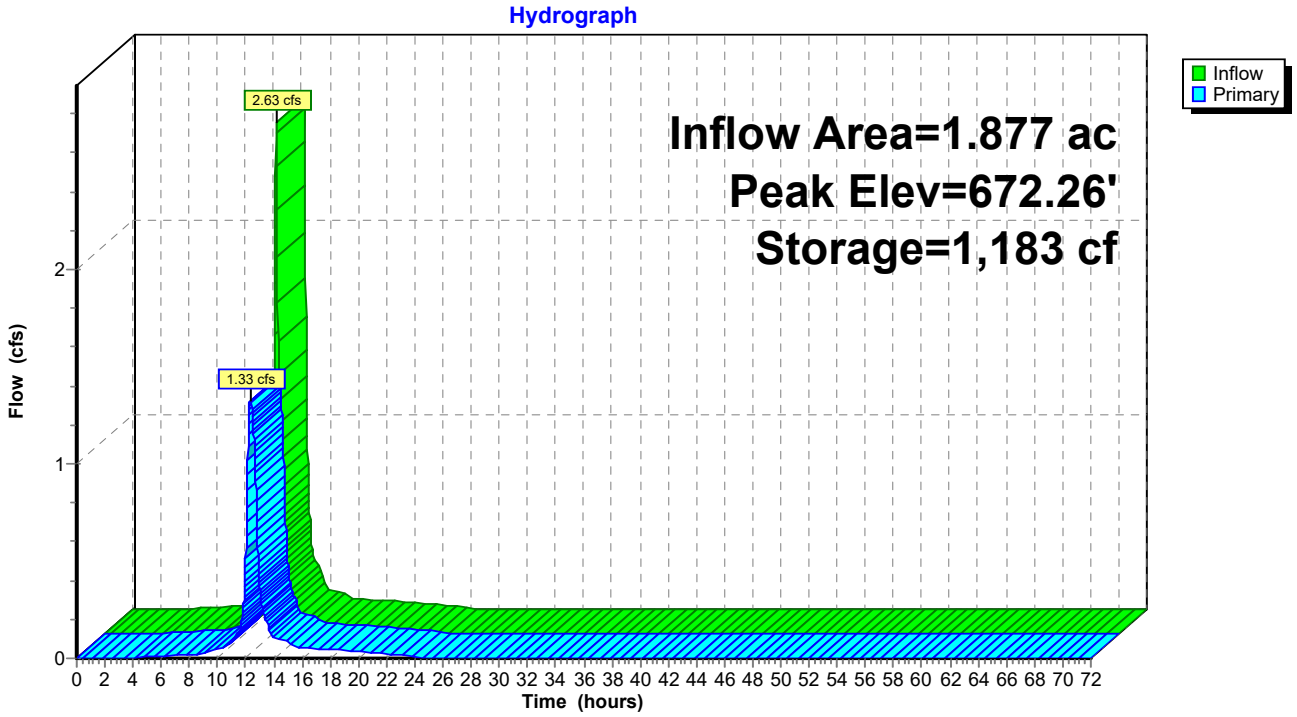
Volume	Invert	Avail.Storage	Storage Description
#1	671.30'	14,650 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
671.30	0	0	0
672.00	1,680	588	588
673.00	6,676	4,178	4,766
674.00	13,091	9,884	14,650

Device	Routing	Invert	Outlet Devices
#1	Primary	669.00'	**24.0" Round Culvert** L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 669.00' / 668.10' S= 0.0123 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	671.30'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	673.40'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.33 cfs @ 12.32 hrs HW=672.26' (Free Discharge)
└**1=Culvert** (Passes 1.33 cfs of 22.72 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 1.33 cfs @ 3.80 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 18P: SMP-A DRY SWALE



Stage-Area-Storage for Pond 18P: SMP-A DRY SWALE

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
671.30	0	0
671.31	24	0
671.32	48	0
671.33	72	1
671.34	96	2
671.35	120	3
671.36	144	4
671.37	168	6
671.38	192	8
671.39	216	10
671.40	240	12
671.41	264	15
671.42	288	17
671.43	312	20
671.44	336	24
671.45	360	27
671.46	384	31
671.47	408	35
671.48	432	39
671.49	456	43
671.50	480	48
671.51	504	53
671.52	528	58
671.53	552	63
671.54	576	69
671.55	600	75
671.56	624	81
671.57	648	87
671.58	672	94
671.59	696	101
671.60	720	108
671.61	744	115
671.62	768	123
671.63	792	131
671.64	816	139
671.65	840	147
671.66	864	156
671.67	888	164
671.68	912	173
671.69	936	183
671.70	960	192
671.71	984	202
671.72	1,008	212
671.73	1,032	222
671.74	1,056	232
671.75	1,080	243
671.76	1,104	254
671.77	1,128	265
671.78	1,152	276
671.79	1,176	288
671.80	1,200	300
671.81	1,224	312
671.82	1,248	324
671.83	1,272	337
671.84	1,296	350
671.85	1,320	363
671.86	1,344	376
671.87	1,368	390
671.88	1,392	404
671.89	1,416	418
671.90	1,440	432
671.91	1,464	447
671.92	1,488	461
671.93	1,512	476
671.94	1,536	492
671.95	1,560	507
671.96	1,584	523
671.97	1,608	539
671.98	1,632	555
671.99	1,656	571
672.00	1,680	588
672.01	1,730	605
672.02	1,780	623
672.03	1,830	641
672.04	1,880	659
672.05	1,930	678
672.06	1,980	698
672.07	2,030	718
672.08	2,080	738
672.09	2,130	759
672.10	2,180	781
672.11	2,230	803
672.12	2,280	826
672.13	2,329	849
672.14	2,379	872
672.15	2,429	896
672.16	2,479	921
672.17	2,529	946
672.18	2,579	971
672.19	2,629	997
672.20	2,679	1,024
672.21	2,729	1,051
672.22	2,779	1,079
672.23	2,829	1,107
672.24	2,879	1,135
672.25	2,929	1,164
672.26	2,979	1,194
672.27	3,029	1,224
672.28	3,079	1,254
672.29	3,129	1,285
672.30	3,179	1,317
672.31	3,229	1,349
672.32	3,279	1,381
672.33	3,329	1,414

Stage-Area-Storage for Pond 18P: SMP-A DRY SWALE (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.34	3,379	1,448
672.35	3,429	1,482
672.36	3,479	1,517
672.37	3,529	1,552
672.38	3,578	1,587
672.39	3,628	1,623
672.40	3,678	1,660
672.41	3,728	1,697
672.42	3,778	1,734
672.43	3,828	1,772
672.44	3,878	1,811
672.45	3,928	1,850
672.46	3,978	1,889
672.47	4,028	1,929
672.48	4,078	1,970
672.49	4,128	2,011
672.50	4,178	2,053
672.51	4,228	2,095
672.52	4,278	2,137
672.53	4,328	2,180
672.54	4,378	2,224
672.55	4,428	2,268
672.56	4,478	2,312
672.57	4,528	2,357
672.58	4,578	2,403
672.59	4,628	2,449
672.60	4,678	2,495
672.61	4,728	2,542
672.62	4,778	2,590
672.63	4,827	2,638
672.64	4,877	2,686
672.65	4,927	2,735
672.66	4,977	2,785
672.67	5,027	2,835
672.68	5,077	2,885
672.69	5,127	2,936
672.70	5,177	2,988
672.71	5,227	3,040
672.72	5,277	3,093
672.73	5,327	3,146
672.74	5,377	3,199
672.75	5,427	3,253
672.76	5,477	3,308
672.77	5,527	3,363
672.78	5,577	3,418
672.79	5,627	3,474
672.80	5,677	3,531
672.81	5,727	3,588
672.82	5,777	3,645
672.83	5,827	3,703
672.84	5,877	3,762
672.85	5,927	3,821
672.86	5,977	3,880
672.87	6,027	3,940
672.88	6,076	4,001
672.89	6,126	4,062
672.90	6,176	4,123
672.91	6,226	4,185
672.92	6,276	4,248
672.93	6,326	4,311
672.94	6,376	4,374
672.95	6,426	4,438
672.96	6,476	4,503
672.97	6,526	4,568
672.98	6,576	4,633
672.99	6,626	4,699
673.00	6,676	4,766
673.01	6,740	4,833
673.02	6,804	4,901
673.03	6,868	4,969
673.04	6,933	5,038
673.05	6,997	5,108
673.06	7,061	5,178
673.07	7,125	5,249
673.08	7,189	5,321
673.09	7,253	5,393
673.10	7,317	5,466
673.11	7,382	5,539
673.12	7,446	5,613
673.13	7,510	5,688
673.14	7,574	5,764
673.15	7,638	5,840
673.16	7,702	5,916
673.17	7,767	5,994
673.18	7,831	6,072
673.19	7,895	6,150
673.20	7,959	6,229
673.21	8,023	6,309
673.22	8,087	6,390
673.23	8,151	6,471
673.24	8,216	6,553
673.25	8,280	6,635
673.26	8,344	6,719
673.27	8,408	6,802
673.28	8,472	6,887
673.29	8,536	6,972
673.30	8,600	7,057
673.31	8,665	7,144
673.32	8,729	7,231
673.33	8,793	7,318
673.34	8,857	7,407
673.35	8,921	7,496
673.36	8,985	7,585
673.37	9,050	7,675

WQv TO DRY SWALE = 3,053 CF
WQ ELEV. 672.72

Stage-Area-Storage for Pond 18P: SMP-A DRY SWALE (continued)

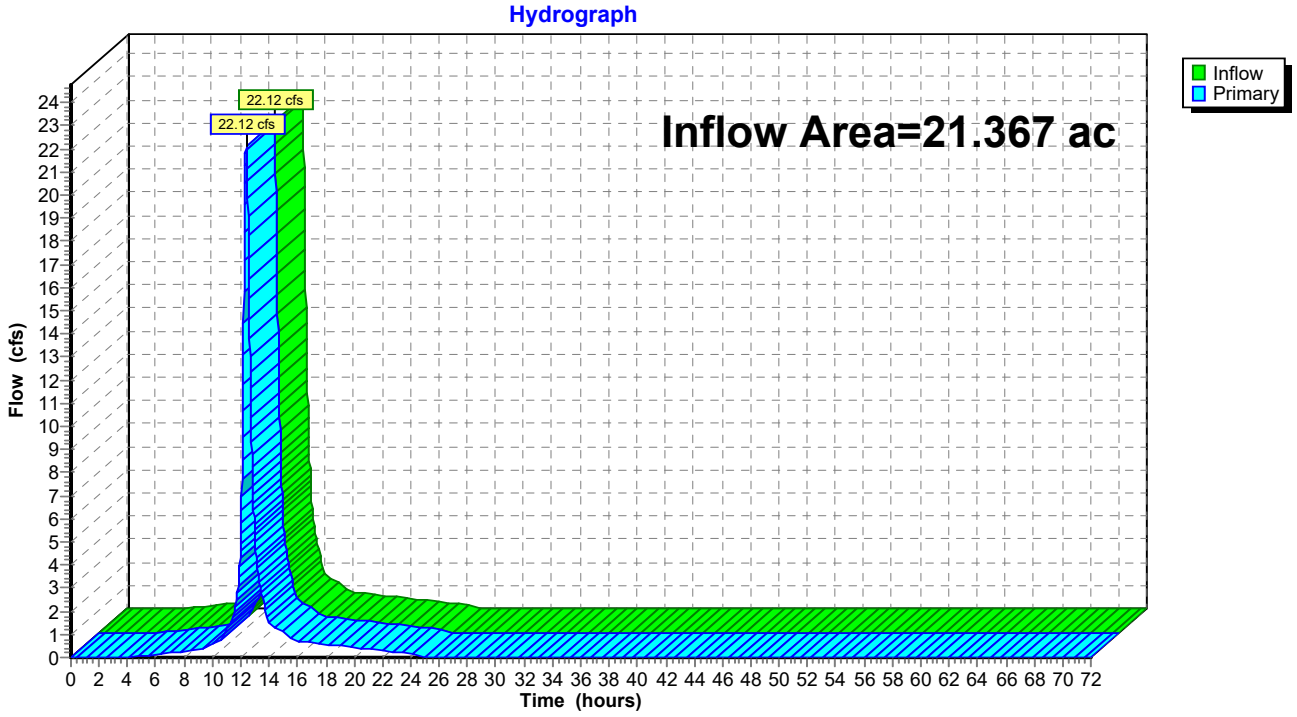
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
673.38	9,114	7,766
673.39	9,178	7,858
673.40	9,242	7,950
673.41	9,306	8,042
673.42	9,370	8,136
673.43	9,434	8,230
673.44	9,499	8,324
673.45	9,563	8,420
673.46	9,627	8,516
673.47	9,691	8,612
673.48	9,755	8,709
673.49	9,819	8,807
673.50	9,884	8,906
673.51	9,948	9,005
673.52	10,012	9,105
673.53	10,076	9,205
673.54	10,140	9,306
673.55	10,204	9,408
673.56	10,268	9,510
673.57	10,333	9,613
673.58	10,397	9,717
673.59	10,461	9,821
673.60	10,525	9,926
673.61	10,589	10,032
673.62	10,653	10,138
673.63	10,717	10,245
673.64	10,782	10,352
673.65	10,846	10,461
673.66	10,910	10,569
673.67	10,974	10,679
673.68	11,038	10,789
673.69	11,102	10,900
673.70	11,166	11,011
673.71	11,231	11,123
673.72	11,295	11,235
673.73	11,359	11,349
673.74	11,423	11,463
673.75	11,487	11,577
673.76	11,551	11,692
673.77	11,616	11,808
673.78	11,680	11,925
673.79	11,744	12,042
673.80	11,808	12,160
673.81	11,872	12,278
673.82	11,936	12,397
673.83	12,000	12,517
673.84	12,065	12,637
673.85	12,129	12,758
673.86	12,193	12,880
673.87	12,257	13,002
673.88	12,321	13,125
673.89	12,385	13,248
673.90	12,449	13,372
673.91	12,514	13,497
673.92	12,578	13,623
673.93	12,642	13,749
673.94	12,706	13,876
673.95	12,770	14,003
673.96	12,834	14,131
673.97	12,899	14,260
673.98	12,963	14,389
673.99	13,027	14,519
674.00	**13,091**	**14,650**

Summary for Link 18L: PROP TOTAL PIPED TO POA

Inflow Area = 21.367 ac, 53.42% Impervious, Inflow Depth = 1.20" for 1-Year event
Inflow = 22.12 cfs @ 12.38 hrs, Volume= 2.145 af
Primary = 22.12 cfs @ 12.38 hrs, Volume= 2.145 af, Atten= 0%, Lag= 0.0 min
Routed to Link 21L : PROPOSED TOTAL TO POA

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link 18L: PROP TOTAL PIPED TO POA

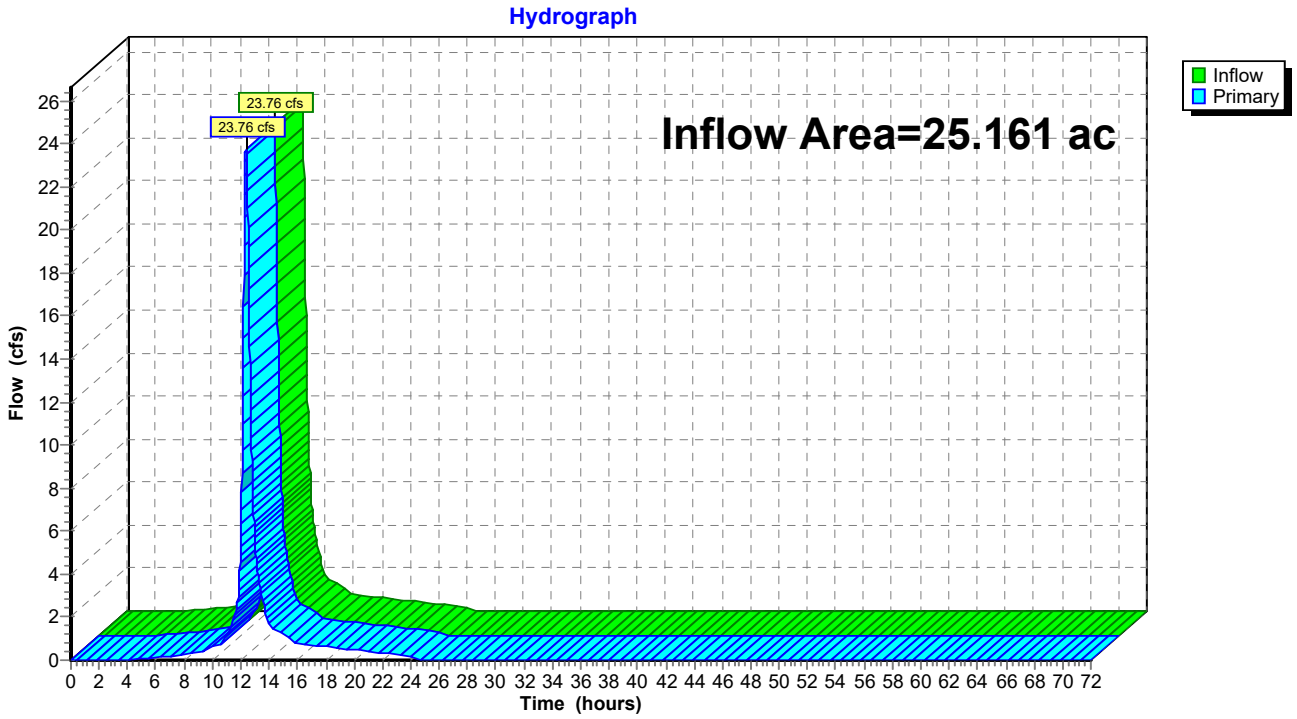


Summary for Link 21L: PROPOSED TOTAL TO POA

Inflow Area = 25.161 ac, 45.36% Impervious, Inflow Depth = 1.10" for 1-Year event
Inflow = 23.76 cfs @ 12.37 hrs, Volume= 2.313 af
Primary = 23.76 cfs @ 12.37 hrs, Volume= 2.313 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link 21L: PROPOSED TOTAL TO POA



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment14S: P-DA-2 Overland flow Runoff Area=104,803 sf 0.00% Impervious Runoff Depth=1.36"
Flow Length=84' Tc=14.5 min CN=WQ Runoff=4.22 cfs 0.272 af

Subcatchment15S: P-DA-3 Overland flow Runoff Area=18,458 sf 0.00% Impervious Runoff Depth=1.73"
Tc=5.0 min CN=WQ Runoff=1.41 cfs 0.061 af

Subcatchment16S: P-DA-4 Overland flow Runoff Area=42,003 sf 0.00% Impervious Runoff Depth=1.73"
Tc=19.3 min CN=WQ Runoff=1.86 cfs 0.139 af

Subcatchment17S: P-DA-1A (FLOW TO Runoff Area=81,753 sf 44.20% Impervious Runoff Depth=2.15"
Flow Length=64' Tc=10.5 min CN=WQ Runoff=5.66 cfs 0.336 af

Subcatchment20S: P-DA-1B (BYPASS) Runoff Area=848,980 sf 54.31% Impervious Runoff Depth=2.44"
Flow Length=1,110' Tc=26.9 min CN=WQ Runoff=41.44 cfs 3.971 af

Pond 18P: SMP-A DRY SWALE Peak Elev=672.82' Storage=3,632 cf Inflow=5.66 cfs 0.336 af
Outflow=1.83 cfs 0.336 af

Link 18L: PROP TOTAL PIPED TO POA Inflow=43.26 cfs 4.306 af
Primary=43.26 cfs 4.306 af

Link 21L: PROPOSED TOTAL TO POA Inflow=48.01 cfs 4.778 af
Primary=48.01 cfs 4.778 af

Total Runoff Area = 25.161 ac Runoff Volume = 4.778 af Average Runoff Depth = 2.28"
54.64% Pervious = 13.747 ac 45.36% Impervious = 11.414 ac

Summary for Subcatchment 14S: P-DA-2 Overland flow to Exist. Bioretention Basin

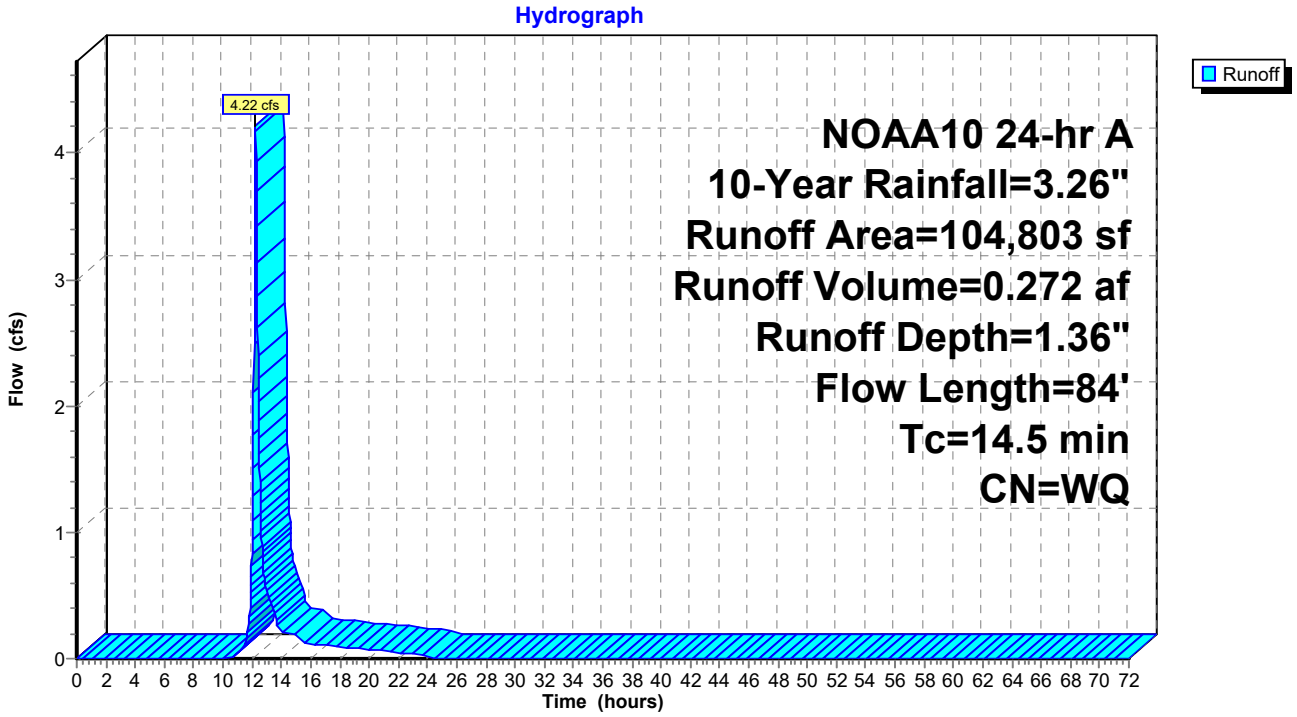
Runoff = 4.22 cfs @ 12.23 hrs, Volume= 0.272 af, Depth= 1.36"
Routed to Link 21L : PROPOSED TOTAL TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 10-Year Rainfall=3.26"

	Area (sf)	CN	Description
*	74,095	78	Meadow, non-grazed, HSG D - Taken from Approved SWPPP
	30,708	80	>75% Grass cover, Good, HSG D
	104,803		Weighted Average
	104,803		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	58	0.0150	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
2.1	26	0.2500	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
14.5	84	Total			

Subcatchment 14S: P-DA-2 Overland flow to Exist. Bioretention Basin



Summary for Subcatchment 15S: P-DA-3 Overland flow to Exist. Pre-treatment basin (Sed basin)

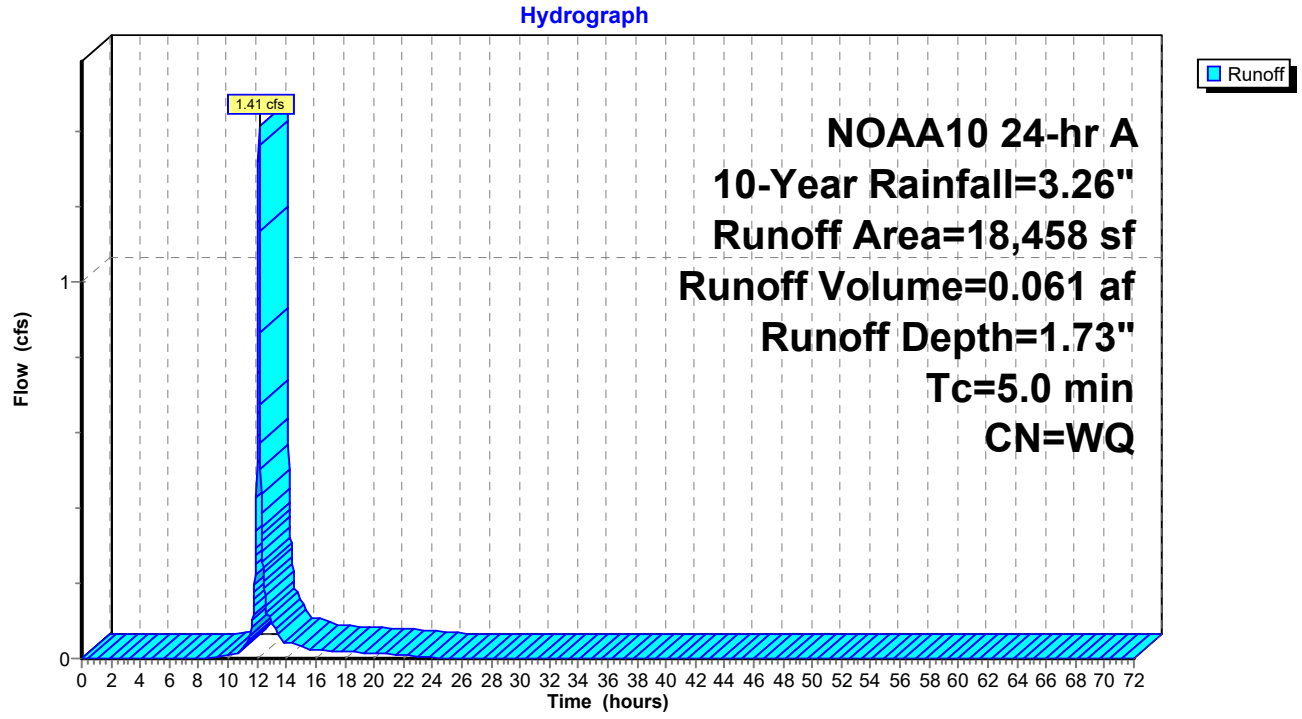
Runoff = 1.41 cfs @ 12.12 hrs, Volume= 0.061 af, Depth= 1.73"
Routed to Link 21L : PROPOSED TOTAL TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 10-Year Rainfall=3.26"

	Area (sf)	CN	Description
*	5,960	91	Gravel, HSG D
	12,498	80	>75% Grass cover, Good, HSG D
	18,458		Weighted Average
	18,458		100.00% Pervious Area

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

Subcatchment 15S: P-DA-3 Overland flow to Exist. Pre-treatment basin (Sed basin)



Summary for Subcatchment 16S: P-DA-4 Overland flow to Exist. Basin (Dry Pond)

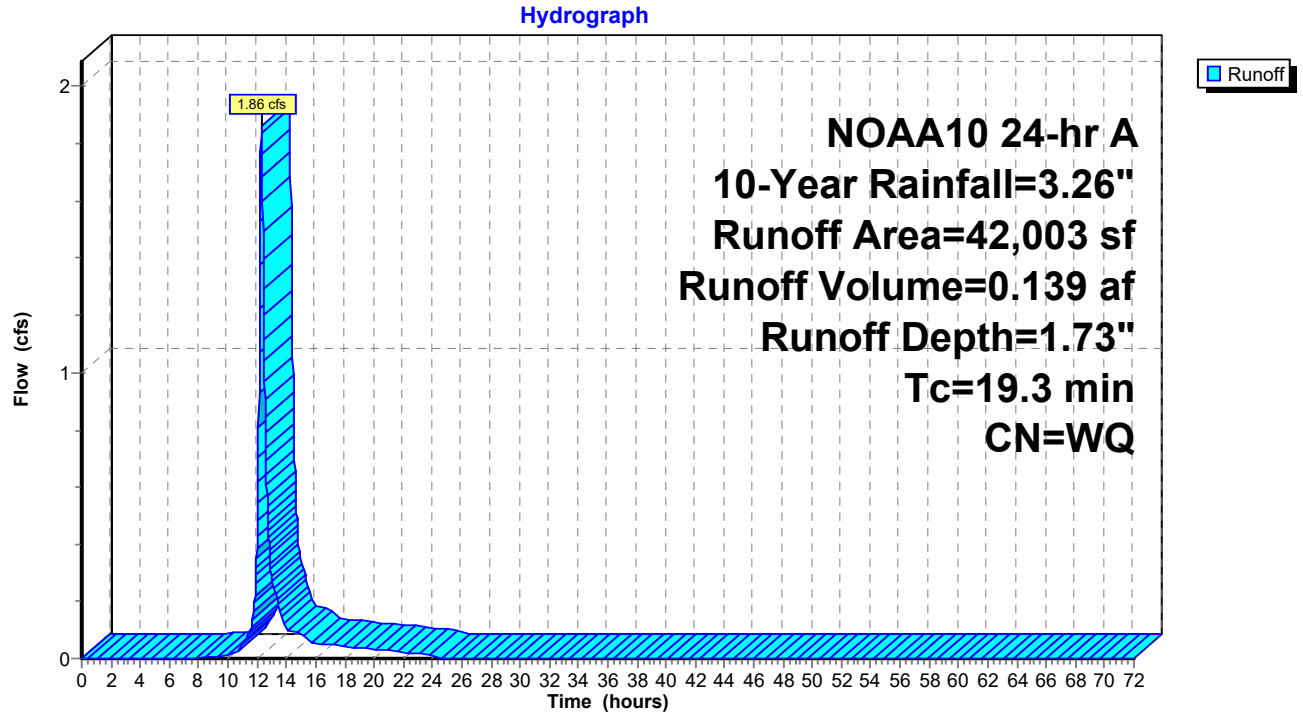
Runoff = 1.86 cfs @ 12.29 hrs, Volume= 0.139 af, Depth= 1.73"
Routed to Link 21L : PROPOSED TOTAL TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 10-Year Rainfall=3.26"

	Area (sf)	CN	Description
*	13,722	91	Gravel, HSG D
	28,281	80	>75% Grass cover, Good, HSG D
	42,003		Weighted Average
	42,003		100.00% Pervious Area

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

Subcatchment 16S: P-DA-4 Overland flow to Exist. Basin (Dry Pond)



Summary for Subcatchment 17S: P-DA-1A (FLOW TO SMP)

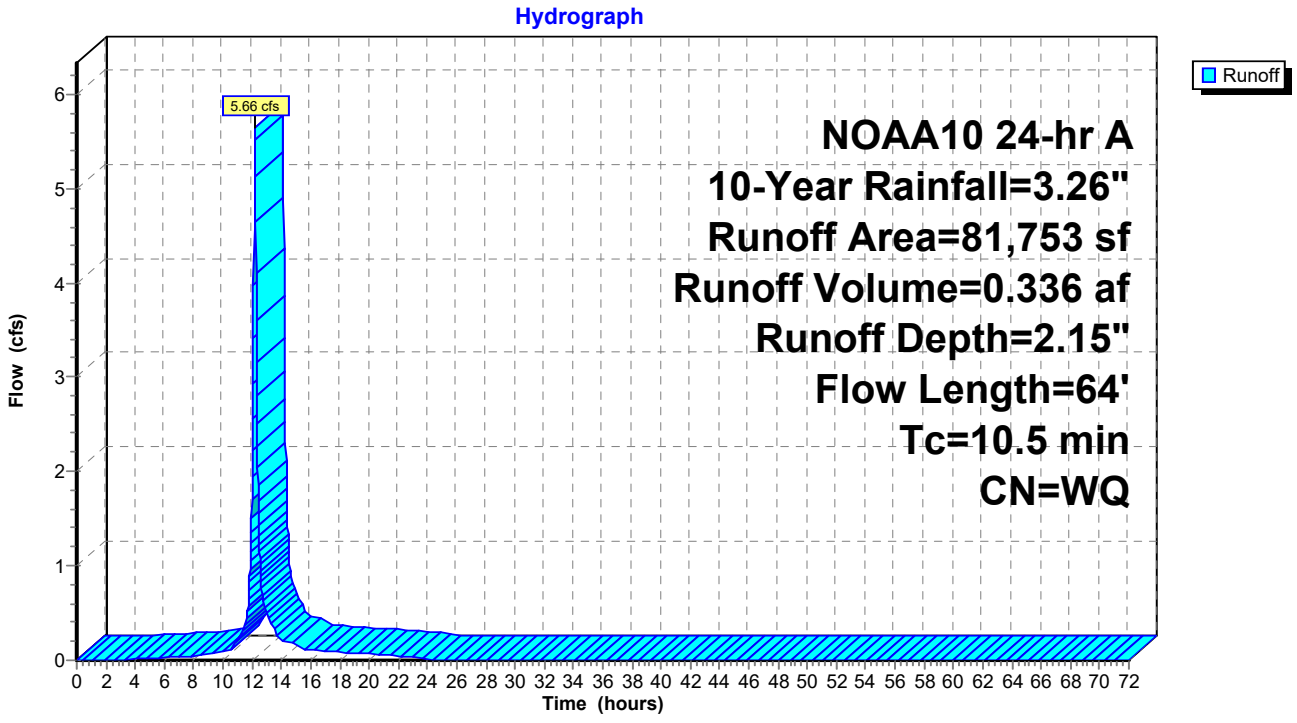
Runoff = 5.66 cfs @ 12.18 hrs, Volume= 0.336 af, Depth= 2.15"
Routed to Pond 18P : SMP-A DRY SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 10-Year Rainfall=3.26"

Area (sf)	CN	Description
45,617	80	>75% Grass cover, Good, HSG D
36,136	98	Paved parking, HSG D
81,753		Weighted Average
45,617		55.80% Pervious Area
36,136		44.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	38	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
0.1	26	0.1250	5.69		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.5	64	Total			

Subcatchment 17S: P-DA-1A (FLOW TO SMP)



Summary for Subcatchment 20S: P-DA-1B (BYPASS)

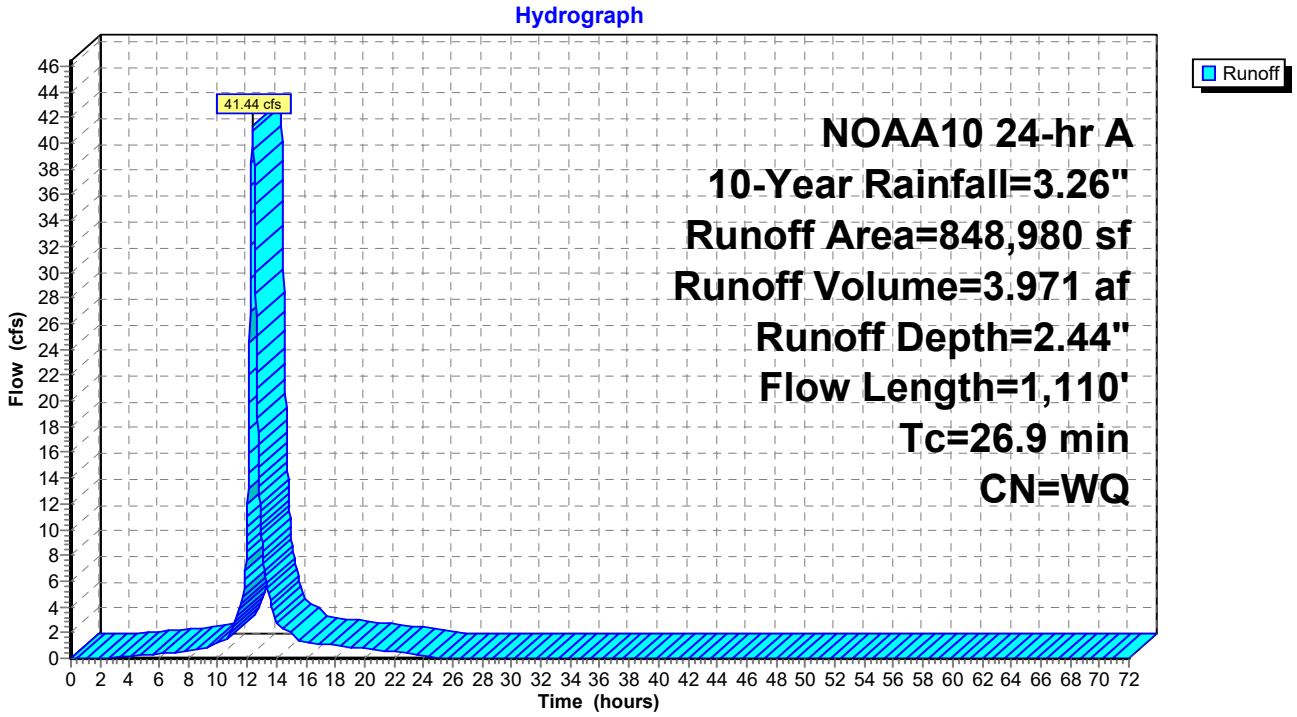
Runoff = 41.44 cfs @ 12.38 hrs, Volume= 3.971 af, Depth= 2.44"
Routed to Link 18L : PROP TOTAL PIPED TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 10-Year Rainfall=3.26"

	Area (sf)	CN	Description
*	333,375	98	ROOF, HSG D
*	125,906	98	PAVEMENT, HSG D
*	1,767	98	CONCRETE, HSG D
*	115,824	91	GRAVEL, HSG D
	251,666	80	>75% Grass cover, Good, HSG D
*	20,442	91	Exist. Substation, Gravel, HSG D
	848,980		Weighted Average
	387,932		45.69% Pervious Area
	461,048		54.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	20	0.0350	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
18.8	80	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
0.4	53	0.0020	2.35	2.89	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.0	154	0.0020	2.66	4.70	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.3	60	0.0020	3.22	10.12	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.3	78	0.0020	3.74	18.34	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.3	79	0.0020	4.68	44.99	**Pipe Channel,** 42.0" Round Area= 9.6 sf Perim= 11.0' r= 0.88' n= 0.013
1.4	388	0.0020	4.68	44.99	**Pipe Channel,** 42.0" Round Area= 9.6 sf Perim= 11.0' r= 0.88' n= 0.013
0.4	121	0.0020	5.11	64.24	**Pipe Channel,** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.2	77	0.0034	6.67	83.76	**Pipe Channel,** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
26.9	1,110	Total			

Subcatchment 20S: P-DA-1B (BYPASS)



Summary for Pond 18P: SMP-A DRY SWALE

Inflow Area = 1.877 ac, 44.20% Impervious, Inflow Depth = 2.15" for 10-Year event
Inflow = 5.66 cfs @ 12.18 hrs, Volume= 0.336 af
Outflow = 1.83 cfs @ 12.40 hrs, Volume= 0.336 af, Atten= 68%, Lag= 13.5 min
Primary = 1.83 cfs @ 12.40 hrs, Volume= 0.336 af
Routed to Link 18L : PROP TOTAL PIPED TO POA

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 672.82' @ 12.40 hrs Surf.Area= 5,765 sf Storage= 3,632 cf

Plug-Flow detention time= 15.6 min calculated for 0.336 af (100% of inflow)
Center-of-Mass det. time= 15.5 min (799.3 - 783.8)

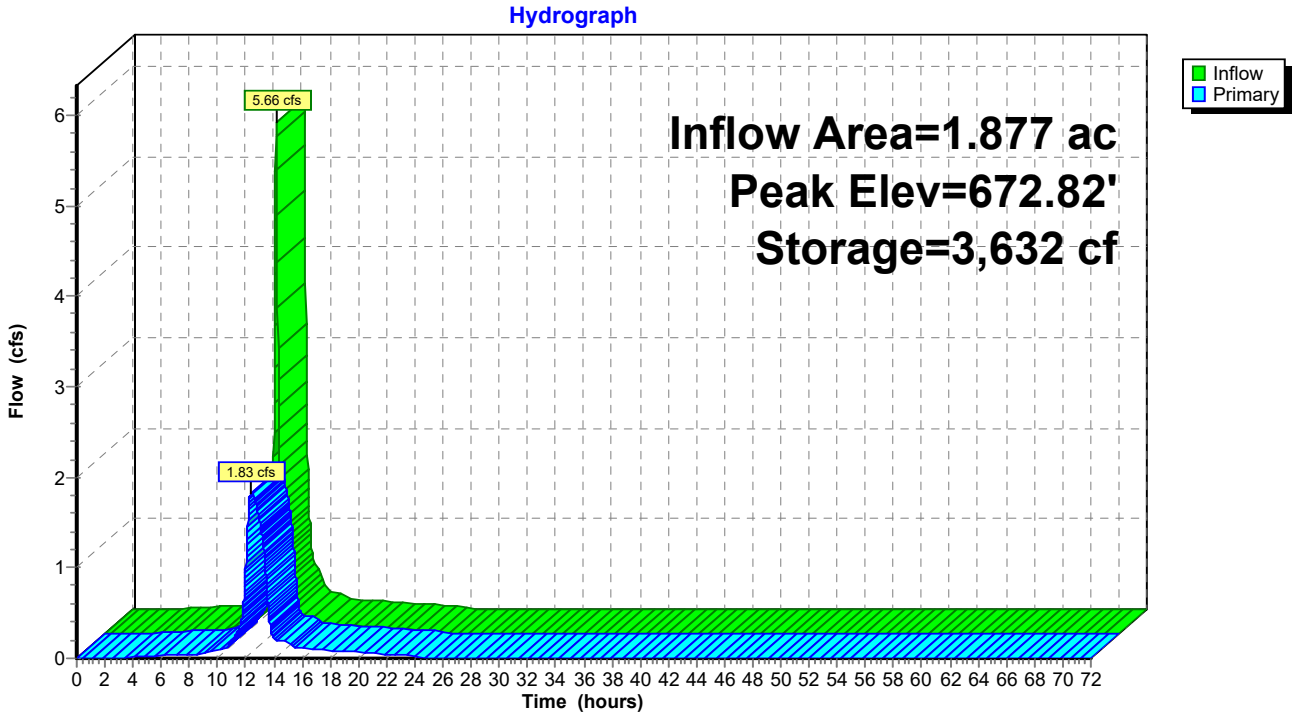
Volume	Invert	Avail.Storage	Storage Description
#1	671.30'	14,650 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
671.30	0	0	0
672.00	1,680	588	588
673.00	6,676	4,178	4,766
674.00	13,091	9,884	14,650

Device	Routing	Invert	Outlet Devices
#1	Primary	669.00'	**24.0" Round Culvert** L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 669.00' / 668.10' S= 0.0123 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	671.30'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	673.40'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.83 cfs @ 12.40 hrs HW=672.82' (Free Discharge)
└**1=Culvert** (Passes 1.83 cfs of 25.39 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.83 cfs @ 5.24 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 18P: SMP-A DRY SWALE



Stage-Area-Storage for Pond 18P: SMP-A DRY SWALE

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
671.30	0	0
671.31	24	0
671.32	48	0
671.33	72	1
671.34	96	2
671.35	120	3
671.36	144	4
671.37	168	6
671.38	192	8
671.39	216	10
671.40	240	12
671.41	264	15
671.42	288	17
671.43	312	20
671.44	336	24
671.45	360	27
671.46	384	31
671.47	408	35
671.48	432	39
671.49	456	43
671.50	480	48
671.51	504	53
671.52	528	58
671.53	552	63
671.54	576	69
671.55	600	75
671.56	624	81
671.57	648	87
671.58	672	94
671.59	696	101
671.60	720	108
671.61	744	115
671.62	768	123
671.63	792	131
671.64	816	139
671.65	840	147
671.66	864	156
671.67	888	164
671.68	912	173
671.69	936	183
671.70	960	192
671.71	984	202
671.72	1,008	212
671.73	1,032	222
671.74	1,056	232
671.75	1,080	243
671.76	1,104	254
671.77	1,128	265
671.78	1,152	276
671.79	1,176	288
671.80	1,200	300
671.81	1,224	312
671.82	1,248	324
671.83	1,272	337
671.84	1,296	350
671.85	1,320	363
671.86	1,344	376
671.87	1,368	390
671.88	1,392	404
671.89	1,416	418
671.90	1,440	432
671.91	1,464	447
671.92	1,488	461
671.93	1,512	476
671.94	1,536	492
671.95	1,560	507
671.96	1,584	523
671.97	1,608	539
671.98	1,632	555
671.99	1,656	571
672.00	1,680	588
672.01	1,730	605
672.02	1,780	623
672.03	1,830	641
672.04	1,880	659
672.05	1,930	678
672.06	1,980	698
672.07	2,030	718
672.08	2,080	738
672.09	2,130	759
672.10	2,180	781
672.11	2,230	803
672.12	2,280	826
672.13	2,329	849
672.14	2,379	872
672.15	2,429	896
672.16	2,479	921
672.17	2,529	946
672.18	2,579	971
672.19	2,629	997
672.20	2,679	1,024
672.21	2,729	1,051
672.22	2,779	1,079
672.23	2,829	1,107
672.24	2,879	1,135
672.25	2,929	1,164
672.26	2,979	1,194
672.27	3,029	1,224
672.28	3,079	1,254
672.29	3,129	1,285
672.30	3,179	1,317
672.31	3,229	1,349
672.32	3,279	1,381
672.33	3,329	1,414

Stage-Area-Storage for Pond 18P: SMP-A DRY SWALE (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.34	3,379	1,448
672.35	3,429	1,482
672.36	3,479	1,517
672.37	3,529	1,552
672.38	3,578	1,587
672.39	3,628	1,623
672.40	3,678	1,660
672.41	3,728	1,697
672.42	3,778	1,734
672.43	3,828	1,772
672.44	3,878	1,811
672.45	3,928	1,850
672.46	3,978	1,889
672.47	4,028	1,929
672.48	4,078	1,970
672.49	4,128	2,011
672.50	4,178	2,053
672.51	4,228	2,095
672.52	4,278	2,137
672.53	4,328	2,180
672.54	4,378	2,224
672.55	4,428	2,268
672.56	4,478	2,312
672.57	4,528	2,357
672.58	4,578	2,403
672.59	4,628	2,449
672.60	4,678	2,495
672.61	4,728	2,542
672.62	4,778	2,590
672.63	4,827	2,638
672.64	4,877	2,686
672.65	4,927	2,735
672.66	4,977	2,785
672.67	5,027	2,835
672.68	5,077	2,885
672.69	5,127	2,936
672.70	5,177	2,988
672.71	5,227	3,040
672.72	5,277	3,093
672.73	5,327	3,146
672.74	5,377	3,199
672.75	5,427	3,253
672.76	5,477	3,308
672.77	5,527	3,363
672.78	5,577	3,418
672.79	5,627	3,474
672.80	5,677	3,531
672.81	5,727	3,588
672.82	5,777	3,645
672.83	5,827	3,703
672.84	5,877	3,762
672.85	5,927	3,821
672.86	5,977	3,880
672.87	6,027	3,940
672.88	6,076	4,001
672.89	6,126	4,062
672.90	6,176	4,123
672.91	6,226	4,185
672.92	6,276	4,248
672.93	6,326	4,311
672.94	6,376	4,374
672.95	6,426	4,438
672.96	6,476	4,503
672.97	6,526	4,568
672.98	6,576	4,633
672.99	6,626	4,699
673.00	6,676	4,766
673.01	6,740	4,833
673.02	6,804	4,901
673.03	6,868	4,969
673.04	6,933	5,038
673.05	6,997	5,108
673.06	7,061	5,178
673.07	7,125	5,249
673.08	7,189	5,321
673.09	7,253	5,393
673.10	7,317	5,466
673.11	7,382	5,539
673.12	7,446	5,613
673.13	7,510	5,688
673.14	7,574	5,764
673.15	7,638	5,840
673.16	7,702	5,916
673.17	7,767	5,994
673.18	7,831	6,072
673.19	7,895	6,150
673.20	7,959	6,229
673.21	8,023	6,309
673.22	8,087	6,390
673.23	8,151	6,471
673.24	8,216	6,553
673.25	8,280	6,635
673.26	8,344	6,719
673.27	8,408	6,802
673.28	8,472	6,887
673.29	8,536	6,972
673.30	8,600	7,057
673.31	8,665	7,144
673.32	8,729	7,231
673.33	8,793	7,318
673.34	8,857	7,407
673.35	8,921	7,496
673.36	8,985	7,585
673.37	9,050	7,675

Stage-Area-Storage for Pond 18P: SMP-A DRY SWALE (continued)

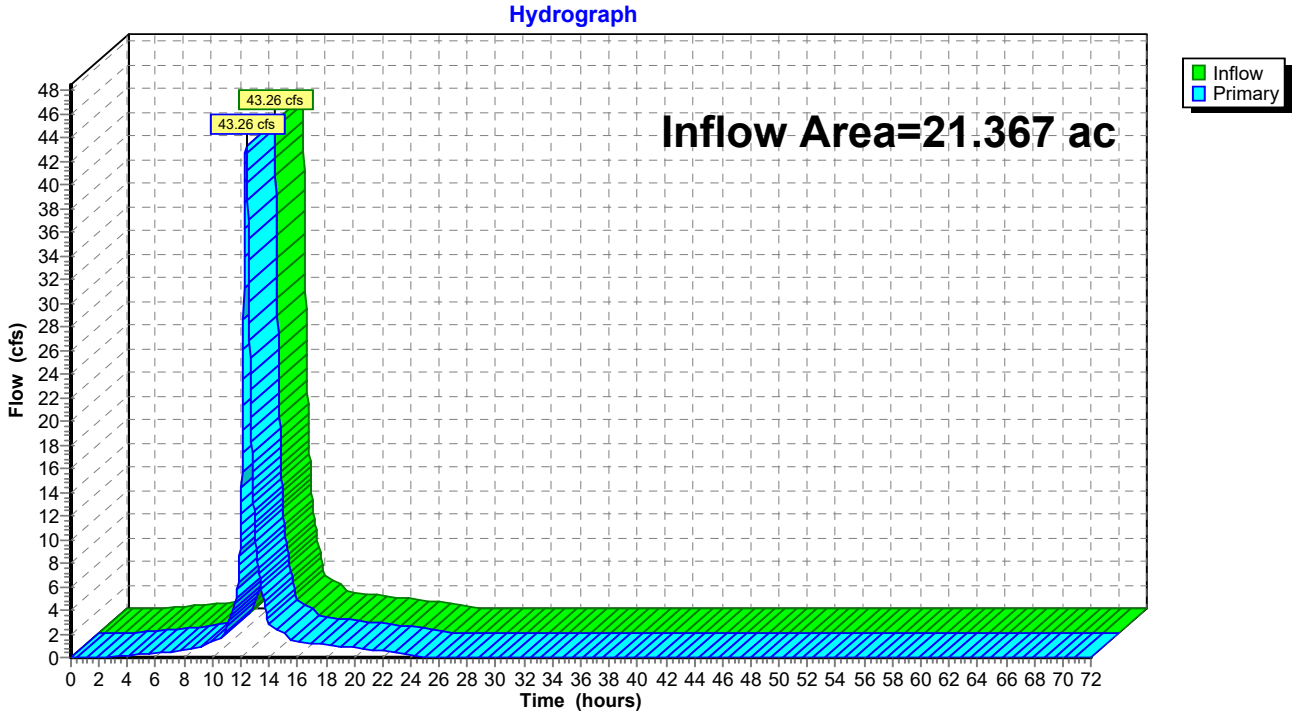
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
673.38	9,114	7,766
673.39	9,178	7,858
673.40	9,242	7,950
673.41	9,306	8,042
673.42	9,370	8,136
673.43	9,434	8,230
673.44	9,499	8,324
673.45	9,563	8,420
673.46	9,627	8,516
673.47	9,691	8,612
673.48	9,755	8,709
673.49	9,819	8,807
673.50	9,884	8,906
673.51	9,948	9,005
673.52	10,012	9,105
673.53	10,076	9,205
673.54	10,140	9,306
673.55	10,204	9,408
673.56	10,268	9,510
673.57	10,333	9,613
673.58	10,397	9,717
673.59	10,461	9,821
673.60	10,525	9,926
673.61	10,589	10,032
673.62	10,653	10,138
673.63	10,717	10,245
673.64	10,782	10,352
673.65	10,846	10,461
673.66	10,910	10,569
673.67	10,974	10,679
673.68	11,038	10,789
673.69	11,102	10,900
673.70	11,166	11,011
673.71	11,231	11,123
673.72	11,295	11,235
673.73	11,359	11,349
673.74	11,423	11,463
673.75	11,487	11,577
673.76	11,551	11,692
673.77	11,616	11,808
673.78	11,680	11,925
673.79	11,744	12,042
673.80	11,808	12,160
673.81	11,872	12,278
673.82	11,936	12,397
673.83	12,000	12,517
673.84	12,065	12,637
673.85	12,129	12,758
673.86	12,193	12,880
673.87	12,257	13,002
673.88	12,321	13,125
673.89	12,385	13,248
673.90	12,449	13,372
673.91	12,514	13,497
673.92	12,578	13,623
673.93	12,642	13,749
673.94	12,706	13,876
673.95	12,770	14,003
673.96	12,834	14,131
673.97	12,899	14,260
673.98	12,963	14,389
673.99	13,027	14,519
674.00	**13,091**	**14,650**

Summary for Link 18L: PROP TOTAL PIPED TO POA

Inflow Area = 21.367 ac, 53.42% Impervious, Inflow Depth = 2.42" for 10-Year event
Inflow = 43.26 cfs @ 12.38 hrs, Volume= 4.306 af
Primary = 43.26 cfs @ 12.38 hrs, Volume= 4.306 af, Atten= 0%, Lag= 0.0 min
Routed to Link 21L : PROPOSED TOTAL TO POA

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link 18L: PROP TOTAL PIPED TO POA

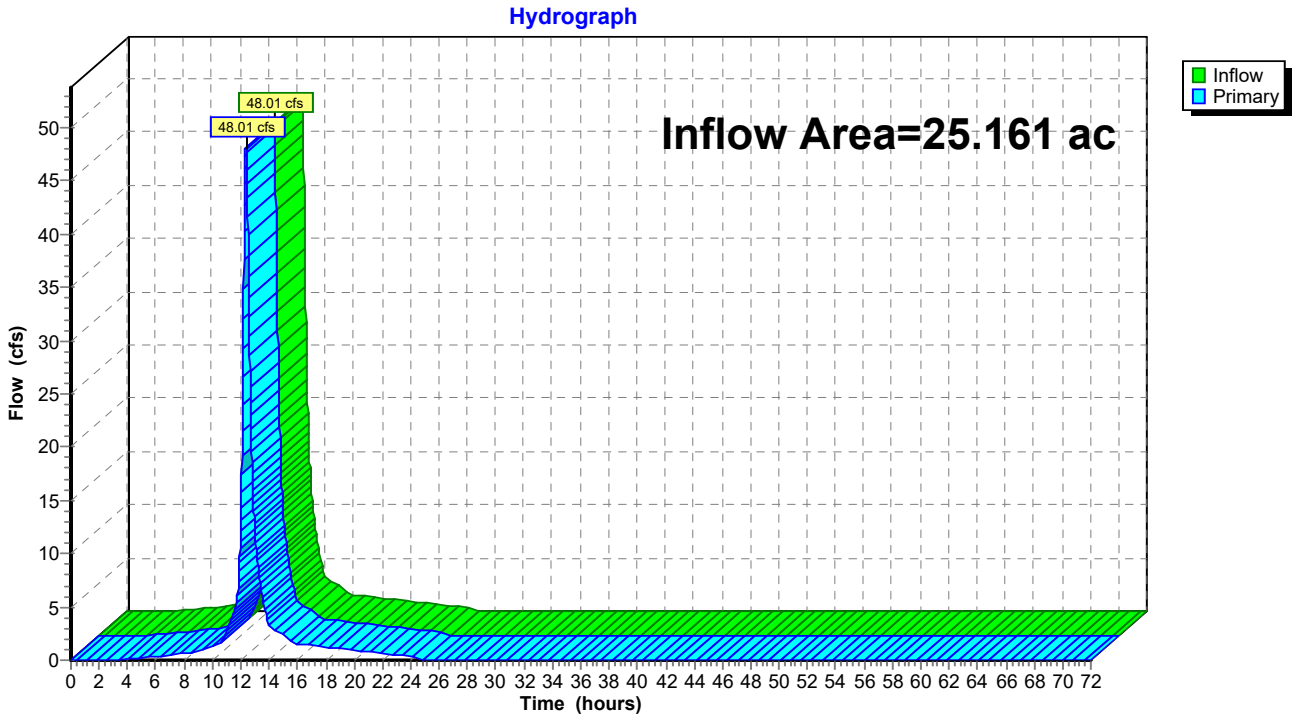


Summary for Link 21L: PROPOSED TOTAL TO POA

Inflow Area = 25.161 ac, 45.36% Impervious, Inflow Depth = 2.28" for 10-Year event
Inflow = 48.01 cfs @ 12.35 hrs, Volume= 4.778 af
Primary = 48.01 cfs @ 12.35 hrs, Volume= 4.778 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link 21L: PROPOSED TOTAL TO POA



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment14S: P-DA-2 Overland flow Runoff Area=104,803 sf 0.00% Impervious Runoff Depth=2.68"
Flow Length=84' Tc=14.5 min CN=WQ Runoff=8.43 cfs 0.537 af

Subcatchment15S: P-DA-3 Overland flow Runoff Area=18,458 sf 0.00% Impervious Runoff Depth=3.15"
Tc=5.0 min CN=WQ Runoff=2.53 cfs 0.111 af

Subcatchment16S: P-DA-4 Overland flow Runoff Area=42,003 sf 0.00% Impervious Runoff Depth=3.16"
Tc=19.3 min CN=WQ Runoff=3.39 cfs 0.254 af

Subcatchment17S: P-DA-1A (FLOW TO Runoff Area=81,753 sf 44.20% Impervious Runoff Depth=3.63"
Flow Length=64' Tc=10.5 min CN=WQ Runoff=9.54 cfs 0.567 af

Subcatchment20S: P-DA-1B (BYPASS) Runoff Area=848,980 sf 54.31% Impervious Runoff Depth=3.99"
Flow Length=1,110' Tc=26.9 min CN=WQ Runoff=67.09 cfs 6.477 af

Pond 18P: SMP-A DRY SWALE Peak Elev=673.36' Storage=7,561 cf Inflow=9.54 cfs 0.567 af
Outflow=2.21 cfs 0.567 af

Link 18L: PROP TOTAL PIPED TO POA Inflow=69.28 cfs 7.044 af
Primary=69.28 cfs 7.044 af

Link 21L: PROPOSED TOTAL TO POA Inflow=78.37 cfs 7.946 af
Primary=78.37 cfs 7.946 af

Total Runoff Area = 25.161 ac Runoff Volume = 7.946 af Average Runoff Depth = 3.79"
54.64% Pervious = 13.747 ac 45.36% Impervious = 11.414 ac

Summary for Subcatchment 14S: P-DA-2 Overland flow to Exist. Bioretention Basin

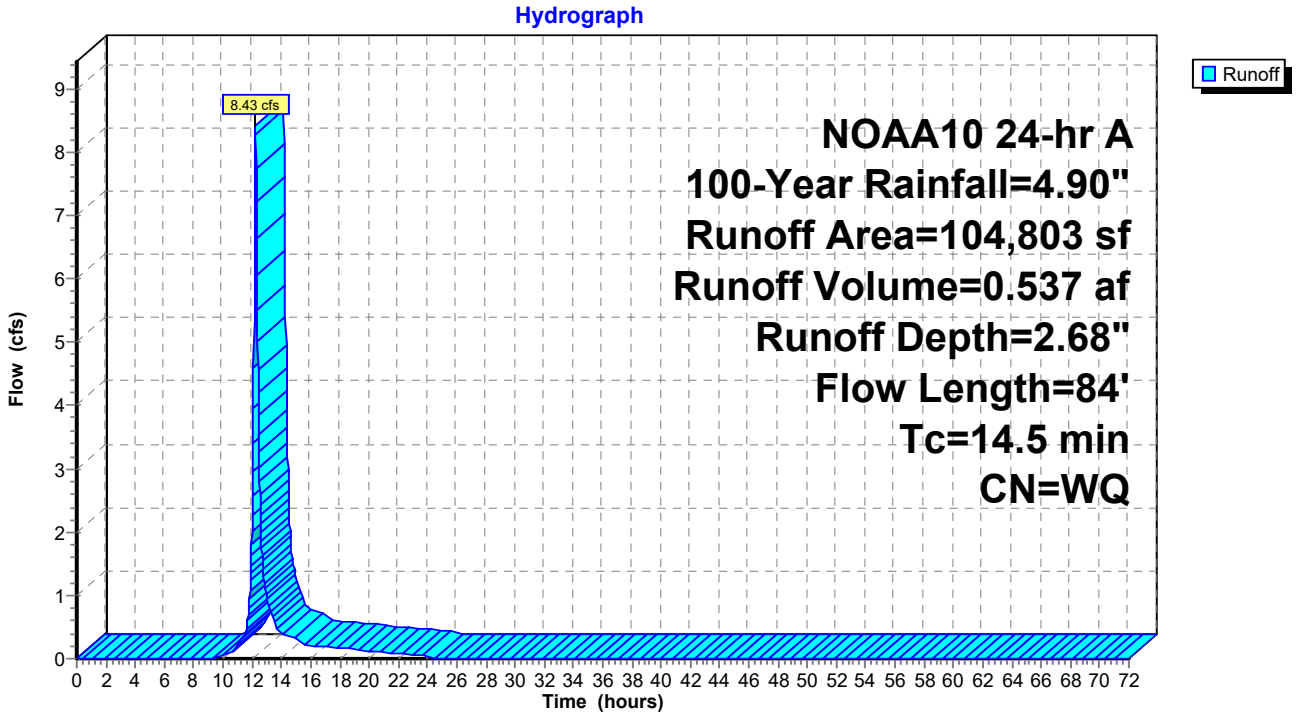
Runoff = 8.43 cfs @ 12.23 hrs, Volume= 0.537 af, Depth= 2.68"
Routed to Link 21L : PROPOSED TOTAL TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 100-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	74,095	78	Meadow, non-grazed, HSG D - Taken from Approved SWPPP
	30,708	80	>75% Grass cover, Good, HSG D
	104,803		Weighted Average
	104,803		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	58	0.0150	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
2.1	26	0.2500	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
14.5	84	Total			

Subcatchment 14S: P-DA-2 Overland flow to Exist. Bioretention Basin



Summary for Subcatchment 15S: P-DA-3 Overland flow to Exist. Pre-treatment basin (Sed basin)

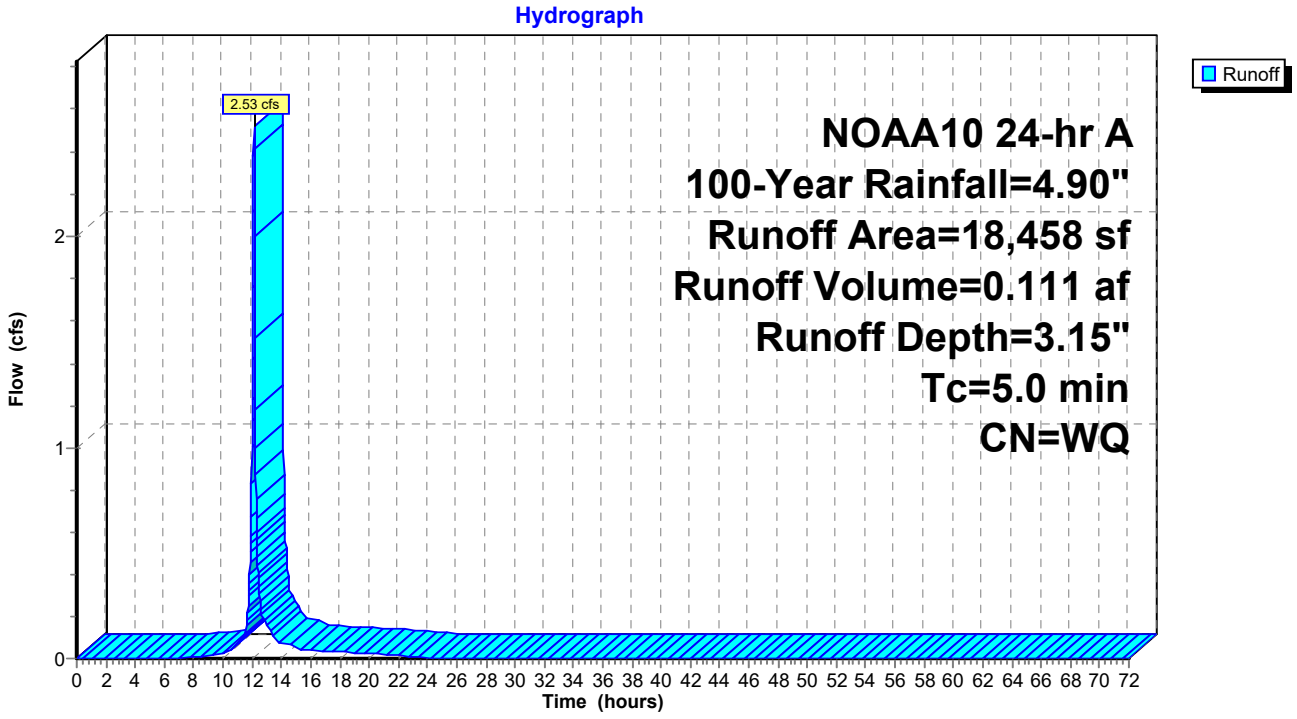
Runoff = 2.53 cfs @ 12.12 hrs, Volume= 0.111 af, Depth= 3.15"
Routed to Link 21L : PROPOSED TOTAL TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 100-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	5,960	91	Gravel, HSG D
	12,498	80	>75% Grass cover, Good, HSG D
	18,458		Weighted Average
	18,458		100.00% Pervious Area

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

Subcatchment 15S: P-DA-3 Overland flow to Exist. Pre-treatment basin (Sed basin)



Summary for Subcatchment 16S: P-DA-4 Overland flow to Exist. Basin (Dry Pond)

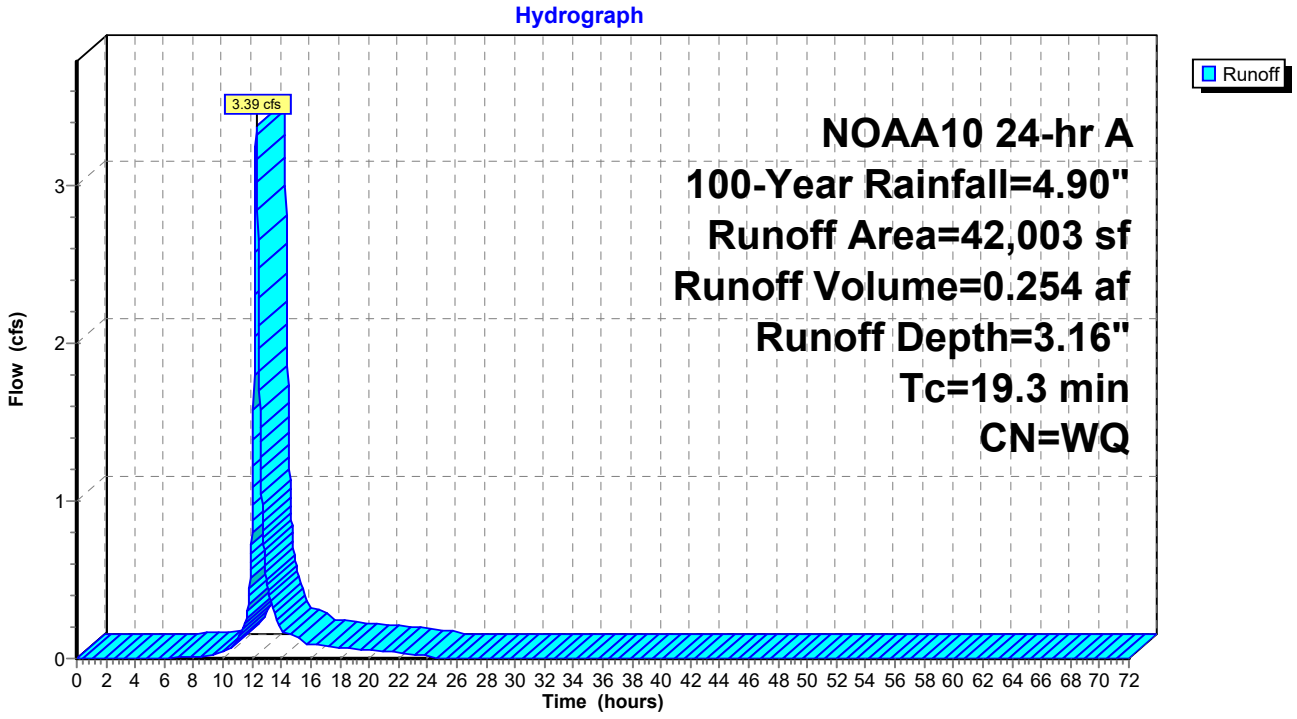
Runoff = 3.39 cfs @ 12.28 hrs, Volume= 0.254 af, Depth= 3.16"
Routed to Link 21L : PROPOSED TOTAL TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 100-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	13,722	91	Gravel, HSG D
	28,281	80	>75% Grass cover, Good, HSG D
	42,003		Weighted Average
	42,003		100.00% Pervious Area

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

Subcatchment 16S: P-DA-4 Overland flow to Exist. Basin (Dry Pond)



Summary for Subcatchment 17S: P-DA-1A (FLOW TO SMP)

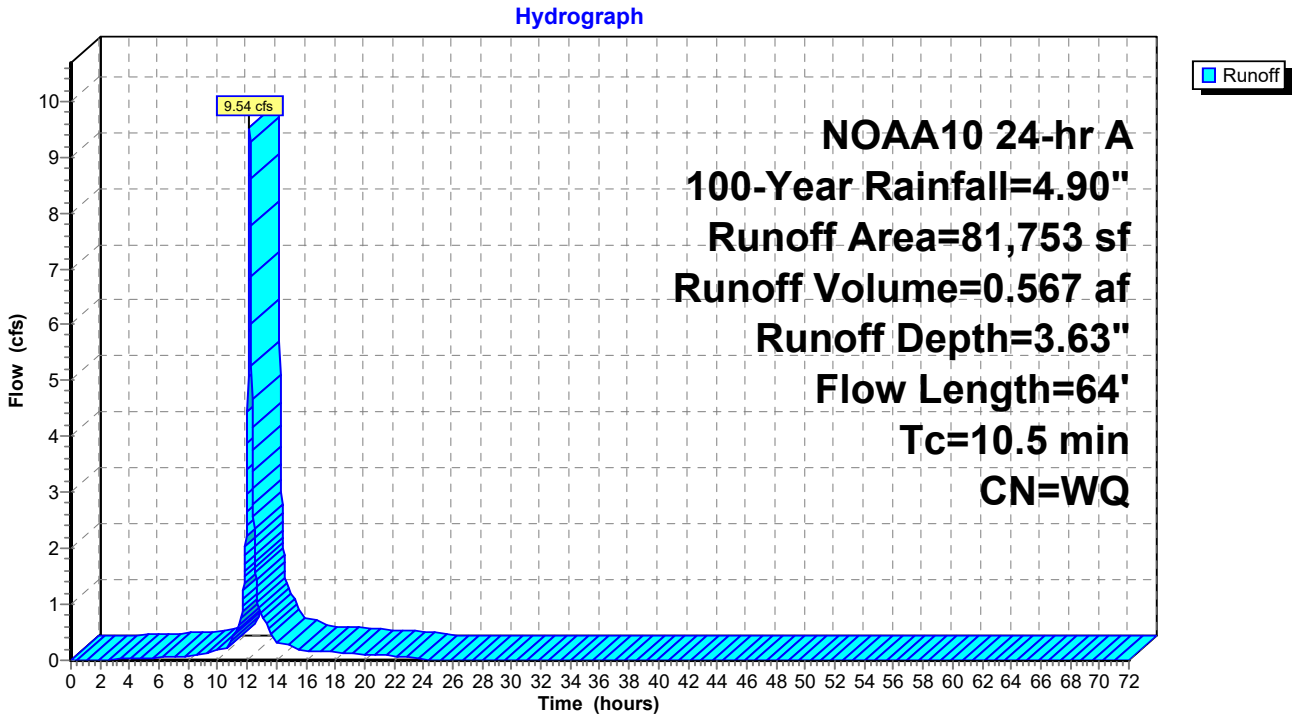
Runoff = 9.54 cfs @ 12.18 hrs, Volume= 0.567 af, Depth= 3.63"
Routed to Pond 18P : SMP-A DRY SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 100-Year Rainfall=4.90"

Area (sf)	CN	Description
45,617	80	>75% Grass cover, Good, HSG D
36,136	98	Paved parking, HSG D
81,753		Weighted Average
45,617		55.80% Pervious Area
36,136		44.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	38	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
0.1	26	0.1250	5.69		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.5	64	Total			

Subcatchment 17S: P-DA-1A (FLOW TO SMP)



Summary for Subcatchment 20S: P-DA-1B (BYPASS)

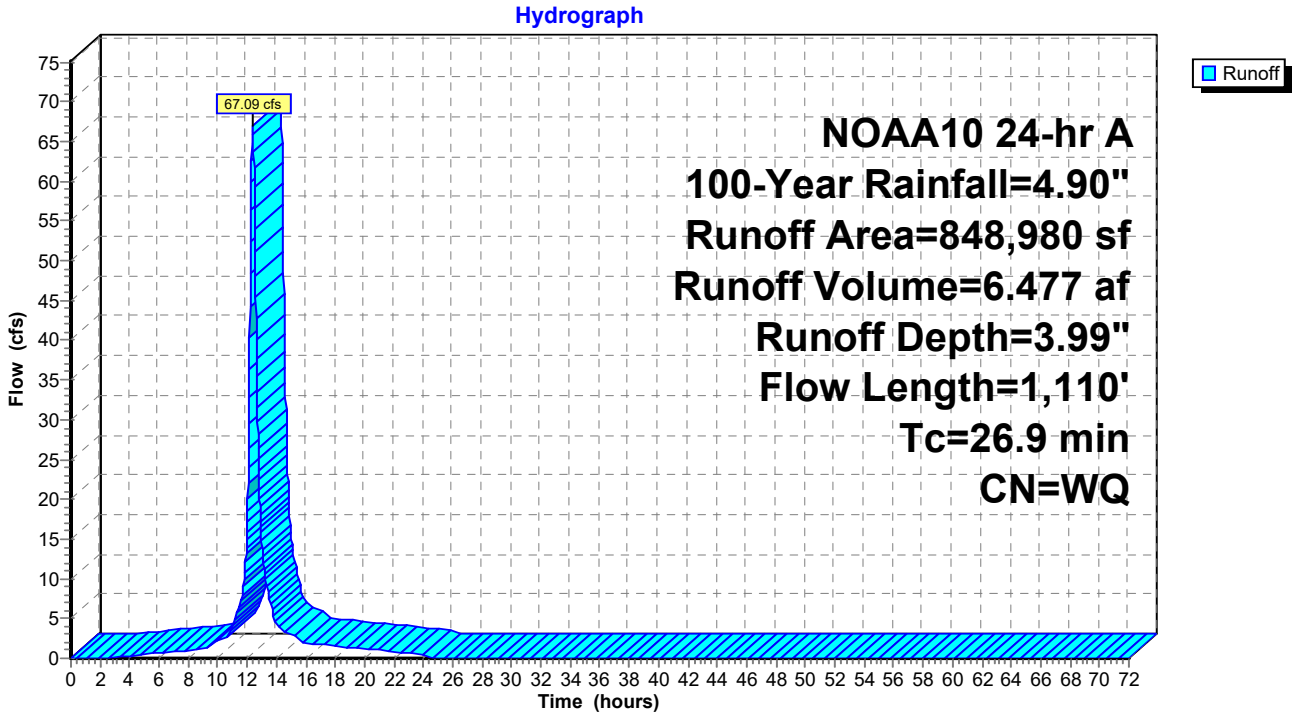
Runoff = 67.09 cfs @ 12.37 hrs, Volume= 6.477 af, Depth= 3.99"
Routed to Link 18L : PROP TOTAL PIPED TO POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA10 24-hr A 100-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	333,375	98	ROOF, HSG D
*	125,906	98	PAVEMENT, HSG D
*	1,767	98	CONCRETE, HSG D
*	115,824	91	GRAVEL, HSG D
	251,666	80	>75% Grass cover, Good, HSG D
*	20,442	91	Exist. Substation, Gravel, HSG D
	848,980		Weighted Average
	387,932		45.69% Pervious Area
	461,048		54.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	20	0.0350	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
18.8	80	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.24"
0.4	53	0.0020	2.35	2.89	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.0	154	0.0020	2.66	4.70	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.3	60	0.0020	3.22	10.12	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.3	78	0.0020	3.74	18.34	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.3	79	0.0020	4.68	44.99	**Pipe Channel,** 42.0" Round Area= 9.6 sf Perim= 11.0' r= 0.88' n= 0.013
1.4	388	0.0020	4.68	44.99	**Pipe Channel,** 42.0" Round Area= 9.6 sf Perim= 11.0' r= 0.88' n= 0.013
0.4	121	0.0020	5.11	64.24	**Pipe Channel,** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.2	77	0.0034	6.67	83.76	**Pipe Channel,** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
26.9	1,110	Total			

Subcatchment 20S: P-DA-1B (BYPASS)



Summary for Pond 18P: SMP-A DRY SWALE

Inflow Area = 1.877 ac, 44.20% Impervious, Inflow Depth = 3.63" for 100-Year event
Inflow = 9.54 cfs @ 12.18 hrs, Volume= 0.567 af
Outflow = 2.21 cfs @ 12.48 hrs, Volume= 0.567 af, Atten= 77%, Lag= 17.9 min
Primary = 2.21 cfs @ 12.48 hrs, Volume= 0.567 af
Routed to Link 18L : PROP TOTAL PIPED TO POA

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 673.36' @ 12.48 hrs Surf.Area= 8,968 sf Storage= 7,561 cf

Plug-Flow detention time= 26.2 min calculated for 0.567 af (100% of inflow)
Center-of-Mass det. time= 26.2 min (803.5 - 777.3)

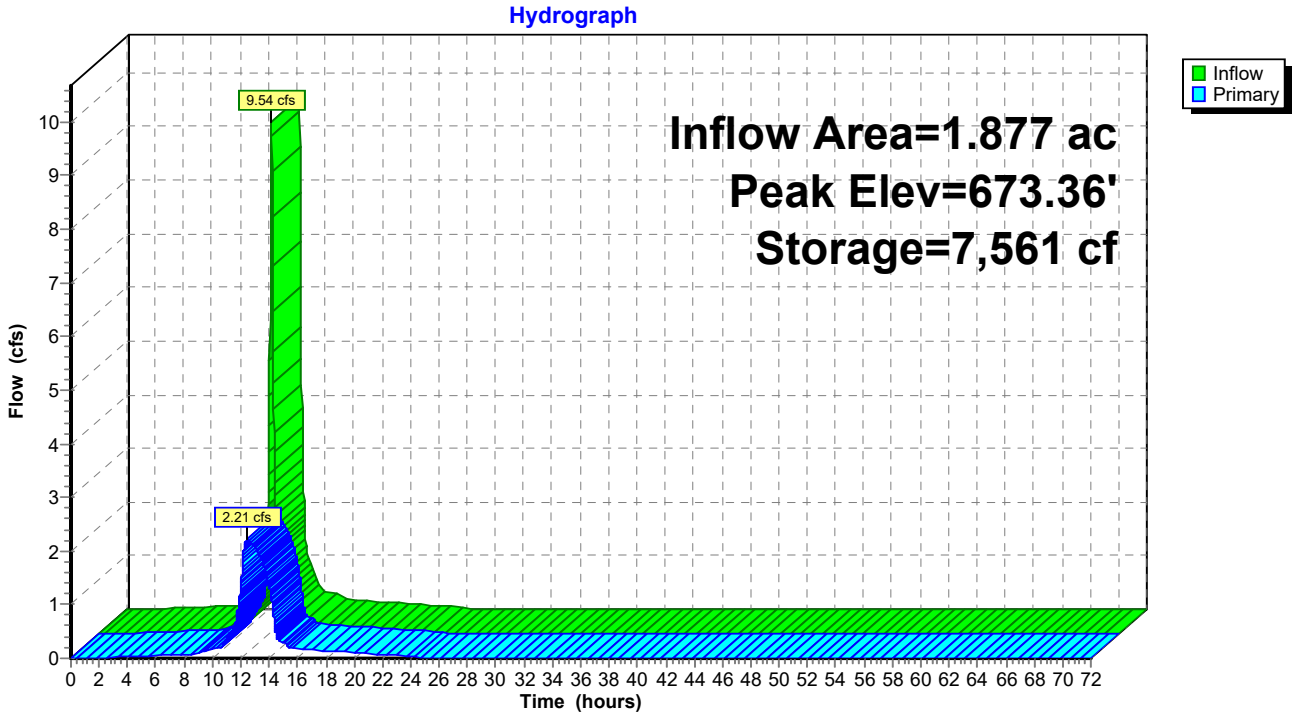
Volume	Invert	Avail.Storage	Storage Description
#1	671.30'	14,650 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
671.30	0	0	0
672.00	1,680	588	588
673.00	6,676	4,178	4,766
674.00	13,091	9,884	14,650

Device	Routing	Invert	Outlet Devices
#1	Primary	669.00'	**24.0" Round Culvert** L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 669.00' / 668.10' S= 0.0123 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	671.30'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	673.40'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.21 cfs @ 12.48 hrs HW=673.36' (Free Discharge)
└**1=Culvert** (Passes 2.21 cfs of 27.72 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 2.21 cfs @ 6.32 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 18P: SMP-A DRY SWALE



Stage-Area-Storage for Pond 18P: SMP-A DRY SWALE

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
671.30	0	0	671.82	1,248	324
671.31	24	0	671.83	1,272	337
671.32	48	0	671.84	1,296	350
671.33	72	1	671.85	1,320	363
671.34	96	2	671.86	1,344	376
671.35	120	3	671.87	1,368	390
671.36	144	4	671.88	1,392	404
671.37	168	6	671.89	1,416	418
671.38	192	8	671.90	1,440	432
671.39	216	10	671.91	1,464	447
671.40	240	12	671.92	1,488	461
671.41	264	15	671.93	1,512	476
671.42	288	17	671.94	1,536	492
671.43	312	20	671.95	1,560	507
671.44	336	24	671.96	1,584	523
671.45	360	27	671.97	1,608	539
671.46	384	31	671.98	1,632	555
671.47	408	35	671.99	1,656	571
671.48	432	39	672.00	1,680	588
671.49	456	43	672.01	1,730	605
671.50	480	48	672.02	1,780	623
671.51	504	53	672.03	1,830	641
671.52	528	58	672.04	1,880	659
671.53	552	63	672.05	1,930	678
671.54	576	69	672.06	1,980	698
671.55	600	75	672.07	2,030	718
671.56	624	81	672.08	2,080	738
671.57	648	87	672.09	2,130	759
671.58	672	94	672.10	2,180	781
671.59	696	101	672.11	2,230	803
671.60	720	108	672.12	2,280	826
671.61	744	115	672.13	2,329	849
671.62	768	123	672.14	2,379	872
671.63	792	131	672.15	2,429	896
671.64	816	139	672.16	2,479	921
671.65	840	147	672.17	2,529	946
671.66	864	156	672.18	2,579	971
671.67	888	164	672.19	2,629	997
671.68	912	173	672.20	2,679	1,024
671.69	936	183	672.21	2,729	1,051
671.70	960	192	672.22	2,779	1,079
671.71	984	202	672.23	2,829	1,107
671.72	1,008	212	672.24	2,879	1,135
671.73	1,032	222	672.25	2,929	1,164
671.74	1,056	232	672.26	2,979	1,194
671.75	1,080	243	672.27	3,029	1,224
671.76	1,104	254	672.28	3,079	1,254
671.77	1,128	265	672.29	3,129	1,285
671.78	1,152	276	672.30	3,179	1,317
671.79	1,176	288	672.31	3,229	1,349
671.80	1,200	300	672.32	3,279	1,381
671.81	1,224	312	672.33	3,329	1,414

Stage-Area-Storage for Pond 18P: SMP-A DRY SWALE (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.34	3,379	1,448
672.35	3,429	1,482
672.36	3,479	1,517
672.37	3,529	1,552
672.38	3,578	1,587
672.39	3,628	1,623
672.40	3,678	1,660
672.41	3,728	1,697
672.42	3,778	1,734
672.43	3,828	1,772
672.44	3,878	1,811
672.45	3,928	1,850
672.46	3,978	1,889
672.47	4,028	1,929
672.48	4,078	1,970
672.49	4,128	2,011
672.50	4,178	2,053
672.51	4,228	2,095
672.52	4,278	2,137
672.53	4,328	2,180
672.54	4,378	2,224
672.55	4,428	2,268
672.56	4,478	2,312
672.57	4,528	2,357
672.58	4,578	2,403
672.59	4,628	2,449
672.60	4,678	2,495
672.61	4,728	2,542
672.62	4,778	2,590
672.63	4,827	2,638
672.64	4,877	2,686
672.65	4,927	2,735
672.66	4,977	2,785
672.67	5,027	2,835
672.68	5,077	2,885
672.69	5,127	2,936
672.70	5,177	2,988
672.71	5,227	3,040
672.72	5,277	3,093
672.73	5,327	3,146
672.74	5,377	3,199
672.75	5,427	3,253
672.76	5,477	3,308
672.77	5,527	3,363
672.78	5,577	3,418
672.79	5,627	3,474
672.80	5,677	3,531
672.81	5,727	3,588
672.82	5,777	3,645
672.83	5,827	3,703
672.84	5,877	3,762
672.85	5,927	3,821
672.86	5,977	3,880
672.87	6,027	3,940
672.88	6,076	4,001
672.89	6,126	4,062
672.90	6,176	4,123
672.91	6,226	4,185
672.92	6,276	4,248
672.93	6,326	4,311
672.94	6,376	4,374
672.95	6,426	4,438
672.96	6,476	4,503
672.97	6,526	4,568
672.98	6,576	4,633
672.99	6,626	4,699
673.00	6,676	4,766
673.01	6,740	4,833
673.02	6,804	4,901
673.03	6,868	4,969
673.04	6,933	5,038
673.05	6,997	5,108
673.06	7,061	5,178
673.07	7,125	5,249
673.08	7,189	5,321
673.09	7,253	5,393
673.10	7,317	5,466
673.11	7,382	5,539
673.12	7,446	5,613
673.13	7,510	5,688
673.14	7,574	5,764
673.15	7,638	5,840
673.16	7,702	5,916
673.17	7,767	5,994
673.18	7,831	6,072
673.19	7,895	6,150
673.20	7,959	6,229
673.21	8,023	6,309
673.22	8,087	6,390
673.23	8,151	6,471
673.24	8,216	6,553
673.25	8,280	6,635
673.26	8,344	6,719
673.27	8,408	6,802
673.28	8,472	6,887
673.29	8,536	6,972
673.30	8,600	7,057
673.31	8,665	7,144
673.32	8,729	7,231
673.33	8,793	7,318
673.34	8,857	7,407
673.35	8,921	7,496
673.36	8,985	7,585
673.37	9,050	7,675

Stage-Area-Storage for Pond 18P: SMP-A DRY SWALE (continued)

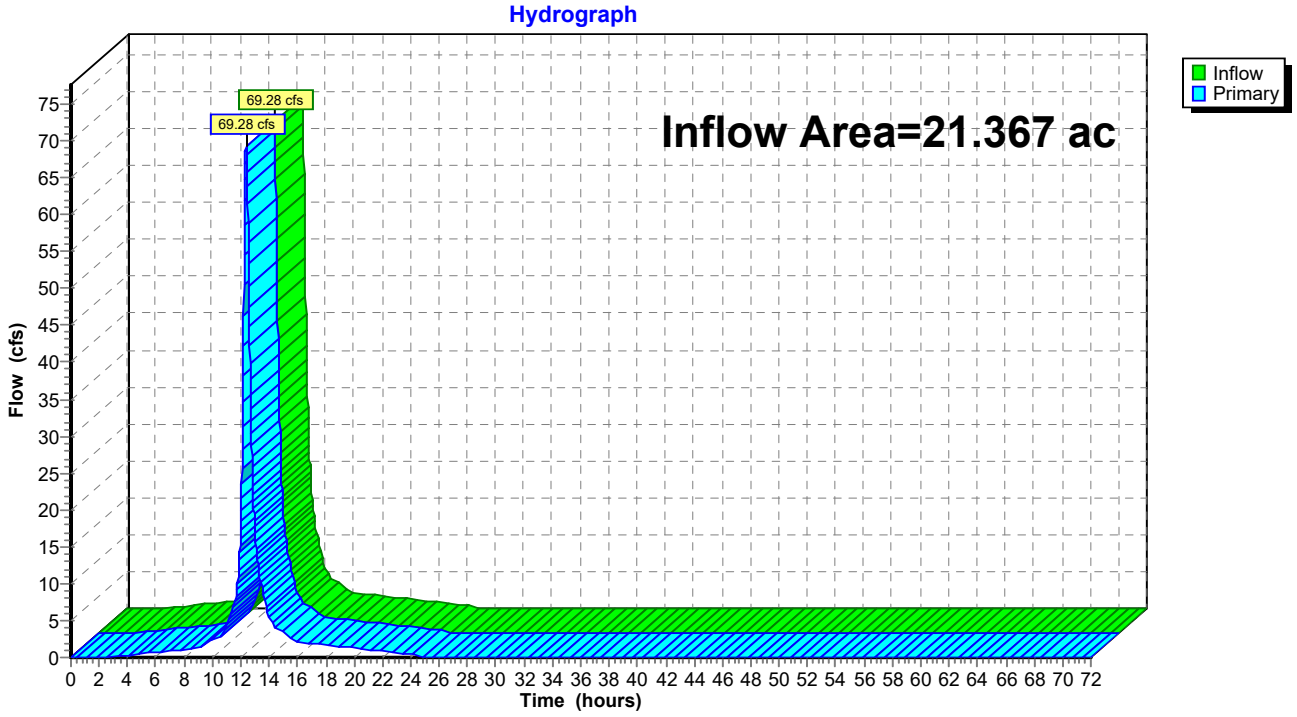
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
673.38	9,114	7,766
673.39	9,178	7,858
673.40	9,242	7,950
673.41	9,306	8,042
673.42	9,370	8,136
673.43	9,434	8,230
673.44	9,499	8,324
673.45	9,563	8,420
673.46	9,627	8,516
673.47	9,691	8,612
673.48	9,755	8,709
673.49	9,819	8,807
673.50	9,884	8,906
673.51	9,948	9,005
673.52	10,012	9,105
673.53	10,076	9,205
673.54	10,140	9,306
673.55	10,204	9,408
673.56	10,268	9,510
673.57	10,333	9,613
673.58	10,397	9,717
673.59	10,461	9,821
673.60	10,525	9,926
673.61	10,589	10,032
673.62	10,653	10,138
673.63	10,717	10,245
673.64	10,782	10,352
673.65	10,846	10,461
673.66	10,910	10,569
673.67	10,974	10,679
673.68	11,038	10,789
673.69	11,102	10,900
673.70	11,166	11,011
673.71	11,231	11,123
673.72	11,295	11,235
673.73	11,359	11,349
673.74	11,423	11,463
673.75	11,487	11,577
673.76	11,551	11,692
673.77	11,616	11,808
673.78	11,680	11,925
673.79	11,744	12,042
673.80	11,808	12,160
673.81	11,872	12,278
673.82	11,936	12,397
673.83	12,000	12,517
673.84	12,065	12,637
673.85	12,129	12,758
673.86	12,193	12,880
673.87	12,257	13,002
673.88	12,321	13,125
673.89	12,385	13,248
673.90	12,449	13,372
673.91	12,514	13,497
673.92	12,578	13,623
673.93	12,642	13,749
673.94	12,706	13,876
673.95	12,770	14,003
673.96	12,834	14,131
673.97	12,899	14,260
673.98	12,963	14,389
673.99	13,027	14,519
674.00	**13,091**	**14,650**

Summary for Link 18L: PROP TOTAL PIPED TO POA

Inflow Area = 21.367 ac, 53.42% Impervious, Inflow Depth = 3.96" for 100-Year event
Inflow = 69.28 cfs @ 12.37 hrs, Volume= 7.044 af
Primary = 69.28 cfs @ 12.37 hrs, Volume= 7.044 af, Atten= 0%, Lag= 0.0 min
Routed to Link 21L : PROPOSED TOTAL TO POA

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link 18L: PROP TOTAL PIPED TO POA

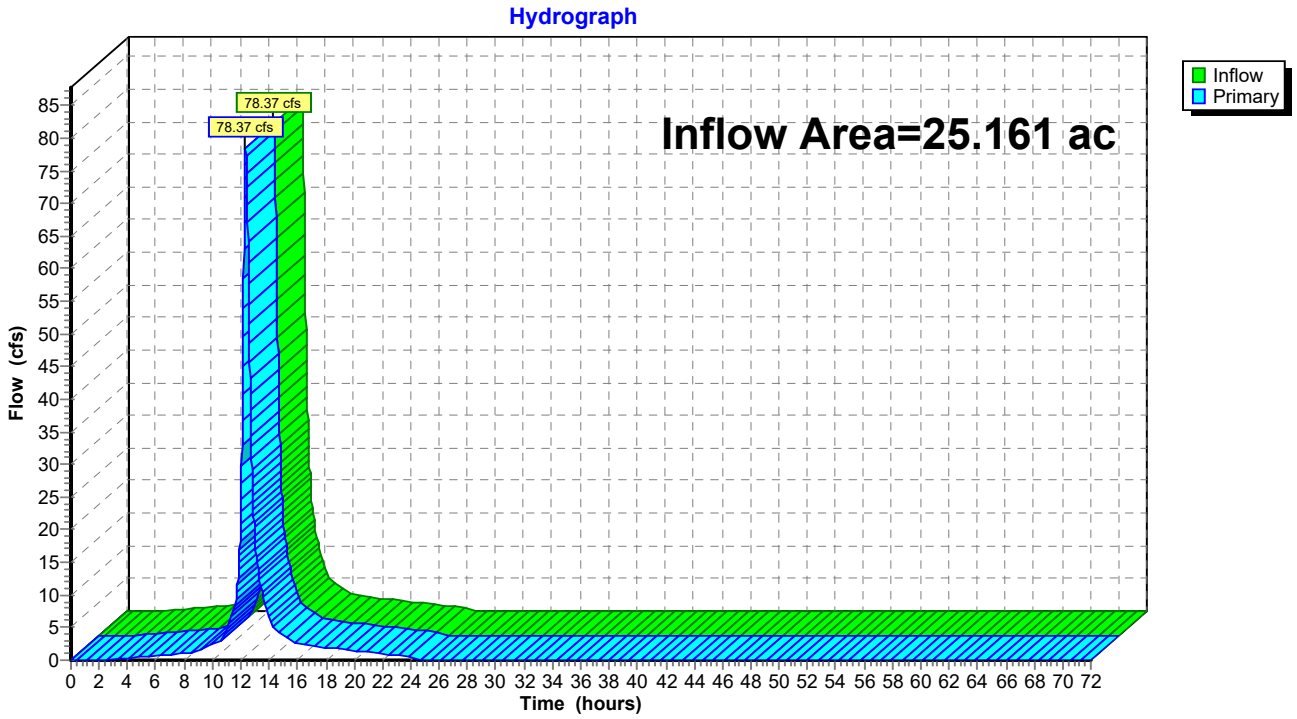


Summary for Link 21L: PROPOSED TOTAL TO POA

Inflow Area = 25.161 ac, 45.36% Impervious, Inflow Depth = 3.79" for 100-Year event
Inflow = 78.37 cfs @ 12.35 hrs, Volume= 7.946 af
Primary = 78.37 cfs @ 12.35 hrs, Volume= 7.946 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link 21L: PROPOSED TOTAL TO POA



APPENDIX F

WATER QUALITY & SMP DESIGN SPREADSHEETS

Step 2 - Calculate Water Quality Volume

Is this project subject to Section 4.3 of the NYS Design Manual for Enhanced Phosphorus Removal?	No
What is the nature of this construction project?	Redevelopment with no increase in impervious area

Design Point:	1		
P=	1.00	inches	*Enter 90% Rainfall Event as P*

Calculate Required WQv

Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	SMP Description
1	1.88	0.83	44	0.45	3,053	Dry Swale
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Total	1.88	0.83	44	0.45	**3053**	**Required WQv**

Step 2 - Calculate Water Quality Volume

0.07	**af**

Dry Swale (O-1)

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (ft^3)	**Precipitation** (in)	**Description**
1	1.88	0.83	44	0.45	3,053	1.00	Dry Swale

Design Criteria		
Select HSG	D	
Is the contributing area to the practice a designated hotspot?	No	
Is the practice the first in series for treatment of a Level 1 (Infiltration Restricted) hotspot?	No	
Is contributing area greater than 5 acres?	No	
Enter depth to seasonal high water table (ft)	6	
Enter depth to bedrock (ft)	6	
Enter pretreatment volume provided (cf)	306	
Enter depth of filter media (inches)	30	
Enter depth of drainage layer (inches)	10	
Is an underdrain proposed?	Yes	

Sizing Criteria				
		Value	Units	Notes
Enter Bottom Width	b	8.00	ft	
Enter Side Slopes	X:1	8.00	:1	
WQv Maximum Flow Depth	d	1.50	ft	
WQv Flow Top Width	Wwqv	32.00	ft	
Channel Area	Awqv	30.00	sf	
Required Channel Length	Lr	102.00	ft	
Enter Provided Channel Length	Lp	298.00	ft	
Channel Volume Provided	Vc	8940.00	cf	
Enter Check Dam Height	Ch	1.00	ft	
Check Dam Spacing	Cs	167.00	ft	
Number of Check Dams Required	C	2.00		
2-yr 24-hr Flow Depth	d2	1.11	ft	
2-yr Storm Flow Top Width	W2	25.76	ft	
Area of 2-yr 24-hr Flow	A2	18.74	sf	
2-yr Wetted Perimeter	Pw2	28.22	ft	
Enter Mannings Coef.	n	0.03		
Enter Longitudinal Slope	S	0.01	ft/ft	
2-yr Velocity	V	2.93	fps	
Enter 10-yr Freeboard		1.18	ft	

Determine Runoff Reduction			
RRv Provided	**611**	***cf***	
WQv Treated	***2,442***	***cf***	This is the portion of the WQv that is not reduced/infiltrated

APPENDIX G

EMERGENCY SPILLWAY CALCULATIONS

75A OS EMERGENCY SPILLWAY RISER

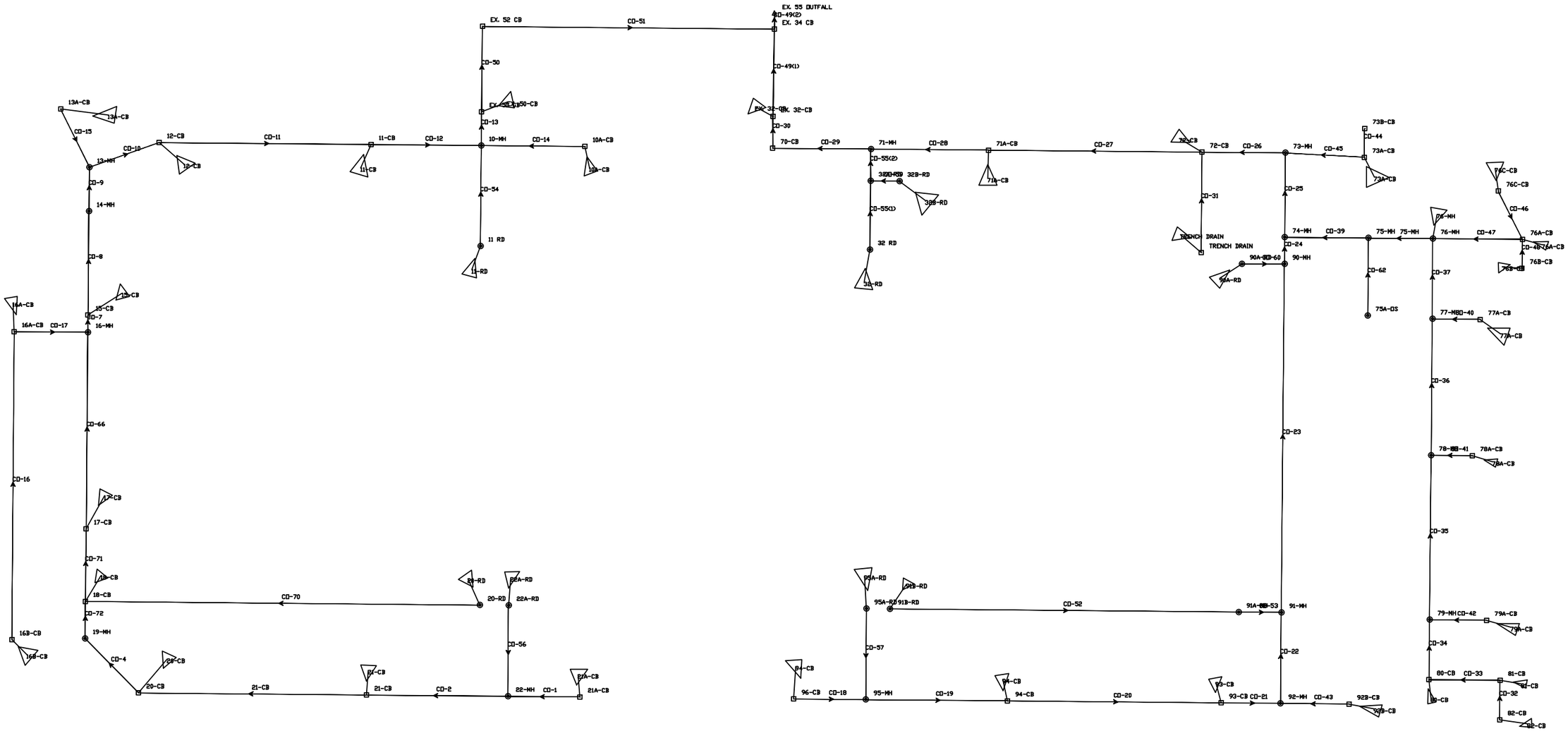
Project Description	
Solve For	Headwater Elevation

Input Data		
Discharge	5.66 cfs	10-year/24-hr design storm inflow
Crest Elevation	673.40 ft	OS riser grate elevation
Tailwater Elevation	668.00 ft	
Weir Coefficient	3.00 ft^(1/2)/s	
Crest Length	16.0 ft	
Number Of Contractions	0	

Results		
Headwater Elevation	673.64 ft	spillway design storm peak elevation
Headwater Height Above Crest	0.24 ft	
Tailwater Height Above Crest	-5.40 ft	
Flow Area	3.8 ft²	
Velocity	1.47 ft/s	
Wetted Perimeter	16.5 ft	
Top Width	16.00 ft	

APPENDIX H

STORMWATER CONVEYANCE CAPACITY CALCULATIONS



STORMCAD
MODEL
1"=100'

Conduit FlexTable: Combined Pipe/Node Report

Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (Unified) (ft)	Slope (Calculated) (%)	Diameter (in)	Manning's n	Upstream Inlet C	System Intensity (in/h)	Upstream Inlet Area (ft²)	System CA (ft²)	Flow (cfs)	Capacity (Full Flow) (cfs)	Velocity (ft/s)	Upstream Structure Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
21A-CB	22-MH	669.78	669.65	67.5	0.19	15.0	0.013	0.868	4.310	21,559	18,708	1.87	2.83	2.47	670.48	670.48	670.20
22-MH	21-CB	669.15	668.88	132.3	0.20	24.0	0.013	(N/A)	4.225	(N/A)	50,269	4.91	10.22	3.22	670.20	670.20	670.06
21-CB	20-CB	668.88	668.45	213.2	0.20	24.0	0.013	0.868	4.098	22,128	69,480	6.59	10.16	3.44	670.06	670.06	669.64
20-CB	19-MH	668.45	668.31	71.4	0.20	24.0	0.013	0.869	3.906	11,677	79,629	7.20	10.02	3.47	669.64	669.64	669.42
16-MH	15-CB	666.74	666.70	16.3	0.25	36.0	0.013	(N/A)	3.656	(N/A)	169,117	14.31	33.08	4.51	668.24	668.24	668.22
15-CB	14-MH	666.70	666.51	97.0	0.20	36.0	0.013	0.788	3.645	14,555	180,586	15.23	29.52	4.21	668.22	668.22	668.01
14-MH	13-MH	666.51	666.43	41.2	0.19	36.0	0.013	(N/A)	3.574	(N/A)	180,586	14.93	29.40	4.17	668.01	668.01	667.92
13-MH	12-CB	666.43	666.29	69.2	0.20	36.0	0.013	(N/A)	3.543	(N/A)	189,115	15.51	30.01	4.28	667.92	667.92	667.74
12-CB	11-CB	665.79	665.40	198.3	0.20	36.0	0.013	0.876	3.493	17,902	204,799	16.55	29.58	4.30	667.74	667.74	667.60
11-CB	10-MH	665.40	665.19	103.3	0.20	36.0	0.013	0.861	3.369	23,202	224,767	17.52	30.08	4.42	667.60	667.60	667.53
10-MH	EX. 50 CB	665.19	665.12	31.8	0.22	36.0	0.013	(N/A)	3.342	(N/A)	294,750	22.79	31.32	4.83	667.53	667.53	667.50
10A-CB	10-MH	667.63	667.44	96.9	0.20	15.0	0.013	0.871	4.310	21,964	19,122	1.91	2.86	2.49	668.35	668.35	667.99
13A-CB	13-MH	668.30	668.18	60.9	0.20	15.0	0.013	0.650	4.310	13,121	8,529	0.85	2.87	2.04	668.76	668.76	668.54
16B-CB	16A-CB	668.96	668.38	288.3	0.20	15.0	0.013	0.650	4.310	11,173	7,262	0.72	2.90	1.96	669.39	669.39	669.02
16A-CB	16-MH	668.38	668.24	68.9	0.20	18.0	0.013	0.650	3.855	21,200	21,042	1.88	4.74	2.52	669.02	669.02	668.76
96-CB	95-MH	670.15	670.02	67.5	0.19	15.0	0.013	0.868	4.310	20,980	18,211	1.82	2.83	2.45	670.84	670.84	670.57
95-MH	94-CB	669.52	669.25	132.4	0.20	24.0	0.013	(N/A)	4.225	(N/A)	49,772	4.87	10.22	3.21	670.57	670.57	670.42
94-CB	93-CB	669.25	668.85	200.1	0.20	24.0	0.013	0.868	4.097	22,296	69,129	6.55	10.11	3.42	670.42	670.42	670.03
93-CB	92-MH	668.85	668.74	55.5	0.20	24.0	0.013	0.835	3.916	12,908	79,908	7.24	10.07	3.49	670.03	670.03	669.86
92-MH	91-MH	668.74	668.57	85.0	0.20	30.0	0.013	(N/A)	3.866	(N/A)	89,642	8.02	18.34	3.61	669.86	669.86	669.57
91-MH	90-MH	668.07	667.42	326.0	0.20	30.0	0.013	(N/A)	3.793	(N/A)	140,647	12.35	18.31	4.00	669.57	669.57	668.67
90-MH	74-MH	667.42	667.33	25.1	0.36	30.0	0.013	(N/A)	3.541	(N/A)	151,474	12.41	24.58	5.02	668.67	668.67	668.55
74-MH	73-MH	666.83	666.67	78.9	0.20	42.0	0.013	(N/A)	3.525	(N/A)	220,235	23.63	45.29	4.76	668.55	668.55	668.16
73-MH	72-CB	666.17	666.01	78.0	0.21	42.0	0.013	(N/A)	3.474	(N/A)	227,819	23.97	45.55	4.80	668.04	668.04	667.91
72-CB	71A-CB	666.01	665.60	199.9	0.21	42.0	0.013	0.900	3.424	15,468	246,220	25.17	45.56	4.85	667.91	667.91	667.60
71A-CB	71-MH	665.60	665.39	110.0	0.19	42.0	0.013	0.852	3.349	25,293	267,769	26.41	43.95	4.78	667.60	667.60	667.43
71-MH	70-CB	664.89	664.71	91.8	0.20	48.0	0.013	(N/A)	3.322	(N/A)	371,139	34.19	63.60	5.15	667.43	667.43	667.36
70-CB	EX. 32-CB	664.71	664.63	29.7	0.27	48.0	0.013	(N/A)	3.301	(N/A)	371,139	34.01	74.55	5.80	667.36	667.36	667.34
TRENCH DRAIN	72-CB	670.00	669.06	94.0	1.00	15.0	0.013	0.990	4.310	4,522	4,477	0.45	6.46	3.02	670.26	670.26	669.28
82-CB	81-CB	669.90	669.83	36.9	0.19	15.0	0.013	0.886	4.310	2,913	2,582	0.26	2.81	1.43	670.28	670.28	670.27
81-CB	80-CB	669.83	669.69	66.5	0.21	15.0	0.013	0.922	4.230	4,000	6,270	0.61	2.96	1.90	670.27	670.27	670.23
80-CB	79-MH	669.69	669.58	56.0	0.20	15.0	0.013	0.926	4.122	6,348	12,146	1.16	2.86	2.21	670.23	670.23	670.07
79-MH	78-MH	669.33	669.02	153.8	0.20	18.0	0.013	(N/A)	4.043	(N/A)	22,555	2.11	4.72	2.60	670.07	670.07	669.90
78-MH	77-MH	669.02	668.76	127.6	0.20	18.0	0.013	(N/A)	3.859	(N/A)	35,210	3.14	4.74	2.87	669.90	669.90	669.60
77-MH	76-MH	668.76	668.61	75.2	0.20	24.0	0.013	(N/A)	3.722	(N/A)	45,116	3.89	10.11	3.01	669.60	669.60	669.39
76-MH	75-MH	668.11	668.00	60.2	0.18	24.0	0.013	0.947	3.644	9,178	68,761	5.80	9.67	3.22	669.39	669.39	669.33
75-MH	74-MH	668.00	667.83	78.4	0.22	30.0	0.013	(N/A)	3.586	(N/A)	68,761	11.37	19.10	4.06	669.33	669.33	668.96
77A-CB	77-MH	669.10	669.01	44.9	0.20	15.0	0.013	0.650	4.310	15,240	9,906	0.99	2.89	2.13	669.65	669.65	669.60
78A-CB	78-MH	669.33	669.27	38.5	0.16	15.0	0.013	0.650	4.310	19,469	12,655	1.26	2.55	2.07	669.96	669.96	669.90
79A-CB	79-MH	669.69	669.58	53.5	0.21	15.0	0.013	0.650	4.310	16,014	10,409	1.04	2.93	2.18	670.20	670.20	670.07
92B-CB	92-MH	669.62	669.49	64.4	0.20	15.0	0.013	0.870	4.310	11,193	9,734	0.97	2.90	2.13	670.11	670.11	669.88
73B-CB	73A-CB	668.62	666.57	27.0	7.59	12.0	0.013	(N/A)	6.080	(N/A)	0	0.00	9.82	0.00	668.62	668.62	668.05
73A-CB	73-MH	666.57	666.42	73.9	0.20	15.0	0.013	0.838	4.310	9,054	7,584	0.76	2.91	0.62	668.05	668.05	668.04
76C-CB	76A-CB	669.12	669.02	50.6	0.20	15.0	0.013	0.755	4.310	11,947	9,021	0.90	2.87	2.07	669.60	669.60	669.48
76A-CB	76-MH	668.77	668.61	84.0	0.19	15.0	0.013	0.883	4.234	3,663	14,952	1.47	2.82	2.32	669.48	669.48	669.39
76B-CB	76A-CB	669.07	669.02	27.0	0.19	15.0	0.013	0.868	4.310	3,106	2,696	0.27	2.78	1.43	669.48	669.48	669.48
EX. 32-CB	EX. 34 CB	664.63	664.37	81.7	0.32	48.0	0.013	0.783	3.296	39,380	401,968	36.31	81.03	6.27	667.34	667.34	667.31

Conduit FlexTable: Combined Pipe/Node Report

Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (Unified) (ft)	Slope (Calculated) (%)	Diameter (in)	Manning's n	Upstream Inlet C	System Intensity (in/h)	Upstream Inlet Area (ft²)	System CA (ft²)	Flow (cfs)	Capacity (Full Flow) (cfs)	Velocity (ft/s)	Upstream Structure Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
EX. 34 CB	EX. 55 OUTFALL	664.32	664.46	14.6	-0.96	42.0	0.013	(N/A)	3.250	(N/A)	716,695	59.56	98.66	6.19	667.31	667.31	666.88
EX. 50 CB	EX. 52 CB	665.12	665.00	79.8	0.15	42.0	0.013	0.650	3.334	30,734	314,727	24.28	39.02	4.28	667.50	667.50	667.44
EX. 52 CB	EX. 34 CB	665.00	664.37	273.1	0.23	42.0	0.013	(N/A)	3.313	(N/A)	314,727	24.13	48.32	5.02	667.44	667.44	667.31
91B-RD	91A-MH	671.07	669.44	326.1	0.50	18.0	0.011	0.990	4.310	51,520	51,005	5.09	8.78	5.15	671.94	671.94	670.32
91A-MH	91-MH	669.44	669.24	40.0	0.50	18.0	0.013	(N/A)	4.114	(N/A)	51,005	4.86	7.43	4.48	670.32	670.32	670.09
11 RD	10-MH	670.50	669.75	94.0	0.80	16.0	0.013	0.990	4.310	51,375	50,861	5.07	6.85	5.37	671.40	671.40	670.60
22A-RD	22-MH	670.60	670.15	85.1	0.53	16.0	0.011	0.990	4.310	31,880	31,561	3.15	6.59	4.67	671.30	671.30	670.80
95A-RD	95-MH	670.90	670.52	85.0	0.45	16.0	0.011	0.990	4.310	31,880	31,561	3.15	6.06	4.38	671.60	671.60	671.20
32 RD	32A-RD	670.30	669.98	64.3	0.50	18.0	0.011	0.990	4.310	63,842	63,204	6.30	8.76	5.40	671.27	671.27	670.92
32A-RD	71-MH	668.43	668.28	29.8	0.49	24.0	0.011	(N/A)	4.273	(N/A)	103,371	10.22	18.80	6.11	669.57	669.57	669.34
32B-RD	32A-RD	668.57	668.43	26.9	0.53	18.0	0.013	0.990	4.310	40,573	40,167	4.01	7.66	4.38	669.59	669.59	669.57
90A-RD	90-MH	669.12	668.92	40.0	0.50	12.0	0.011	0.990	4.310	10,936	10,827	1.08	2.98	3.49	669.56	669.56	669.34
75A-OS	75-MH	669.00	668.10	72.5	1.24	24.0	0.013	(N/A)	6.080	(N/A)	0	5.66	25.21	6.47	669.84	669.84	669.33
17-CB	16-MH	667.61	666.74	183.9	0.47	30.0	0.013	0.820	3.758	7,652	148,074	12.88	28.21	5.62	668.82	668.82	668.24
20-RD	18-CB	672.00	668.91	369.0	0.84	16.0	0.011	0.990	4.310	51,375	50,861	5.07	8.30	6.24	672.90	672.90	669.66
18-CB	17-CB	667.74	667.61	67.9	0.19	30.0	0.013	0.820	3.811	13,785	141,799	12.51	17.95	3.95	669.16	669.16	668.82
19-MH	18-CB	668.31	668.24	34.6	0.20	24.0	0.013	(N/A)	3.842	(N/A)	79,629	7.08	10.17	3.50	669.42	669.42	669.18

10-YEAR DESIGN STORM

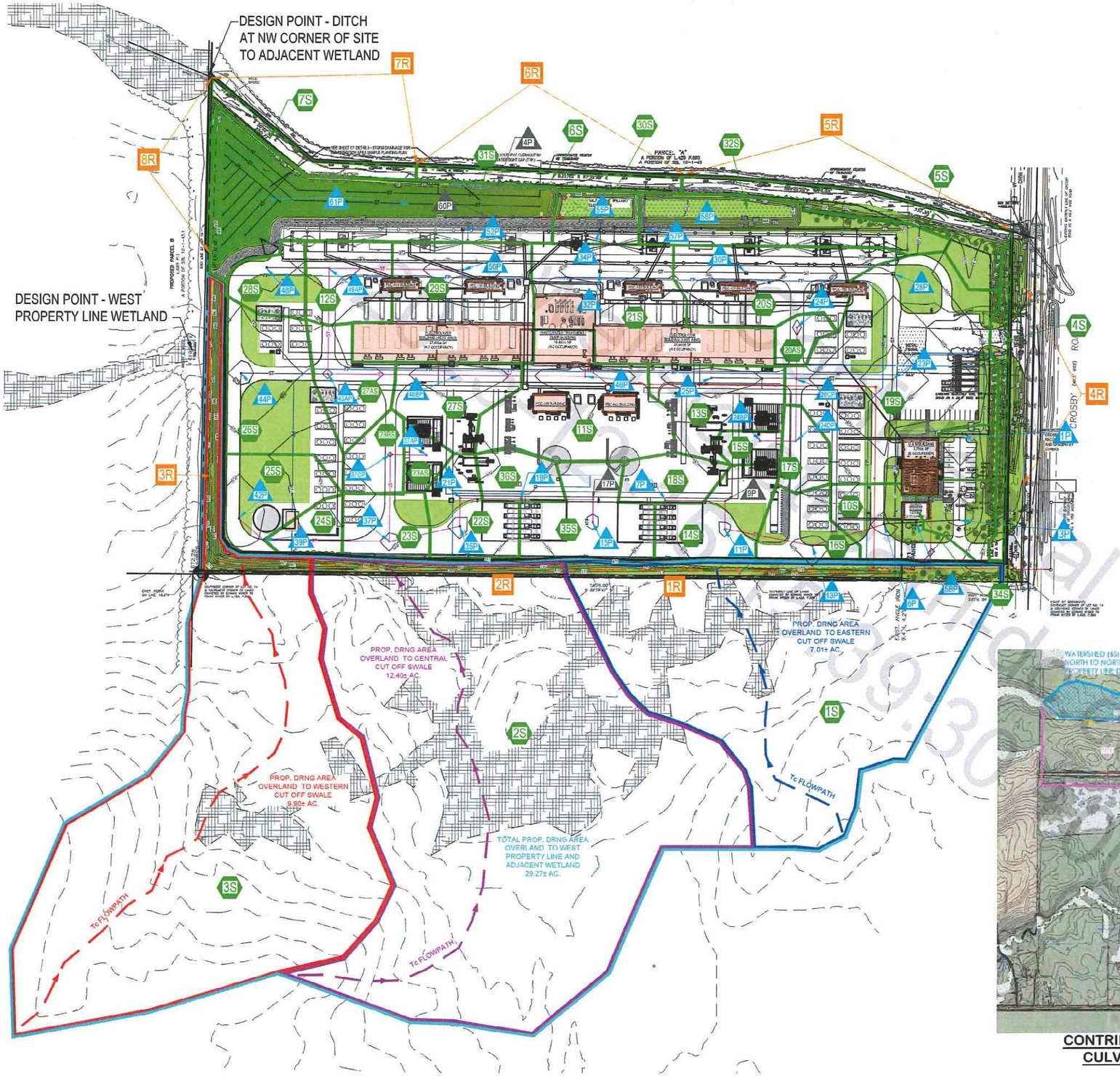
FlexTable: Catchment Table

ID	Label	Outflow Element	Area (User Defined) (ft²)	Runoff Coefficient (Rational)	Time of Concentration (min)	Flow (Total Out) (cfs)
150	21A-CB	21A-CB	21,559	0.868	10.000	2.48
162	94-CB	96-CB	20,980	0.868	10.000	2.41
163	95A-RD	95A-RD	31,880	0.990	10.000	4.18
164	91B-RD	91B-RD	51,520	0.990	10.000	6.76
165	94-CB	94-CB	22,296	0.868	10.000	2.56
166	93-CB	93-CB	12,908	0.835	10.000	1.43
167	92B-CB	92B-CB	11,193	0.870	10.000	1.29
168	TRENCH DRAIN	TRENCH DRAIN	4,522	0.990	10.000	0.59
171	90A-RD	90A-RD	10,936	0.990	10.000	1.43
172	22A-RD	22A-RD	31,880	0.990	10.000	4.18
173	21-CB	21-CB	22,128	0.868	10.000	2.55
174	20-CB	20-CB	11,677	0.869	10.000	1.34
177	20-RD	20-RD	51,375	0.990	10.000	6.74
178	18-CB	18-CB	13,785	0.820	10.000	1.50
179	16B-CB	16B-CB	11,173	0.650	10.000	0.96
180	16A-CB	16A-CB	21,200	0.650	10.000	1.83
181	15-CB	15-CB	14,555	0.788	10.000	1.52
182	13A-CB	13A-CB	13,121	0.650	10.000	1.13
183	12-CB	12-CB	17,902	0.876	10.000	2.08
184	11-CB	11-CB	23,202	0.861	10.000	2.65
185	11-RD	11 RD	51,375	0.990	10.000	6.74
186	10A-CB	10A-CB	21,964	0.871	10.000	2.53
187	EX. 50-CB	EX. 50 CB	30,734	0.650	10.000	2.65
188	EX. 32-CB	EX. 32-CB	39,380	0.783	10.000	4.08
189	32-RD	32 RD	63,842	0.990	10.000	8.37
190	32B-RD	32B-RD	40,573	0.990	10.000	5.32
191	71A-CB	71A-CB	25,293	0.852	10.000	2.86
192	72-CB	72-CB	15,468	0.900	10.000	1.85
193	73A-CB	73A-CB	9,054	0.838	10.000	1.00
194	82-CB	82-CB	2,913	0.886	10.000	0.34
195	81-CB	81-CB	4,000	0.922	10.000	0.49
196	80-CB	80-CB	6,348	0.926	10.000	0.78
197	79A-CB	79A-CB	16,014	0.650	10.000	1.38
198	78A-CB	78A-CB	19,469	0.650	10.000	1.68
199	77A-CB	77A-CB	15,240	0.650	10.000	1.31
200	76B-CB	76B-CB	3,106	0.868	10.000	0.36
201	76A-CB	76A-CB	3,663	0.883	10.000	0.43
202	76C-CB	76C-CB	11,947	0.755	10.000	1.20
203	76-MH	76-MH	9,178	0.947	10.000	1.15
216	17-CB	17-CB	7,652	0.820	10.000	0.83

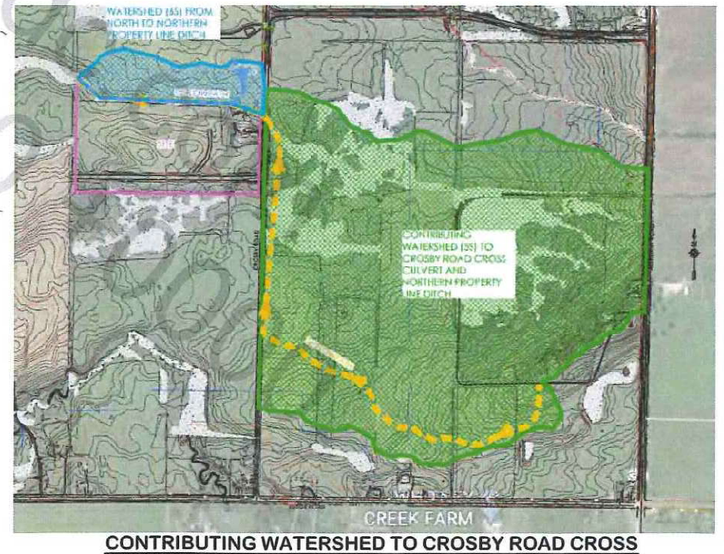
APPENDIX I

DRAINAGE AREA MAPS

Copied from Report entitled "Plug Power Hydrogen Production Facility, STAMP Project Gateway, Stormwater Pollution Prevention Plan" dated May 21, 2021, last revised May 1, 2023



PROPOSED CONDITIONS DRAINAGE MAP
SCALE: 1"=60'



CONTRIBUTING WATERSHED TO CROSBY ROAD CROSS CULVERT AND NORTH PROPERTY LINE DITCH (2R)
SCALE: 1"=600'±

N

NO.	ISSUE DATE	REVISION DESCRIPTION
0	05-15-2021	SITE PLAN SUBMITTAL
1	07-15-2021	SITE PLAN SUBMITTAL - REVISED PER TOWN COMMENTS
2	08-31-2021	SITE PLAN SUBMITTAL - REVISED PER OWNER AND TOWN COMMENTS
3	05-01-2023	REVISED SITE PLAN SUBMITTAL - REVISED PER OWNER
4		
5		
6		
7		
8		
9		

CLIENT:
PLUG POWER
968 ALBANY SHAKER ROAD
LATHAM, NY 12110

PROJECT:
PLUG POWER HYDROGEN PRODUCTION FACILITY

INVICTUS
Civil Engineering, P.C.
4759 N 5th Street
Lewiston, NY 14092
Phone: (716) 946-2415
Email: rhaight@invictuscivilengineering.com

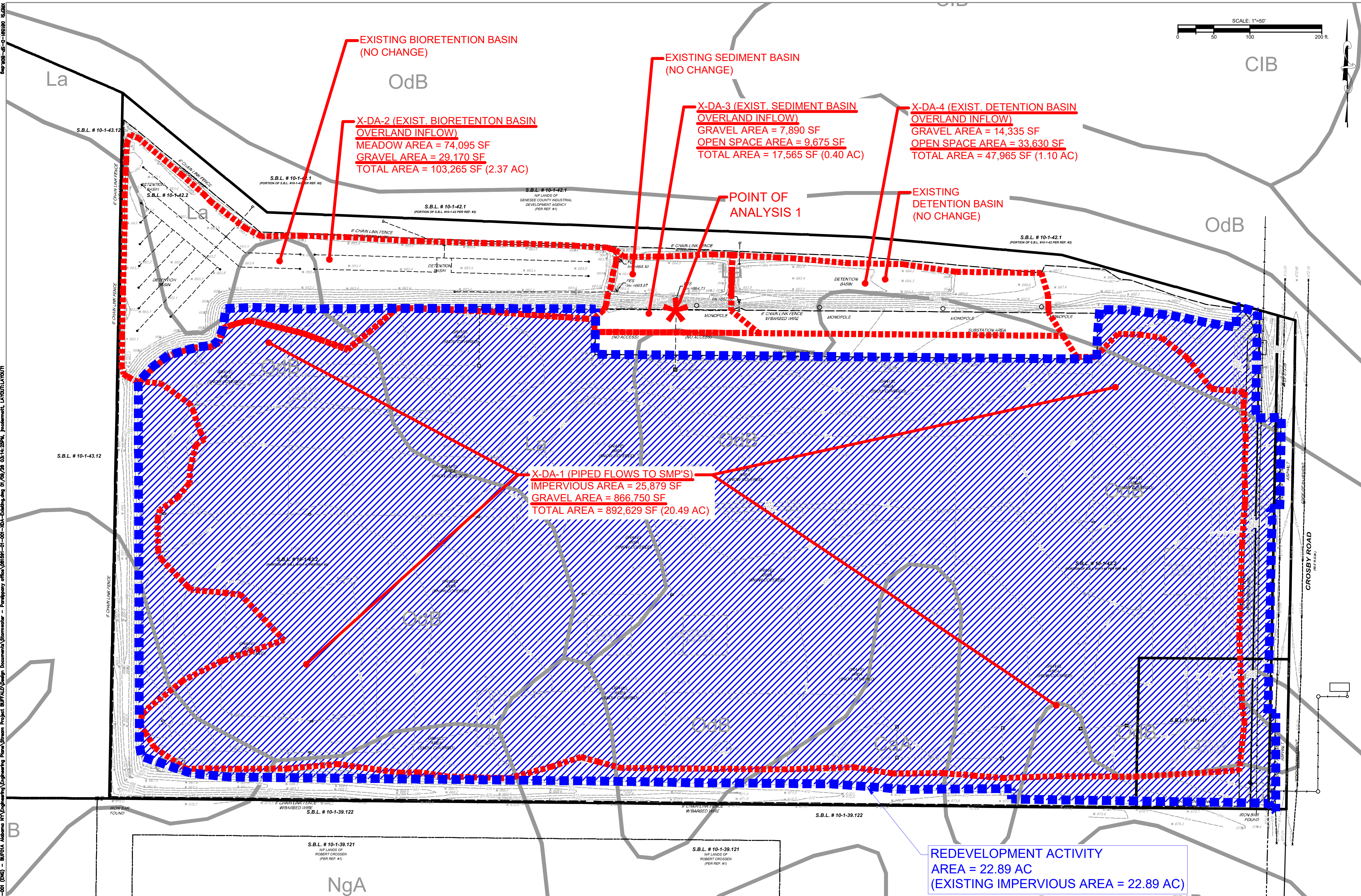
SEAL / SIGNATURE

Following is an excerpt from the New York State Education Law, Article 145, Section 7209 it applies to this drawing
It is a violation of this law for any person unless he is acting under the direct supervision of a licensed professional engineer to alter an item in any way. If an item bearing the seal of a professional engineer is altered, the altering engineer shall affix to the seal and the notation, "ALTERED" followed by his signature and the date of such alteration, and a specific description of the alteration.

SHEET TITLE:
PROPOSED CONDITIONS DRAINAGE MAP

SHEET:
DR-001

SCALE	PROJECT #	DATE
AS NOTED	21-1002	05/15/2021


SCALE: 1"=50'
0 50 100 200 ft.
EXISTING BIORETENTION BASIN
(NO CHANGE)
EXISTING SEDIMENT BASIN
(NO CHANGE)
X-DA-2 (EXIST. BIORETENTON BASIN
OVERLAND INFLOW)
MEADOW AREA = 74,095 SF
GRAVEL AREA = 29,170 SF
TOTAL AREA = 103,265 SF (2.37 AC)
X-DA-3 (EXIST. SEDIMENT BASIN
OVERLAND INFLOW)
GRAVEL AREA = 7,890 SF
OPEN SPACE AREA = 9,675 SF
TOTAL AREA = 17,565 SF (0.40 AC)
X-DA-4 (EXIST. DETENTION BASIN
OVERLAND INFLOW)
GRAVEL AREA = 14,335 SF
OPEN SPACE AREA = 33,630 SF
TOTAL AREA = 47,965 SF (1.10 AC)
POINT OF
ANALYSIS 1
EXISTING
DETENTION BASIN
(NO CHANGE)
X-DA-1 (PIPED FLOWS TO SMP'S)
IMPERVIOUS AREA = 25,879 SF
GRAVEL AREA = 866,750 SF
TOTAL AREA = 892,629 SF (20.49 AC)
REDEVELOPMENT ACTIVITY
AREA = 22.89 AC
(EXISTING IMPERVIOUS AREA = 22.89 AC)
CROSBY ROAD
S.B.L. # 10-1-43.12
S.B.L. # 10-1-42.1
S.B.L. # 10-1-39.122
S.B.L. # 10-1-39.121
N/F LANDS OF
ROBERT CROSSEN
(PER REF. #1)
La
OdB
CIB
NgA
CaA
B

LEGEND

- IMPERVIOUS SURFACE AREA (WITHIN REDEVELOPMENT AREA)
- DRAINAGE AREA BOUNDARY LINE
- POINT OF ANALYSIS (POA)
- SOIL UNIT BOUNDARY LINE
- OdB — SOIL UNIT TYPE
- TIME OF CONCENTRATION CALCULATION FLOW PATH
- REDEVELOPMENT AREA BOUNDARY

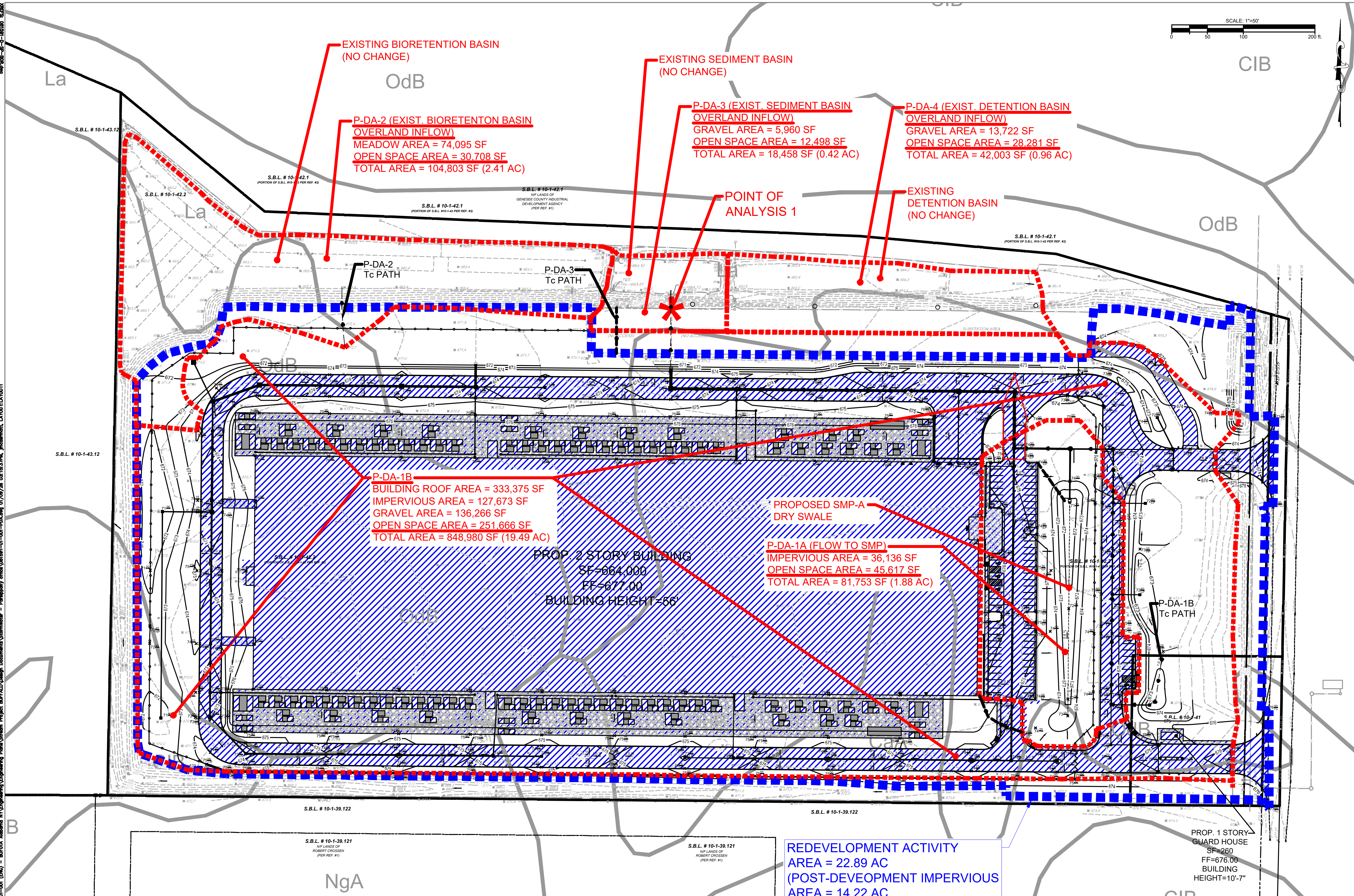
PROJECT ANALYSIS - EXISTING CONDITION AREAS:
- REDEVELOPMENT ACTIVITY AREA = 22.89 AC
- EXISTING IMPERVIOUS AREA = 22.89 AC

NOTES:
1. EXISTING IMPERVIOUS AREA INCLUDES ROOF, PAVEMENT, CONCRETE, AND GRAVEL SURFACES.

Bowman Consulting Engineering, Land Surveying & Landscape Architecture
ERIC L. KELLER, N.Y. Professional Engineer, Lic. 065234-1

PROJ.: 081591-01-001
DATE: JANUARY 9, 2026

BUFA - PROJECT DOUBLE REED SOUTH CAMPUS
EXISTING DRAINAGE AREA MAP
TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK



LEGEND

- IMPERVIOUS SURFACE AREA (WITHIN REDEVELOPMENT AREA)
- DRAINAGE AREA BOUNDARY LINE
- POINT OF ANALYSIS (POA)
- SOIL UNIT BOUNDARY LINE
- OdB — SOIL UNIT TYPE
- TIME OF CONCENTRATION CALCULATION FLOW PATH
- REDEVELOPMENT AREA BOUNDARY

PROJECT ANALYSIS - POST-DEVELOPMENT AREAS:

- REDEVELOPMENT ACTIVITY AREA = 22.89 AC
- POST-DEVELOPMENT IMPERVIOUS AREA = 14.22 AC
- CHANGE IN IMPERVIOUS AREA FROM PRE-DEVELOPMENT CONDITION = 22.89 AC - 14.22 AC = 8.67 AC (37.9% DECREASE)

NOTES:

1. POST-DEVELOPMENT IMPERVIOUS AREA INCLUDES PROPOSED ROOF, PAVEMENT, CONCRETE, AND GRAVEL SURFACES.

Bowman

Bowman Consulting Engineering, Land Surveying & Landscape Architecture

ERIC L. KELLER, N.Y. Professional Engineer, Lic. 065234-1

BUFA - PROJECT DOUBLE REED SOUTH CAMPUS
POST-DEVELOPMENT DRAINAGE AREA MAP
TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

SHEET No.
2 OF 3

SCALE: 1"=50'
0 50 100 200 ft.

S.B.L. # 10-1-43.12
S.B.L. # 10-1-42.2
S.B.L. # 10-1-42.1 (PORTION OF S.B.L. #10-1-42 PER REF. #2)
S.B.L. # 10-1-42.1 NF LANDS OF GENESEE COUNTY INDUSTRIAL DEVELOPMENT AGENCY (PER REF. #1)
S.B.L. # 10-1-42.1 (PORTION OF S.B.L. #10-1-42 PER REF. #2)
S.B.L. # 10-1-42.1 (PORTION OF S.B.L. #10-1-42 PER REF. #2)

EX. 50 CB DA=30,734 SF
11 CB DA=23,225 SF
12 CB DA=17,902 SF
13A CB DA=13,121 SF
10A CB DA=21,964 SF
EX. 32 CB DA=39,380 SF
72 CB DA=15,468 SF SUBSTATION AREA
71A CB DA=25,293 SF
73A CB DA=9,054 SF
76C CB DA=11,947 SF
76 MH DA=9,178 SF
76A CB DA=3,663 SF
76B CB DA=3,106 SF
77A CB DA=15,240 SF
78A CB DA=19,469 SF
79A CB DA=16,014 SF
15 CB DA=14,555 SF
16A CB DA=21,200 SF
17 CB DA=7,562 SF
16B CB DA=11,173 SF
70 CB DA=19,400 SF
TRENCH DRAIN DA=4,522 SF
ROOF DRAIN 11 RD DRAINAGE AREA = 51,375 SF
ROOF DRAIN 32 RD DRAINAGE AREA = 63,842 SF
ROOF DRAIN RD DRAINAGE AREA = 40,573 SF
ROOF DRAIN RD DRAINAGE AREA = 10,936 SF
ROOF DRAIN 20 RD DRAINAGE AREA = 51,375 SF
ROOF DRAIN RD DRAINAGE AREA = 31,880 SF
ROOF DRAIN RD DRAINAGE AREA = 31,880 SF
ROOF DRAIN RD DRAINAGE AREA = 51,520 SF
DRY SWALE SMP DA=81,753 SF
PROP. 2 STORY BUILDING SF=664,000 FF=677.00 BUILDING HEIGHT=56'
PROP. 1 STORY GUARD HOUSE SF=260 FF=676.00 BUILDING HEIGHT=10'-7"
18 CB DA=13,785 SF
20 CB DA=11,677 SF
21 CB DA=22,128 SF
21A CB DA=21,563 SF
96 CB DA=20,980 SF
94 CB DA=22,296 SF
93 CB DA=12,908 SF
92B CB DA=11,193 SF
80 CB DA=6,348 SF
81 CB DA=4,000 SF
82 CB DA=4,000 SF
S.B.L. # 10-1-39.122
S.B.L. # 10-1-39.121 NF LANDS OF ROBERT CROSSEN (PER REF. #1)
S.B.L. # 10-1-41

NO.	DESCRIPTION	DATE	CHKD
12			
11			
10			
9			
8			
7			
6			
5			
4			
3			
2			
1			

REVISION

PROJ.L. 08197-67-00)
DATE: JANUARY 9, 2008
CHKD.: DWG
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www.bowmanconsulting.com
DOS ID: 2434131
E-mail: NJ@BowmanConsulting.com
ERIC L. KELLER, N.Y. Professional Engineer, Lic. 085234-1

BUFA - PROJECT DOUBLE REED SOUTH CAMPUS
INLET DRAINAGE AREA MAP
TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

SHEET No.
3 OF 3

APPENDIX J

DRAFT NOTICE OF INTENT (NOI) FORM

TO BE PROVIDED

APPENDIX K

SWPPP PREPARER CERTIFICATION FORM

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:	BUFA - PROJECT DOUBLE REED
eNOI Submission ID:	
Owner/Operator Name:	SDC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ERIC	L	KELLER
SWPPP Preparer First Name	MI	SWPPP Preparer Last Name

Signature Date

Revised: January 2025

APPENDIX L

OWNER / OPERATOR CERTIFICATION FORM

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: BUFA - PROJECT DOUBLE REED

eNOI Submission ID: _____

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name MI Owner/Operator Last Name

_____

Signature

_____

Date

Revised: January 2025

APPENDIX M

NOTICE OF TERMINATION (NOT) FORM

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

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

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

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

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

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

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

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

_____

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

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

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

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

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

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

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

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

Printed Name:

Title/Position:

Signature:	Date:

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

VII. Qualified Inspector Certification - Final Stabilization:

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

Printed Name:	
Title/Position:	
Signature:	Date:

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

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

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

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

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

APPENDIX N

GENERAL PERMIT GP-0-25-001

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL
CONSERVATION (NYSDEC)

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP-0-25-001

Construction General Permit (CGP)

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

of the Environmental Conservation Law

Effective Date: January 29, 2025 Expiration Date: January 28, 2030

Scott E. Sheeley

Chief Permit Administrator

Scott E. Sheeley JAN. 29, 2025

Authorized Signature Date

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

PREFACE

Pursuant to Section 402 of the Clean Water Act (CWA), and 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), *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 State 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 and 8, and Article 70, as well as 6 NYCRR Parts 621 and 750.

C*onstruction activities* constitute construction of a *point source* and, therefore, pursuant to ECL sections 17-0505, 17-0701, and 17-0803, the *owner or operator* must have coverage under a SPDES permit prior to *commencement of construction activities*. 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 CONSTRUCTION GENERAL PERMIT (CGP) GP-0-25-001
FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part I. How to Obtain Coverage and General Requirements

To be covered under this permit, the *owner or operator* must meet all eligibility requirements in Part I.A. and follow the requirements for obtaining permit coverage in Part I.D., F., or G.

A. Eligibility Requirements

For a *common plan of development or sale*, the *phase(s)* that meet the eligibility requirements in Part I.A. may obtain coverage under this permit even if other *phase(s)* of the same *common plan of development or sale* do not meet the eligibility requirements and require an individual SPDES permit.

1. The *owner's or operator's construction activities* involve soil disturbances of:

    a. one or more acres; or

    b. less than one acre which are part of a *common plan of development or sale* that will ultimately disturb one or more acres; or

    c. less than one acre where NYSDEC 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*.

        i. 5,000 square feet or more, but less than one acre, and are in the New York City Watershed located east of the Hudson River, Appendix C Figure 1; or

        ii. 20,000 square feet or more, but less than one acre, within the municipal boundaries of the City of New York (NYC); or

        iii. less than 20,000 square feet which are part of a *common plan of development or sale* that will ultimately disturb 20,000 square feet or more, but less than one acre, within the municipal boundaries of NYC; or

        iv. that creates 5,000 square feet or more of *impervious area* within the municipal boundaries of NYC.

2. *Discharges* from the *owner's or operator's construction activities* are/were not:

    a. already covered by a different SPDES permit; or

    b. covered under a different SPDES permit that was denied, terminated, or revoked; or

    c. identified in an expired individual SPDES permit that was not renewed; or

    d. required to obtain an individual SPDES permit or another general SPDES permit in accordance with Part VII.K.

3. If *construction activities* may adversely affect a species that is endangered or threatened, the *owner or operator* must obtain a:

    a. permit issued pursuant to 6 NYCRR Part 182 for the project; or

    b. letter issued by NYSDEC of non-jurisdiction pursuant to 6 NYCRR Part 182 for the project.

4. If *construction activities* have the potential to affect an *historic property*, the *owner or operator* must obtain one of the following:

    a. documentation that the *construction activity* is not within an archeological buffer 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:

        i. 1-5 acres of disturbance - 20 feet; or

        ii. 5-20 acres of disturbance - 50 feet; or

iii. 20+ acres of disturbance - 100 feet.

b. NYSDEC consultation form sent to OPRHP,[1] and copied to NYSDEC's Agency Historic Preservation Officer (APO), and

i. the State Environmental Quality Review Act (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 or 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).

c. documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

i. No Affect; or

ii. No Adverse Affect; or

iii. Executed Memorandum of Agreement.

d. documentation that SHPA Section 14.09 has been completed by NYSDEC or another state agency.

5. If *construction activities* are subject to SEQR, the *owner or operator* must obtain documentation that SEQR has been satisfied.

6. If *construction activities* are not subject to SEQR, but subject to the equivalent environmental review from another New York State or federal agency, the

[1] The consultation form can be submitted, along with other project information, through OPRHP's Cultural Resource Information System (CRIS) portal. If submitted through CRIS, paper copies of the consultation form need not be mailed.

owner or operator must obtain documentation that project review, pursuant to a process equivalent to SEQR from another New York State or federal agency, has been satisfied.

7. If *construction activities* require Uniform Procedures Act (UPA) Permits (see 6 NYCRR Part 621) from NYSDEC, or the equivalent from another New York State or federal agency, the *owner or operator* must:

    a. obtain all such necessary permits; or

    b. receive notification from NYSDEC pursuant to 6 NYCRR 621.3(a)(4) excepting Part I.A.7.a.

8. *Construction activities* are not eligible if they meet the following criteria in Part I.A.8.a. or b.:

    a. For linear transportation and linear utility project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

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

        iii. disturb two or more acres of *steep slope*.

    b. For all other project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

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

        iii. disturb one or more acres of *steep slope*.

B. Types of *Discharges* Authorized

1. The following *stormwater discharges* are authorized under this permit:

   a. *Stormwater discharges*, including *stormwater* runoff, snowmelt runoff, and surface runoff and drainage, associated with *construction activity*, are authorized under this permit provided that appropriate *stormwater* controls are designed, installed, and maintained in accordance with Part II. and Part III.

   b. *Stormwater discharges* from construction support activities at the *construction site* (including concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and borrow areas) if the following requirements are met:

      i. The support activity is directly related to the *construction site* required to have permit coverage for *stormwater discharges*; and

      ii. The support activity is not a commercial operation, nor does it serve multiple unrelated *construction sites*; and

      iii. The support activity does not continue to operate beyond the completion of the *construction activity* at the site it supports; and

      iv. *Stormwater* controls are implemented in accordance with Part II. and Part III. for *discharges* from the support activity areas.

2. The following non-*stormwater discharges* associated with *construction activity* are authorized under this permit:

   a. Non-*stormwater discharges* 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"; and

   b. Non-*stormwater discharges* of waters to which other components have not been added that are used in accordance with the *SWPPP* to control dust or irrigate vegetation in stabilized areas; and

   c. Uncontaminated *discharges* from *dewatering* operations

3. Authorized *discharges* of *stormwater* or authorized *discharges* of non-*stormwater*, commingled with a *discharge* authorized by a different SPDES permit and/or a *discharge* that does not require SPDES permit authorization, are also authorized under this permit.

C. Prohibited *Discharges*

1. Non-*stormwater discharges* prohibited under this permit include but are not limited to:

    a. Wastewater from washout of concrete; and

    b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials; and

    c. Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance; and

    d. Soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown; and

    e. Toxic or hazardous substances from a spill or other release.

D. Electronic Notice of Intent (eNOI) Submittal

To receive authorization in accordance with Part I.D.3.b., the *owner or operator* must submit a complete eNOI in accordance with the requirements in Part I.D. The eNOI contains questions to: ensure eligibility requirements in Part I.A. have been met; obtain *owner or operator* contact information; obtain the total area to be disturbed and the existing/future *impervious areas* (rounded to the nearest tenth of an acre); confirm *Traditional Land Use Control MS4 Operator* jurisdiction over construction projects; satisfy the EPA eRule requirements; confirm that the Water Quality-Based Effluent Limitations in Part II. have been met; demonstrate consideration of the future risks due to climate change in accordance with Part III.A.2.; and confirm that the other *Stormwater Pollution Prevention Plan (SWPPP)* requirements in Part III. have been met.

1. An eNOI may be submitted for:

    a. *construction activities* that are not part of a *common plan of development or sale*; or

b. an entire *common plan of development or sale*; or

c. separate *phase(s)* of a *common plan of development or sale* if the following requirements are met:

    i. the *common plan of development or sale* meets the eligibility requirements of Part I.A.5. or 6.; and

    ii. the *phase(s)* meet(s) all other eligibility requirements of Part I.A.; and

    iii. Part III.C. Required *SWPPP* Components by Project Type is based on the *common plan of development or sale*, not the *phase(s)*; or

d. *tree clearing* that is associated with, or will support, a *renewable energy* generation, transmission, or storage project that meets Part I.A.5. and 6., if the *tree clearing*:

    i. meets all other eligibility requirements of Part I.A.; and

    ii. will occur in NYSDEC's Regions 3-9; and

    iii. is not within ¼ mile of a bat hibernaculum protected pursuant to 6 NYCRR Part 182; and

    iv. will occur between November 1st and March 31st.

2. As prerequisites for submitting an eNOI, the *owner or operator* must:

    a. prepare a *SWPPP* for Part I.D.1.a., b., c., or d. in accordance with Part III.; and

    b. based on the following criteria, upload the following signature forms signed in accordance with Part VII.J. to the eNOI prior to submission:

        i. for all eNOIs:

            1. the SWPPP Preparer Certification Form, Appendix F, signed by the *SWPPP* preparer; and

2. the Owner/Operator Certification Form, Appendix J, signed by the *owner or operator*; and

ii. if an eNOI includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that will *discharge* to the *MS4(s)*:

1. determine if the *Traditional Land Use Control MS4 Operator(s)* have review authority. A *Traditional Land Use Control MS4 Operator* does not have review authority where:

a. the *owner or operator* of the *construction activities* in Part I.D.2.b.ii. is the same entity as the *Traditional Land Use Control MS4 Operator* identified in Part I.D.2.b.ii.; or

b. there is a statute exempting the *owner or operator* from zoning review by the *Traditional Land Use Control MS4 Operator*; or

c. there is no such statute per Part I.D.2.b.ii.1.b., the *Traditional Land Use Control MS4 Operator* concludes, after public hearing, that it does not have zoning review authority in accordance with Legal Memorandum LU14 Updated January 2020 “Governmental Immunity from Zoning and Other Legislation”; and

2. if the *Traditional Land Use Control MS4 Operator(s)* have review authority, submit the *SWPPP* to the *Traditional Land Use Control MS4 Operator(s)* for review and have:

a. if outside the municipal boundaries of NYC: the MS4 SWPPP Acceptance Form, Appendix G, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.; or

b. if within the municipal boundaries of NYC: The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval Form, Appendix H, signed by the principal executive officer or ranking elected official from the Traditional Land Use Control MS4 Operator, or by a duly authorized representative of that person in accordance with Part VII.J.2.; and

3. if the *Traditional Land Use Control MS4 Operator* does not have review authority, have the MS4 No Jurisdiction Form, Appendix I, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.

3. Submitting an eNOI:

a. The *owner or operator* must submit a complete Notice of Intent electronically using a NYSDEC approved form.[2]

b. The *owner or operator* is authorized to *commence construction activity* as of the authorization date indicated in the Letter of Authorization (LOA), which is sent by NYSDEC after a complete eNOI is submitted.

i. If an eNOI is received for a *SWPPP* that deviates from one of the technical standards but demonstrates *equivalence* in accordance with Part III.B.1.a.ii. or Part III.B.2.b.ii., if the *SWPPP* includes *construction activities* that are not within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)*, and/or if the *SWPPP* includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that do not have review authority in accordance with Part I.D.2.b.ii.1., the authorization date indicated in the LOA will be 60 business days after the eNOI submission date.

[2] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

c. If *Traditional Land Use Control MS4 Operator(s)* have review authority in accordance with Part I.D.2.b.ii.2., the *owner or operator* must, within five business days of receipt of the LOA, send an electronic copy of the LOA to the *Traditional Land Use Control MS4 Operator(s)* with review authority.

E. General Requirements for *Owners or Operators* with Permit Coverage

1. As of the date the LOA is received, the *owner or operator* must make the eNOI, *SWPPP*, and LOA available for review and copying in accordance with the requirements in Part VII.H. When applicable, as of the date an updated LOA is received, the *owner or operator* must make the updated LOA available for review and copying in accordance with the requirements in Part VII.H.

2. The *owner or operator* must ensure compliance with all requirements of this permit and that the provisions of the *SWPPP*, including any changes made to the *SWPPP* in accordance with Part III.A.5., are properly implemented and maintained from the *commencement of construction activity* until:

   a. all areas of disturbance have achieved *final stabilization;* and

   b. the owner's or operator's coverage under this permit is terminated in accordance with Part V.A.5.a.

3. As of the date of the *commencement of construction activities* until Part I.E.2.a. and b. have been met, the *owner or operator* must maintain at the *construction site*, a copy of:

   a. all documentation necessary to demonstrate eligibility with this permit; and

   b. this permit; and

   c. the *SWPPP*; and

   d. the signed SWPPP Preparer Certification Form; and

   e. the signed MS4 SWPPP Acceptance Form or signed NYCDEP SWPPP Acceptance/Approval Form or signed MS4 No Jurisdiction Form (when applicable); and

   f. the signed Owner/Operator Certification Form; and

g. the eNOI; and

h. the LOA; and

i. the LOA transmittal to the Traditional Land Use Control MS4 Operator in accordance with Part I.D.3.c. (when applicable).

4. The *owner or operator* must maintain at the *construction site*, until Part I.E.2.a. and b. have been met, as of the date the documents become final or are received, a copy of the:

   a. responsible contractor's or subcontractor's certification statement(s) in accordance with Part III.A.7.; and

   b. inspection reports in accordance with Part IV.C.4. and 6.; and

   c. Request to Disturb Greater Than Five Acres and the Authorization Letter to Disturb Greater Than Five Acres in accordance with Part I.E.6. (when applicable); and

   d. Request to Continue Coverage and the Letter of Continued Coverage (LOCC) in accordance with Part I.F.2. and 4. (when applicable); and

   e. The updated LOA(s) in accordance with Part I.E.9. (when applicable).

5. The *owner or operator* must maintain the documents in Part I.E.3. and 4. 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. The documents must be paper documents unless electronic documents are accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be. If electronic documents are kept on site, the *owner or operator* must maintain functional equipment on site available to an inspector during normal hours of operation such that an inspector may view the electronic documents in a format that can be read in a similar manner as a paper record and in a legally dependable format with no less evidentiary value than their paper equivalent.

6. The *owner or operator* must meet the following requirements prior to disturbing greater than five acres of soil at any one time:

   a. The *owner or operator* must submit a written Request to Disturb Greater Than Five Acres to:

i. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, if a *Traditional Land Use Control MS4 Operator* does not have review authority in accordance with Part I.D.2.b.ii.1.; or

ii. the *Traditional Land Use Control MS4 Operator*, if a *Traditional Land Use Control MS4 Operator* has review authority in accordance with Part I.D.2.b.ii.1.; or

iii. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, and each involved *Traditional Land Use Control MS4 Operator*, if the project spans multiple municipalities with more than one *Traditional Land Use Control MS4 Operator* involved with review authority in accordance with Part I.D.2.b.ii.1.

b. The written Request to Disturb Greater Than Five Acres must include:

i. The SPDES permit identification number (Permit ID); and

ii. Full technical justification demonstrating why alternative methods of construction that would result in five acres of soil disturbance or less at any one time are not feasible; and

iii. The phasing plan for the project and sequencing plans for all *phases* from the *SWPPP* in accordance with Part III.B.1.d.; and

iv. Plans with locations and details of erosion and sediment control practices such that the heightened concern for erosion when disturbing greater than five acres at one time has been addressed; and

v. Acknowledgment that "the *owner or operator* will comply with the requirements in Part IV.C.2.b."; and

vi. Acknowledgment that "the *owner or operator* will comply with the requirements in Part II.B.1.b."

c. The *owner or operator* must be in receipt of an Authorization Letter to Disturb Greater Than Five Acres, which will include when the

authorization begins and ends and indicate a maximum area (acres) of soil disturbance allowed at any one time, from:

i. NYSDEC, if Part I.E.6.a.i. or iii. apply; or

ii. the *Traditional Land Use Control MS4 Operator*, if Part I.E.6.a.ii. applies.

7. Upon a finding of significant non-compliance with the practices described in the *SWPPP* or violation of this permit, NYSDEC may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order must be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

8. 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).[3] *Construction activity* shall not resume until written permission to do so has been received from the RWE.

9. To be authorized to implement modifications to the information previously submitted in the eNOI, the *owner or operator* must:

   a. notify NYSDEC via email at Stormwater_info@dec.ny.gov requesting access to update the eNOI; and

   b. update the eNOI to reflect the modifications and resubmit the eNOI in accordance with Part I.D.; and

   c. receive an updated LOA.

10. The eNOI, *SWPPP*, LOA, updated LOAs (when applicable), 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 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.

[3] The Regional Water Manager where a DEC Region does not have a RWE.

F. Permit Coverage for *Discharges* Authorized Under GP-0-20-001

When applicable:

1. Upon the effective date of this permit, an *owner or operator* of *a construction activity*, with coverage under GP-0-20-001, will have interim coverage under GP-0-25-001 for 45 calendar days starting on the effective date of GP-0-25-001 so long as the *owner or operator* maintains compliance with all applicable requirements of this permit.

2. Within 30 calendar days of the effective date of this permit, the *owner or operator*, with coverage under GP-0-20-001, must submit a complete Request to Continue Coverage electronically using a NYSDEC approved form,[4] which contains the information identified in Part I.F.3. below, if:

   a. the *owner or operator* continues to implement the SMP component in conformance with the technical standards in place at the time of initial project authorization; and

   b. the *owner or operator* will comply with all non-design requirements of GP-0-25-001.

3. The Request to Continue Coverage form contains questions to: ensure eligibility requirements in Part I.A. have been met; verify *owner or operator* contact information; verify the permit identification number; verify the original eNOI submission ID, if applicable; verify Part I.F.2.a. and b.; verify the version of the Design Manual that the technical/design components conform to; and receive an updated Owner/Operator Certification Form, Appendix I.

4. The *owner or operator* has obtained continued coverage under GP-0-25-001 as of the date indicated in the LOCC, which is sent by NYSDEC after a complete Request to Continue Coverage form is submitted.

5. If the owner or operator does not submit the Request to Continue Coverage form in accordance with Part I.F.2. and 3., coverage under this permit is automatically terminated after interim coverage expires.

[4] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

G. Change of *Owner or Operator*

When applicable:

1. When property ownership changes, or when there is a change in operational control over the construction plans and specifications, the following process applies:

    a. The new *owner or operator* must meet the applicable prerequisites for submitting an eNOI in accordance with Part I.D.2.; and

    b. The new *owner or operator* must submit an eNOI in accordance with Part I.D.3.; and

    c. Permit coverage for the new *owner or operator* will be effective upon receipt of the LOA in accordance with Part I.D.3.b.; and

    d. The new *owner or operator*, upon receipt of their LOA, must provide their Permit ID to the original *owner or operator*; and

    e. If the original *owner or operator* will no longer be the *owner or operator* of the *construction activity* identified in the original *owner's or operator's* eNOI, the original *owner or operator*, upon receipt of the new *owner's or operator's* Permit ID in accordance with Part I.G.1.d., must submit to NYSDEC a completed eNOT in accordance with Part V. that includes the name and Permit ID of the new *owner or operator*; or

    f. If the original *owner or operator* maintains ownership of a portion of the *construction activity*, the original *owner or operator* must maintain their coverage under the permit by modifying their eNOI; modifications to the eNOI must include:

        i. the revised area of disturbance and/or *impervious area(s)*; and

        ii. the revised SMP information, if applicable; and

        iii. a narrative description of what has changed; and

        iv. the new *owner's or operator's* Permit ID for the portion of the project removed from the eNOI.

    Owners or operators must follow Part I.E.9. to modify the eNOI.

Part II. Water Quality-Based Effluent Limitations

A. Maintaining Water Quality

NYSDEC expects that compliance with the requirements 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 the following *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:

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

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

3. There must 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 standard,* the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this permit and document in accordance with Part IV.C.4. of this permit. To address the *water quality standard* violation the *owner or operator* must include and implement appropriate controls in the *SWPPP* to correct the problem or obtain an individual SPDES permit.

If, despite compliance with the requirements of this 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 NYSDEC determines that a modification of this 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, and the *owner or operator* must obtain an individual SPDES permit prior to further *discharges* from the *construction site*.

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 II.B.1.a., b., c., d., and e. 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 II.B.1.a., b., c., d., and e. and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (BB), 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 *SWPPP* the reason(s) for the deviation, or alternative design, and provide information in the *SWPPP* demonstrating that the deviation or alternative design is *equivalent* to the technical standard.

    a. **Erosion and Sediment Controls.** At a minimum, erosion and sediment controls must be selected, designed, installed, implemented, and maintained to:

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

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

        iii. *Minimize* the amount of soil exposed during *construction activity*; and

        iv. *Minimize* the disturbance of *steep slope*; and

        v. *Minimize* sediment *discharge*s from the site; and

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

        vii. *Minimize* soil compaction. *Minimizing* soil compaction is not required

where the intended function of a specific area of the site dictates that it be compacted; and

viii. Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; 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 ceased, whether permanently or *temporarily ceased*, the application of soil stabilization measures must be initiated by the end of the next business day and completed within 14 calendar 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 D, or are located in one of the watersheds listed in Appendix C, or are authorized to disturb greater than five acres in accordance with Part I.E.5.a.viii., the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven calendar days from the date the soil disturbance activity 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**. Select, 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 selected, designed, installed, implemented, and maintained to:

i. *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. Soaps, detergents and solvents cannot be used; and

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. **Surface Outlets.** When discharging from basins and impoundments, the surface outlets must 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 (SMP) Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction SMPs, in accordance with Part III.C., must select, design, install, implement, and maintain the SMPs to meet the *performance criteria* in the New York State Stormwater Management Design Manual, dated July 31, 2024 (DM), using sound engineering judgment. Where SMPs are not designed in conformance with the *performance criteria* in the DM, 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 SMPs in accordance with Part III.C., must design the practices to meet the applicable *sizing criteria* in Part II.C.2.a., b., c., or d.

a. Sizing Criteria for *New Development*

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the total WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv must be calculated in accordance with the criteria in Section 4.2 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the requirements in Part II.C.2.a.i.1. due to *site limitations* must 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 must 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 4.4 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. 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 1-year post-development peak *discharge* is less than or equal to 2.0 cfs without detention or velocity controls; or

   3. The site *directly discharges* into a fifth order or larger water body (stream, river, or lake), or tidal waters, where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *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 *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

iv. 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 *directly discharges* 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 Watersheds

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the 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 must be calculated in accordance with the criteria in Section 4.3 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part II.C.2.b.i.1. due to *site limitations* must 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 must 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 4.5 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. 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 1-year post-development peak *discharge* is less than or equal to 2.0 cfs; or

3. The site *directly discharges* to tidal waters, or a fifth order or larger water body (stream, river, or lake) where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *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 *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

iv. 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 *directly discharges* 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* must be addressed by one of the following options, as outlined in Section 9.2.1. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C) must calculate the WQv in accordance with Section 4.3 of the DM. All other *redevelopment activities* must calculate the WQv in accordance with Section 4.2 of the DM.

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 DM must be applied to all newly created pervious areas; or

2. Capture and treat 100% of the required WQv, for a minimum of 25% of the disturbed redevelopment *impervious area*, by implementation of standard SMPs or reduced by application of runoff reduction techniques; or

3. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a volume-based alternative SMP, as defined in Section 9.4 of the DM; or

4. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a flow-through alternative SMP sized to treat the peak rate of runoff from the WQv design storm; or

5. Application of a combination of 1 through 4 above that provide a weighted average of at least two of the above methods. Application of this method must be in accordance with the criteria in Section 9.2.1(A)(V) of the DM; or

6. If there is an existing SMP 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 through 5 above.

ii. Channel Protection Volume (CPv) is not required if there is 0% change to hydrology that increases the *discharge* rate and volume from the project site.

iii. *Overbank* Flood Control (Qp) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

iv. Extreme Flood Control (Qf) is not required if there is 0% change to hydrology that increases 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*, must use SMPs that meet the *sizing criteria* calculated as an aggregate of the *sizing criteria* in Part II.C.2.a. or b. for the *new development* portion of the project and Part II.C.2.c. for the *redevelopment activity* portion of the project.

Part III. Stormwater Pollution Prevention Plan (SWPPP)

A. General *SWPPP* Requirements

1. A *SWPPP* must be prepared and implemented by the *owner or operator* of all *construction activity* covered by this permit. All authorized *discharges* must be identified in the *SWPPP*. 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 II.B. and, where applicable, the SMP requirements in Part II.C.

2. The *SWPPP* must demonstrate consideration in narrative format of the future physical risks due to climate change pursuant to the Community Risk and Resiliency Act (CRRA), 6 NYCRR Part 490, and associated guidance.

    a. The owner or operator must consider:

        i. the following physical risks due to climate change:

            (i) increasing temperature; and

            (ii) increasing precipitation; and

            (iii) increasing variability in precipitation, including chance of drought; and

            (iv) increasing frequency and severity of flooding; and

            (v) rising sea level; and

            (vi) increasing storm surge; and

            (vii) shifting ecology.

        ii. for each of the following:

            (i) overall site planning; and

            (ii) location, elevation, and sizing of:

                a. control measures and practices; and

                b. conveyance system(s); and

                c. detention system(s).

3. The *SWPPP* must describe the erosion and sediment control practices and where required, SMPs that will be used and/or constructed to reduce the *pollutants* in *stormwater discharges* and to assure compliance with the

requirements of this permit. In addition, the *SWPPP* must identify potential sources of pollution which may reasonably be expected to affect the quality of *stormwater discharges*.

4. All *SWPPPs*, that require the SMP component in accordance with Part III.B.2., must be prepared by a *qualified professional*.

5. The *owner or operator* must keep the *SWPPP* current so that, at all times, it accurately documents the erosion and sediment control practices that are being used or will be used during construction, and all SMPs that will be constructed on the site. At a minimum, the *owner or operator* must modify the *SWPPP*, including construction drawings:

   a. whenever the current provisions prove to be ineffective in *minimizing pollutants* in *stormwater discharges* from the site; and

   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*; and

   c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* NYSDEC, or other regulatory authority; and

   d. to document the final construction conditions in an as-built drawing.

6. NYSDEC 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 must 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 NYSDEC, the *owner or operator* must make the required changes to the *SWPPP* and submit written notification to NYSDEC that the changes have been made. If the *owner or operator* does not respond to NYSDEC's comments in the specified time frame, NYSDEC 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.

7. 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 SMPs included in the *SWPPP*. The *owner or operator* must have each of the contractors and subcontractors identify at least one person from their company to be *trained contractor* that will be responsible for implementation of the *SWPPP*. The *owner or operator* must ensure that at least one *trained contractor* is on site daily when soil disturbance activities are being performed.

The *owner or operator* must have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before the *commencement of construction activities*:

> "I hereby certify under penalty of law that I understand and agree to comply with the requirements 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 requirements of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) Construction General Permit (CGP) for Stormwater Discharges from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the *SWPPP* that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for *SWPPP* implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* must 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 the *commencement of construction activities*, they must also sign the certification statement and provide the information listed above prior to performing *construction activities*.

B. Required *SWPPP* Contents

1. Erosion and sediment control component - The *owner or operator* must prepare a *SWPPP* that includes erosion and sediment control practices.

    a. Erosion and sediment control practices must be designed:

        i. in conformance with the BB; or

        ii. *equivalent* to the BB if deviating from Part III.B.1.a.i.

    b. If the erosion and sediment control practices are designed in conformance with Part III.B.1.a.ii., the *SWPPP* must include a demonstration of *equivalence* to the BB.

    c. At a minimum, the erosion and sediment control component of the *SWPPP* must include the following:

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

        ii. A site map/construction drawing(s) with north arrows for the project, including a general location map. At a minimum, the site map must 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) and receiving surface water(s); and

        iii. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG); and

        iv. A phasing plan for the project and sequencing plans for all *phases*, both of which must address clearing and grubbing, excavation and grading, utility and infrastructure installation, *final stabilization*,

and any other *construction activity* at the site that will result in soil disturbance.

1. The phasing plan must include:

    a. a map delineating and labeling the limits of soil disturbance for all *phases* of a project; and

    b. a table identifying the order and intended schedule of when each *phase* will begin and end its sequencing plan. The table must identify the total disturbed area for each *phase* at any one time and the total disturbed area for the overall project at any one time all on one timeline showing all overlapping quantities of disturbed area at any one time; and

2. A sequencing plan for a specific *phase* must include:

    a. a table indicating the order and intended schedule of *construction activities* within a *phase*, and corresponding construction drawings with a description of the work to be performed; and

    b. all permanent and *temporary stabilization* measures; and

v. 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; and

vi. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice; and

vii. 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; and

viii. A maintenance inspection schedule for the contractor(s) and subcontractor(s) identified in Part III.A.7. to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule must be in accordance with the requirements in the BB technical standard; and

ix. 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*; and

x. 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

xi. Identification of any elements of the design that are not in conformance with the design criteria in the BB technical standard. 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. SMP component – The *owner or operator* of *construction activity* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs.

   a. SMPs must be designed in conformance with the applicable *sizing criteria* in Part II.C.2.a., c., or d.; and

   b. SMPs must be designed in conformance with the *performance criteria*:

      i. in the DM; or

      ii. *equivalent* to the DM if deviating from Part III.B.2.b.i.; or

      iii. in the New York State Stormwater Management Design Manual, dated January 2015 (2015 Design Manual), or *equivalent* to it, if the following criteria are met:

1. The eNOI is submitted in accordance with Part I.D. before January 29, 2027 for *construction activities* that are either:

    a. subject to governmental review and approval:

        i. where the *owner or operator* made any application to that governmental entity prior to the effective date of this permit; and

        ii. such application included a *SWPPP* developed using the 2015 Design Manual or *equivalent* to it; or

    b. not subject to governmental review and approval:

        i. where a fiscal allocation for the *construction activities* has been developed and approved by a governmental entity; and

        ii. the *SWPPP* was developed using the 2015 Design Manual or *equivalent* to it; and

c. If SMPs are designed in conformance with Part III.B.2.b.ii., the *SWPPP* must include the reason(s) for the deviation or alternative design and a demonstration of *equivalence* to the DM; and

d. If SMPs are designed in conformance with Part III.B.2.b.iii., the *SWPPP* must include supporting information or documentation demonstrating that Part III.B.2.b.iii.1.a. or b. apply; and

e. The SMP component of the *SWPPP* must include the following:

    i. Identification of all SMPs to be constructed as part of the project, including which option the SMP designs conform to, either Part III.B.2.b.i., ii., or iii. Include the dimensions, material specifications and installation details for each SMP; and

    ii. A site map/construction drawing(s) showing the specific location and size of each SMP; and

iii. 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; and

(ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and SMPs; and

(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; and

(iv) Summary table, with supporting calculations, which demonstrates that each SMP has been designed in conformance with the *sizing criteria* included in the DM; and

(v) Identification of any *sizing criteria* that is not required based on the requirements included in Part II.C.; and

(vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the DM. 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 DM.

iv. Soil testing results and locations (test pits, borings); and

v. Infiltration test results, when required in accordance with Part III.B.2.a.; and

vi. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each SMP. The plan must identify the entity

that will be responsible for the long-term operation and maintenance of each practice; and

3. Enhanced Phosphorus Removal Standards - The *owner or operator* of *construction activity* identified in Table 2 of Appendix B that is located in a watershed identified in Appendix C must prepare a *SWPPP* that includes SMPs designed in conformance with the applicable *sizing criteria* in Part II.C.2.b., c., or d. and the *performance criteria* Enhanced Phosphorus Removal Standards included in the DM. At a minimum, the SMP component of the *SWPPP* must meet the requirements of Part III.B.2.

C. Required *SWPPP* Components by Project Type

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 accordance with Part III.B.1. *Owners or operators* of the *construction activities*, identified in Table 2 of Appendix B, must prepare a *SWPPP* that also includes SMPs designed in accordance with Part III.B.2 or 3.

For the entire area of disturbance, including the entire *common plan of development or sale* if applicable, the owner or operator must evaluate every bullet from Appendix B Table 1 and Table 2 separately. If bullets from both Table 1 and Table 2 apply, the *SWPPP* must include erosion and sediment control practices for all *construction activities* but SMPs for only those portions of the *construction activities* that fall under Table 2 bullet(s).

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 SMPs identified in the *SWPPP*, are inspected and maintained in accordance with Part IV.B. and C.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity*, identified in Tables 1 and 2 of Appendix B, must 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 must:

a. if the corrective action does not require engineering design:

    i. begin implementing corrective actions within one business day; and

    ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

    i. begin the engineering design process within five business days; and

    ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

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 in accordance with Part IV.B.1. The *trained contractor* must begin conducting the maintenance inspections in accordance with Part IV.B.1. 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 in accordance with Part IV.B.1. if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational.

C. *Qualified Inspector* Inspection Requirements

1. With the exception of the following *construction activities* identified in Tables 1 and 2 of Appendix B, a *qualified inspector* must conduct site inspections for all other *construction activities* identified in Tables 1 and 2 of Appendix B:

    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 or equal to 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 D; and

b. the construction of a single-family home that involves soil disturbances of one (1) or more acres but less than or equal to 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 D; and

c. construction on *agricultural property* that involves soil disturbances of one (1) or more acres but less than five (5) acres; and

d. *construction activities* located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances of 5,000 square feet or more, but less than one acre.

2. The *qualified inspector* must conduct site inspections in accordance with the following timetable:

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

   b. For *construction sites* where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part I.E.6. to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days; or

   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* must conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas under the jurisdiction of a *Traditional Land Use Control MS4 Operator,* the *Traditional Land Use Control MS4 Operator* (provided the *Traditional Land Use Control MS4 Operator* is not the *owner or operator* of the *construction activity*) by hard copy or email prior to reducing the inspections to this frequency and again by hard copy or email prior to re-commencing construction; or

d. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the requirement to have the *qualified inspector* conduct inspections ceases if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1., the *Traditional Land Use Control MS4 Operator(s)* (provided the *Traditional Land Use Control MS4 Operator(s)* are not the *owners or operators* of the *construction activity*) in writing prior to the shutdown and again in writing prior to resuming *construction activity*. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* must terminate coverage by meeting the requirements of Part V; or

e. For *construction sites* involving soil disturbance of one (1) or more acres that *directly discharge* to one of the 303(d) segments listed in Appendix D or is located in one of the watersheds listed in Appendix C, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* must inspect:

   a. all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness; and

   b. all SMPs under construction to ensure that they are constructed in conformance with the *SWPPP*; and

   c. all areas of disturbance that have not achieved *final stabilization*; and

   d. all points of *discharge* to *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site*; and

   e. all points of *discharge* from the *construction site*.

4. The *qualified inspector* must prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report must include and/or address all of the following, for all *construction activities* except those listed in Part IV.C.1.:

   a. Permit identification number; and

   b. Date and time of inspection; and

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

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

   e. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This must 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; and

   f. A description of the condition of all *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This must include identification of any *discharges* of sediment to the *surface waters of the State*; and

   g. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance; and

   h. 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; and

   i. Description and sketch (map) 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; and

   j. Estimates, in square feet or acres, of the following areas:

i. Total area with active soil disturbance (not requiring either *temporary stabilization* or *final stabilization*); and

ii. Total area with inactive soil disturbance (requiring either *temporary stabilization* or *final stabilization*); and

iii. Total area that has achieved *temporary stabilization*; and

iv. Total area that has achieved *final stabilization*; and

k. Current stage of construction of all SMPs and identification of all *construction activity* on site that is not in conformance with the *SWPPP* and technical standards; and

l. 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 SMP(s); and

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

n. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* must attach 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* must 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* must 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* must notify the *owner or operator*, and appropriate contractor or subcontractor identified in Part III.A.7., of any corrective actions that need to be taken. The contractor or subcontractor must:

a. if the corrective action does not require engineering design:

i. begin implementing corrective actions within one business day; and

ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

i. begin the engineering design process within five business days; and

ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

6. All inspection reports must be signed by the *qualified inspector.* In accordance with Part I.E.3., the inspection reports must be maintained on site with the *SWPPP*.

Part V. How to Terminate CGP Coverage

A. Electronic Notice of Termination (eNOT) Submittal

The eNOT contains questions to ensure requirements in Part V.A. have been met.

1. An *owner or operator* must terminate coverage when one or more of the following requirements have been met:

a. Total project completion:

i. all *construction activity* identified in the *SWPPP* has been completed; and

ii. all areas of disturbance have achieved *final stabilization*; and

iii. all temporary, structural erosion and sediment control measures have been removed; and

iv. all SMPs have been constructed in conformance with the *SWPPP* and are operational; and

v. an as-built drawing has been prepared; or

b. Planned shutdown with partial project completion:

   i. all soil disturbance activities have ceased; and

   ii. all areas disturbed as of the project shutdown date have achieved *final stabilization*; and

   iii. all temporary, structural erosion and sediment control measures have been removed; and

   iv. all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational; and

   v. an as-built drawing has been prepared; or

c. In accordance with Part I.G. Change of Owner or Operator; or

d. The *owner or operator* has obtained coverage under an alternative general SPDES permit or an individual SPDES permit.

2. For *construction activities* that require *qualified inspector* inspections in accordance with Part IV.C.1. and have met Part V.A.1.a. or b., the *owner or operator* must have the *qualified inspector* perform a final site inspection prior to submitting the eNOT. The *qualified inspector* must, by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice(s)" certification statements on the eNOT, certify that all the requirements in Part V.A.1.a. or b. have been achieved.

3. For *construction activities* that are subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1. and meet Part V.A.1.a. or b., the *owner or operator* must have the *Traditional Land Use Control MS4 Operator(s)* sign the "MS4 Acceptance" statement on the eNOT in accordance with the requirements in Part VII.J. A *Traditional Land Use Control MS4 Operator* official, by signing this statement, determined that it is acceptable for the *owner or operator* to submit the eNOT in accordance with the requirements of this Part. A *Traditional Land Use Control MS4 Operator* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) when required in Part V.A.2.

4. For *construction activities* that require SMPs and meet Part V.A.1.a. or b., the *owner or operator* must, prior to submitting the eNOT, ensure one of the following:

    a. for SMP(s) that were constructed by a private entity, but will be owned, operated, and maintained by a public entity, the SMP(s) and any right-of-way(s) needed to operate and maintain such practice(s) have been deeded to the municipality in which the practice(s) is located; or

    b. for SMP(s) that are privately owned, but will be operated and maintained by a public entity, an executed operation and maintenance agreement is in place with the municipality that will operate and maintain the SMP(s); or

    c. for SMP(s) 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; or

    d. for SMP(s) 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 policies and procedures in place that ensure operation and maintenance of the practices in accordance with the operation and maintenance plan.

5. An *owner or operator* that has met the requirements of Part V.A.1., 2., 3., and 4. must request termination of coverage under this permit by submitting a complete Notice of Termination form electronically using a NYSDEC approved form.[5]

    a. The owner's or operator's coverage is terminated as of the termination date indicated in the Letter of Termination (LOT), which is sent by NYSDEC after a complete eNOT is submitted.

[5] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

Part VI. Record Retention and Reporting

A. Record Retention

The *owner or operator* must retain a copy of the documents listed in Part I.E.3. and a copy of the LOT for a period of at least five years from the date that NYSDEC accepts a complete NOT submitted in accordance with Part V.

B. Reporting

Except for the eNOI, the signature forms associated with the eNOI, and the eNOT, all other written correspondence requested by NYSDEC, including individual permit applications, must be sent to the address of the appropriate DOW (SPDES) Program contact at the Regional Office listed in Appendix E.

Part VII. Standard Permit Requirements

For the purposes of this permit, examples of contractors and subcontractors include: third-party maintenance and construction contractors.

A. Duty to Comply

The *owner or operator*, and all contractors or subcontractors, must comply with all requirements of this permit. Any non-compliance with the requirements of this permit constitutes a violation of the New York State Environmental Conservation Law (ECL), and its implementing regulations, and is grounds for enforcement action. Filing of a request for termination of coverage under this permit, or a notification of planned changes or anticipated non-compliance, does not limit, diminish or stay compliance with any requirements of this permit.

B. Need to Halt or Reduce Activity Not a Defense

The necessity to halt or reduce the *construction activity* regulated by this permit, in order to maintain compliance with the requirements of this permit, must not be a defense in an enforcement action.

C. Penalties

There are substantial criminal, civil, and administrative penalties associated with violating the requirements of this permit. Fines of up to $37,500 per day for each

violation and imprisonment for up to 15 years may be assessed depending upon the nature and degree of the offense.

D. False Statements

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 monitoring reports or reports of compliance or noncompliance must, upon conviction, be punished in accordance with ECL §71-1933 and or New York State Penal Law Articles 175 and 210.

E. Re-Opener Clause

Upon issuance of this permit, a determination has been made on the basis of a submitted Notice of Intent, plans, or other available information, that compliance with the specified permit requirements will reasonably protect classified water use and assure compliance with applicable *water quality standards*. Satisfaction of the requirements of this permit notwithstanding, if operation pursuant to this permit causes or contributes to a condition in contravention of State *water quality standards* or guidance values, or if NYSDEC determines that a modification is necessary to prevent impairment of the best use of the waters or to assure maintenance of *water quality standards* or compliance with other provisions of ECL Article 17 or the Clean Water Act (CWA), or any regulations adopted pursuant thereto, NYSDEC may require such modification and the Commissioner may require abatement action to be taken by the *owner or operator* and may also prohibit such operation until the modification has been implemented.

F. Duty to Mitigate

The *owner or operator*, and its contractors and subcontractors, must 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.

G. Requiring Another General Permit or Individual SPDES Permit

NYSDEC may require any *owner or operator* authorized to *discharge* in accordance with this permit to apply for and obtain an individual SPDES permit or apply for authorization to *discharge* in accordance with another general SPDES permit.

1. Cases where an individual SPDES permit or authorization to discharge in accordance with another general SPDES permit may be required include, but is not limited to the following:

a. the *owner or operator* is not in compliance with the conditions of this permit or does not meet the requirements for coverage under this permit; and

b. a change has occurred in the availability of demonstrated technology or practices for the control or abatement of *pollutants* applicable to the *point source*; and

c. new effluent limitation guidelines or new source performance standards are promulgated that are applicable to *point sources* authorized to *discharge* in accordance with this permit; and

d. existing effluent limitation guidelines or new source performance standards that are applicable to *point sources* authorized to *discharge* in accordance with this permit are modified; and

e. a water quality management plan containing requirements applicable to such *point sources* is approved by NYSDEC; and

f. circumstances have changed since the time of the request to be covered so that the *owner or operator* is no longer appropriately controlled under this permit, or either a temporary or permanent reduction or elimination of the authorized *discharge* is necessary; and

g. the *discharge* is in violation of section 17-0501 of the ECL; and

h. the *discharge(s)* is a significant contributor of *pollutants*. In making this determination, NYSDEC may consider the following factors:

   i. the location of the *discharge(s)* with respect to *surface waters of the State*; and

   ii. the size of the *discharge(s)*; and

   iii. the quantity and nature of the *pollutants discharged* to *surface waters of the State*; and

   iv. other relevant factors including compliance with other provisions of ECL Article 17, or the CWA.

2. When NYSDEC requires any *owner or operator* authorized by this permit to apply for an individual SPDES permit as provided for in this subdivision, it must notify the *owner or operator* in writing that a permit application is required. This notice must include a brief statement of the reasons for this decision, an application

form, a statement setting a time for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from the *owner's or operator's* receipt of the notification letter, whereby the authorization to *discharge* under this permit must be terminated. NYSDEC may grant additional time upon demonstration, to the satisfaction of the RWE,[6] that additional time to apply for an alternative authorization is necessary or where NYSDEC has not provided a permit determination in accordance with 6 NYCRR Part 621.

3. When an individual SPDES permit is issued to an *owner or operator* authorized to *discharge* under this permit for the same *discharge(s)*, this permit authorization for *construction activities* authorized under the individual SPDES permit is automatically terminated on the effective date of the individual SPDES permit unless termination is earlier in accordance with 6 NYCRR Part 750.

H. Duty to Provide Information

The *owner or operator* must furnish to NYSDEC, within five business days, unless otherwise set forth by NYSDEC, any information that NYSDEC may request to determine whether cause exists to determine compliance with this permit or to determine whether cause exists for requiring an individual SPDES permit in accordance with 6 NYCRR 750-1.21(e) (see Part VII.G. Requiring Another General Permit or Individual Permit).

The *owner or operator* must make available to NYSDEC, for inspection and copying, or furnish to NYSDEC within 25 business days of receipt of a NYSDEC request for such information, any information retained in accordance with this permit.

Except for Part I.D.4. and 5. and Part I.G., the following applies: where the *owner or operator* becomes aware that it failed to submit any relevant facts on the Notice of Intent, or submitted incorrect information in a Notice of Intent or in any report to NYSDEC, the *owner or operator* must submit such facts or corrected information to NYSDEC within five business days.

I. Extension

In the event a new permit is not issued and effective prior to the expiration of this permit, and this permit is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, then the *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the requirements of this permit until a new permit is issued and effective.

[6] The Regional Water Manager where a DEC Region does not have a RWE.

J. Signatories and Certification

The Notice of Intent, Notice of Termination, and reports required by this permit must be signed as provided in 40 CFR §122.22.

1. All Notices of Intent and Notices of Termination must be signed as follows:

    a. For a corporation. 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 Notice of Intent or Notice of Termination requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

        Note: NYSDEC does not require specific assignments or delegations of authority to responsible corporate officers identified in 40 CFR §122.22(a)(1)(i). NYSDEC will presume that these responsible corporate officers have the requisite authority to sign the Notice of Intent or Notice of Termination unless the corporation has notified NYSDEC to the contrary. Corporate procedures governing authority to sign a Notice of Intent or Notice of Termination may provide for assignment or delegation to applicable corporate positions under 40 CFR §122.22(a)(1)(ii) rather than to specific individuals.

    b. For a partnership or sole proprietorship. By a general partner or the proprietor, respectively.

c. For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

    1. the chief executive officer of the agency; or

    2. a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. All reports required by this permit, and other information requested by NYSDEC, must be signed by a person described in Part VII.J.1., 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.J.1. or using the Duly Authorized Form, found on the DEC website; and

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, 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 is submitted to NYSDEC.

3. Changes to authorization. If an authorization under Part VII.J.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the *construction activity*, a new authorization satisfying the requirements of Part VII.J.2. must be submitted to NYSDEC prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under Part VII.J.1. or 2. must make the following certification:

    I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who

manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

5. Electronic reporting. If documents described in Part VII.J.1. or 2. are submitted electronically by or on behalf of the *construction activity* with coverage under this permit, any person providing the electronic signature for such documents must meet all relevant requirements of this section, and must ensure that all of the relevant requirements of 40 CFR Part 3 (including, in all cases, subpart D to Part 3) (Cross-Media Electronic Reporting) and 40 CFR Part 127 (NPDES Electronic Reporting Requirements) are met for that submission.

K. Inspection and Entry

The *owner or operator* must allow NYSDEC, the USEPA Regional Administrator, the applicable county health department, or any authorized representatives of those entities, 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 requirements of this permit; and

2. have access to and copy at reasonable times, any records that must be kept under the requirements of this permit, including records required to be maintained for purposes of operation and maintenance; and

3. inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

4. sample or monitor at reasonable times, for the purposes of assuring general SPDES permit compliance or as otherwise authorized by the CWA or ECL, any substances or parameters at any location; and

5. enter upon the property of any contributor to the regulated facility or activity under authority of the *owner or operator*.

L. Confidentiality of Information

The following must not be held confidential: this permit, the fact sheet for this permit, the name and address of any *owner or operator*, effluent data, the Notice of Intent, and information regarding the need to obtain an individual permit or an alternative general SPDES permit. This includes information submitted on forms themselves and any attachments used to supply information required by the forms (except information submitted on usage of substances). Upon the request of the *owner or operator*, NYSDEC must make determinations of confidentiality in accordance with 6 NYCRR Part 616, except as set forth in the previous sentence. Any information accorded confidential status must be disclosed to the Regional Administrator upon his or her written request. Prior to disclosing such information to the Regional Administrator, NYSDEC will notify the Regional Administrator of the confidential status of such information.

M. Other Permits May Be Required

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

N. NYSDEC Orders or Civil Decrees/Judgments

The issuance of this permit by the NYSDEC, and the coverage under this permit by the *owner or operator*, does not supersede, revoke, or rescind any existing order on consent or civil Decree/Judgment, or modification to any such documents or to any order issued by the Commissioner, or any of the terms, conditions, or requirements contained in such order or modification therefore, unless expressly noted.

O. Property Rights

Coverage under this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining the assent of any other jurisdiction as required by law for the *discharge* authorized.

P. Compliance with Interstate Standards

If the *construction activity* covered by this permit originates within the jurisdiction of an interstate water pollution control agency, then the *construction activity* must also comply with any applicable effluent standards or *water quality standards* promulgated by that interstate agency and as set forth in this permit for such *construction activities*.

Q. Oil and Hazardous Substance Liability

Coverage under this permit does not affect the imposition of responsibilities upon, or the institution of any legal action against, the *owner or operator* under section 311 of the CWA, which must be in conformance with regulations promulgated pursuant to section 311 governing the applicability of section 311 of the CWA to *discharges* from facilities with *NPDES* permits, nor must such issuance preclude the institution of any legal action or relieve the *owner or operator* from any responsibilities, liabilities, or penalties to which the *owner or operator* is or may be subject pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. section 9601 et seq. (CERCLA).

R. 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, must not be affected thereby.

S. NYSDEC Approved Forms

The *owner or operator* must provide all relevant information that is requested by NYSDEC, and required by this permit, on all NYSDEC approved forms.

APPENDIX A – Abbreviations and Definitions

Abbreviations

APO – Agency Preservation Officer
BB – New York State Standards and Specifications for Erosion and Sediment Control (Blue Book), dated November 2016
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)
DM – New York State Stormwater Management Design Manual (Design Manual), dated July 31, 2024
DOW – Division of Water
EAF – Environmental Assessment Form
ECL – chapter 43-B of the Consolidated Laws of the State of New York, entitled the 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
NYC – The City of New York
NYCDEP – The City of New York Department of Environmental Protection
NYSDEC – The New York State Department of Environmental Conservation
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RR – Runoff Reduction
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SMP – Post-Construction Stormwater Management Practice
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. If a word is not italicized in the permit, use its common definition.

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 – the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023).

Alter Hydrology from Pre- to Post-Development Conditions – 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 System – a sewer system which conveys sewage and *stormwater* through a single pipe system to a publicly owned treatment works.

Commence (Commencement of) Construction Activities – 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.

Common Plan of Development or Sale – a contiguous area where multiple separate and distinct *construction activities* are occurring, or may occur, under one plan. The "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 (SEQR) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating *construction activities* may occur on a specific plot. A *common plan of development or sale* is comprised of two or more *phases*.

Common plan of development or sale does not include separate and distinct *construction activities* that are occurring, or may occur, under one plan that are at least 1/4 mile apart provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Construction Activity(ies) – identified within 40 CFR 122.26(b)(14)(x), 122.26(b)(15)(i), and 122.26(b)(15)(ii), any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, mechanized 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, which is excluded from the calculation of the soil disturbance for a project. Routine maintenance includes, but is not limited to:

- Re-grading of gravel roads or parking lots; and
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of the ditch; and
- Replacement of existing culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of a ditch; and
- Replacement of existing bridges that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity beneath the bridges; and
- 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); and
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*; and
- 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; and
- Long-term use of equipment storage areas at or near highway maintenance facilities; and
- 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*; and
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts; and
- Maintenance of ski trails including brush hog use and mowing; and
- Above ground snowmaking pipe replacement; and
- Replacement of existing utility poles; etc.

Construction Site – the land area where *construction activity(ies)* will occur. See also the definitions for "*Commence (Commencement of) Construction Activities"* and "*Common Plan of Development or Sale."*

Dewatering – the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Directly Discharge(s)(ing) (to a specific surface waterbody) – 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)(d) – any addition of any *pollutant* to waters of the State through an outlet or *point source*.

Embankment – an earthen or rock slope that supports a road/highway.

Equivalent (Equivalence) – 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 – 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.

Historic Property – 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) – all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and compacted gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – not technologically possible, or not economically practicable and achievable considering best industry practices.

Minimize(ing)(ation) – 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 System (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):

1. owned or operated by a State, city, town, village, 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*; and

2. designed or used for collecting or conveying *stormwater*; and

3. which is not a *combined sewer system*; and

4. which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Natural Buffer(s) – an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – 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.

Nonpoint Source(s) – 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 – flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator – 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 requirements.

Performance Criteria – the six performance criteria for each group of SMPs in Chapters 5 and 6 of the technical standard, New York State Stormwater Management Design Manual (DM), dated July 31, 2024. These include feasibility, conveyance, pretreatment, treatment, landscaping, and maintenance. It does not include the *Sizing Criteria* (i.e. WQv, RRv, CPv, Qp and Qf) in Part I.C.2. of the permit.

Phase – a defined area in which *construction activities* are occurring or will occur separate from other defined area(s).

Point Source – 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(s) – 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 – 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 NYSDEC endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any SMPs that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional – 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 NYSDEC endorsed individual(s). Individuals preparing *SWPPPs* that require the SMP 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) – 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.).

Renewable Energy – electricity or thermal energy generated by renewable energy systems through use of the following technologies: solar thermal, photovoltaics, on land and offshore wind, hydroelectric, geothermal electric, geothermal ground source heat, tidal energy, wave energy, ocean thermal, and fuel cells which do not utilize a fossil fuel resource in the process of generating electricity.

Site Limitations – 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 – the criteria included in Part I.C.2 of the permit that are used to size SMPs. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

Steep Slope – land area designated on the current United States Department of Agriculture (USDA) Soil Survey as Soil Slope Phase D, (provided the map unit name or description 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.

Stormwater – that portion of precipitation that, once having fallen to the ground, is in excess of the evaporative or infiltrative capacity of soils, or the retentive capacity of surface features, which flows or will flow off the land by surface runoff to waters of the State.

Streambank – 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) – 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 SMPs); and identifies procedures the *owner or operator* will implement to comply with the requirements 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 – an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization – 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 Load (TMDL) – 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 and still meet *water quality standards*, and an allocation of that amount to the *pollutant's* sources. A TMDL stipulates Waste Load Allocations (WLA) for *point source discharges*, Load Allocations (LA) for *nonpoint source*s, and a margin of safety (MOS).

Traditional Land Use Control MS4 Operator – 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).

Trained Contractor – an employee from the contracting (construction) company, identified in Part III.A.7., that has received four (4) hours of NYSDEC endorsed training

in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the *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.7., 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 NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity).

The *trained contractor* is responsible for the day-to-day implementation of the *SWPPP*.

Tree Clearing – *construction activities* limited to felling and removal of trees.

Tree clearing does not include hand felling and leaving the trees in place with no support from mechanized equipment, which is not considered *construction activity* requiring coverage under this permit.

Water Quality Standard – 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 and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- 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 D
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that include construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.

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 New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

Within the municipal boundaries of NYC:

- Stand-alone road reconstruction, where the total soil disturbance from only that road construction, is less than one (1) acre of land.

The following *construction activities*:

- 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, *stormwater* retrofits, stream restoration, and resiliency projects that reconstruct shoreline areas to address sea level rise
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an *impervious cover*
- Cross-country ski trails, walking/hiking trails, and mountain biking trails, including a de minimis parking lot (maximum 10 spaces total, sized for passenger cars) with 35 feet minimum preservation of undisturbed area downgradient from the parking lot
- Dam rehabilitation (the structure of the dam itself)
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are not part of residential, commercial, or institutional development;
- Sidewalks, bike paths, or walking paths, 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.

Table 1 (Continued)
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities*:

- Slope stabilization
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Vegetated open space (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) that do not *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 where vegetation will be established, and no *redevelopment activity* is planned[1]
- Installation or replacement of either an overhead electric transmission line or a ski lift tower that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*.
- Solar array field areas that have tables elevated off the ground, spaced one table width apart, do not *alter hydrology from pre- to post-development conditions*, and address water quality volume and runoff reduction volume by maintaining sheet flow on slopes less than 8%.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that do not include construction or reconstruction of *impervious area* and do not *alter hydrology from pre- to post-development* conditions.
- 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 (in this context, "temporary" means the *impervious area* will be in place for two years or less)
- Other *construction activities* that do not include the construction or reconstruction of *impervious area*, and do not *alter hydrology from pre- to post-development* conditions, and are not listed in Table 2.

1. If the site is redeveloped in the future, a new eNOI must be submitted.

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)

The following *construction activities*:

- 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 D
- 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 D
- 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 between 20,000 square feet and one (1) acre of land within the municipal boundaries of NYC 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 *common plan of development or sale* that will ultimately disturb five (5) or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Creation of 5,000 square feet or more of *impervious area* in the municipal boundaries of NYC
- 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) that involves soil disturbance greater than five acres.
- Structural agricultural conservation practices as identified in Table II in the “Agricultural Best Management Practice Systems Catalogue” (dated June 2023) that involves soil disturbance greater than five acres and include the construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.
- Facility buildings, including ski lodges, restroom buildings, pumphouses, ski lift terminals, and maintenance and groomer garages
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills; including creation of landfills or capping landfills.
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTWs, water treatment plants, and water storage tanks
- Golf courses
- Office complexes

Table 2 (Continued)

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

The following *construction activities*:

- Permanent laydown yards and equipment storage lots
- Playgrounds that include the construction or reconstruction of *impervious area*
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surfaces
- Road construction or reconstruction, outside the municipal boundaries of NYC
- Road construction within the municipal boundaries of NYC
- Stand-alone road reconstruction, within the municipal boundaries of NYC where the total soil disturbance from that road reconstruction involves soil disturbance of one (1) acre or more of land
- Parking lot construction or reconstruction (as with all Table 2 bullets, this includes parking lots constructed as part of the *construction activities* listed in Table 1, unless a Table 1 bullet specifies otherwise)
- 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 overhead electric transmission line, wind-power, cell tower, oil or gas well drilling, sewer or water main, ski lift, or other linear utility project
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of a residential, commercial or institutional development
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of highway construction or reconstruction
- Solar array field areas on slopes greater than 8% that cannot maintain sheet flow using management practices identified in the BB or the DM
- Solar array field areas on slopes less than 8% that will *alter the hydrology from pre- to post-development* conditions
- Solar array field areas with tables that are not elevated high enough to achieve *final stabilization* beneath the tables
- Traditional *impervious areas* associated with solar development (e.g. roads, buildings, transformers)
- Utility pads surfaced with *impervious cover*, including electric vehicle charging stations
- 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 SMPs designed in conformance with the Enhanced Phosphorus Removal Standards included in the DM technical standard.

- 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

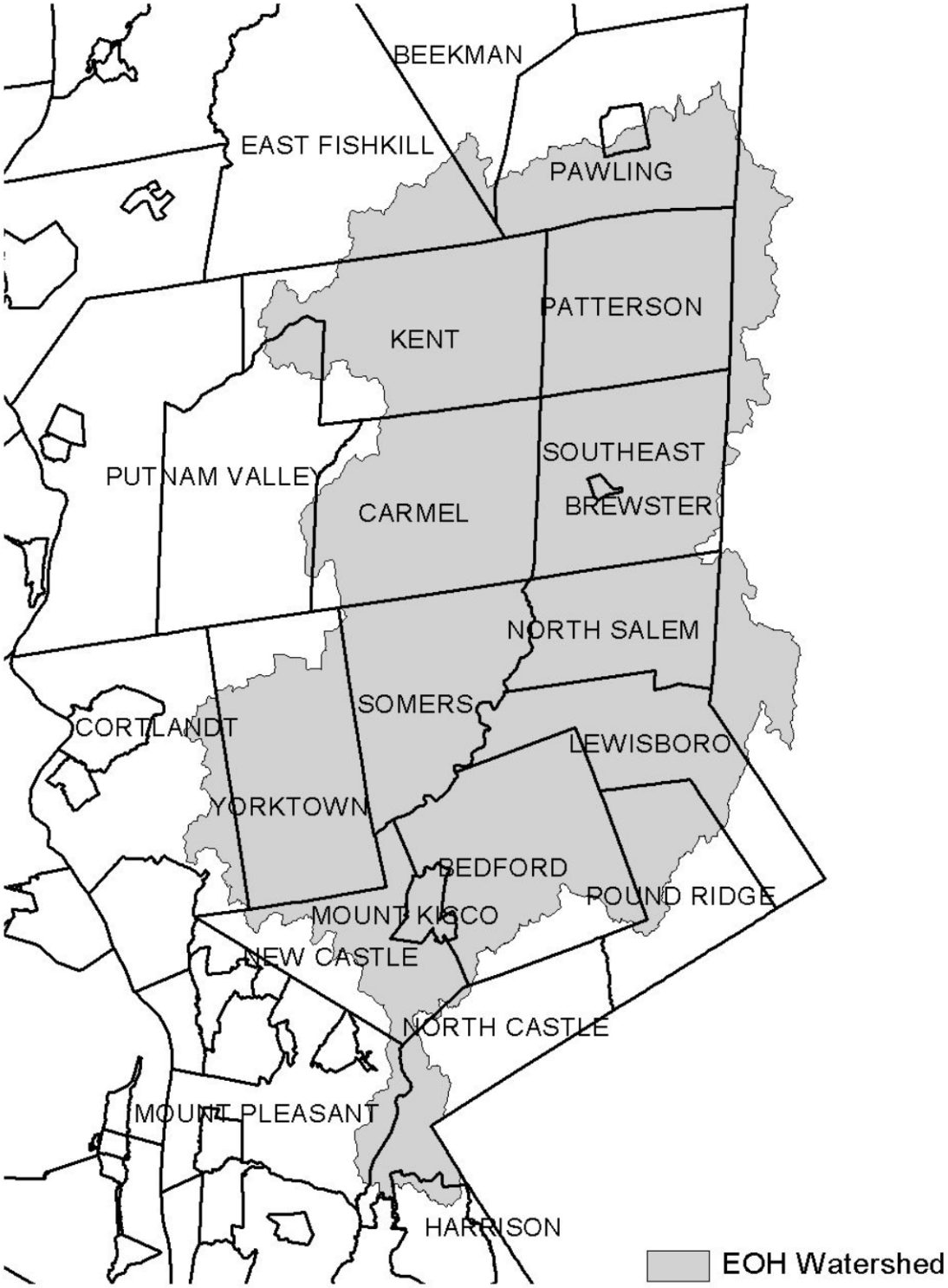


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

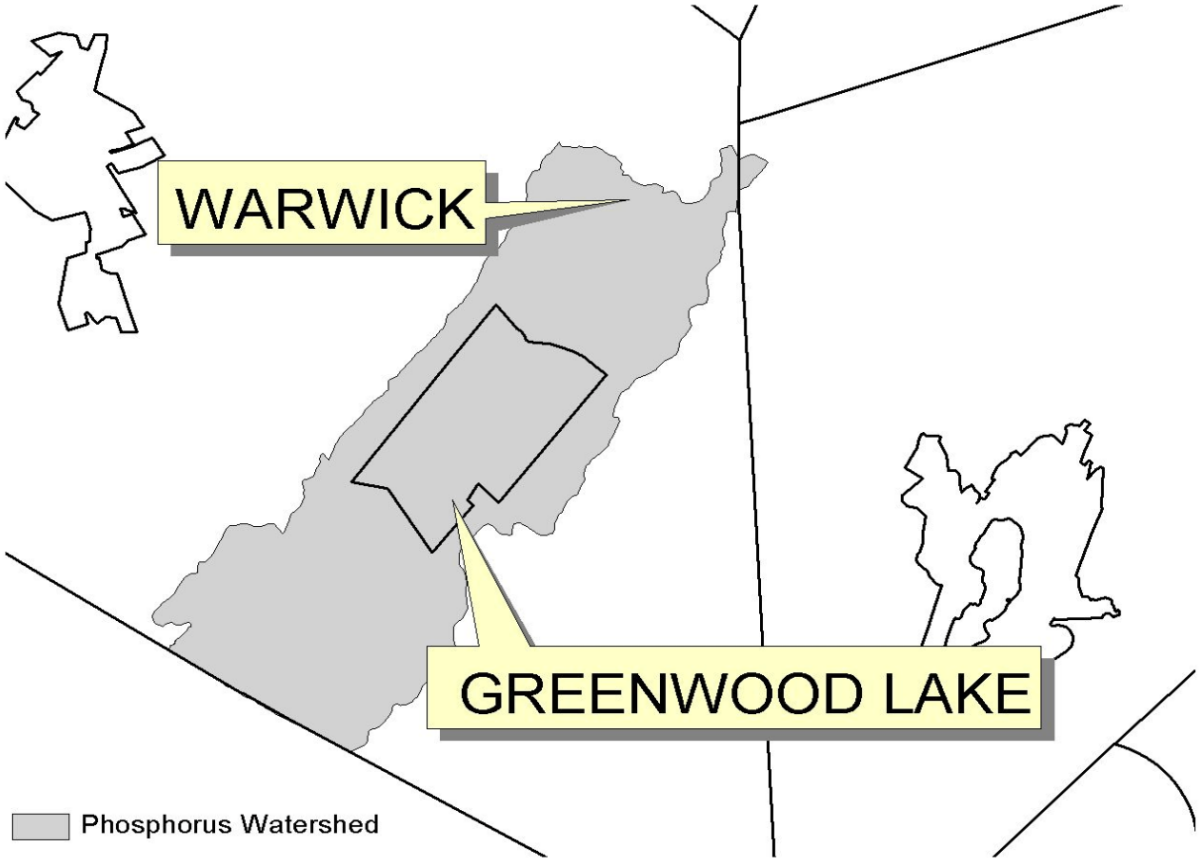


Figure 4 - Oscawana Lake Watershed

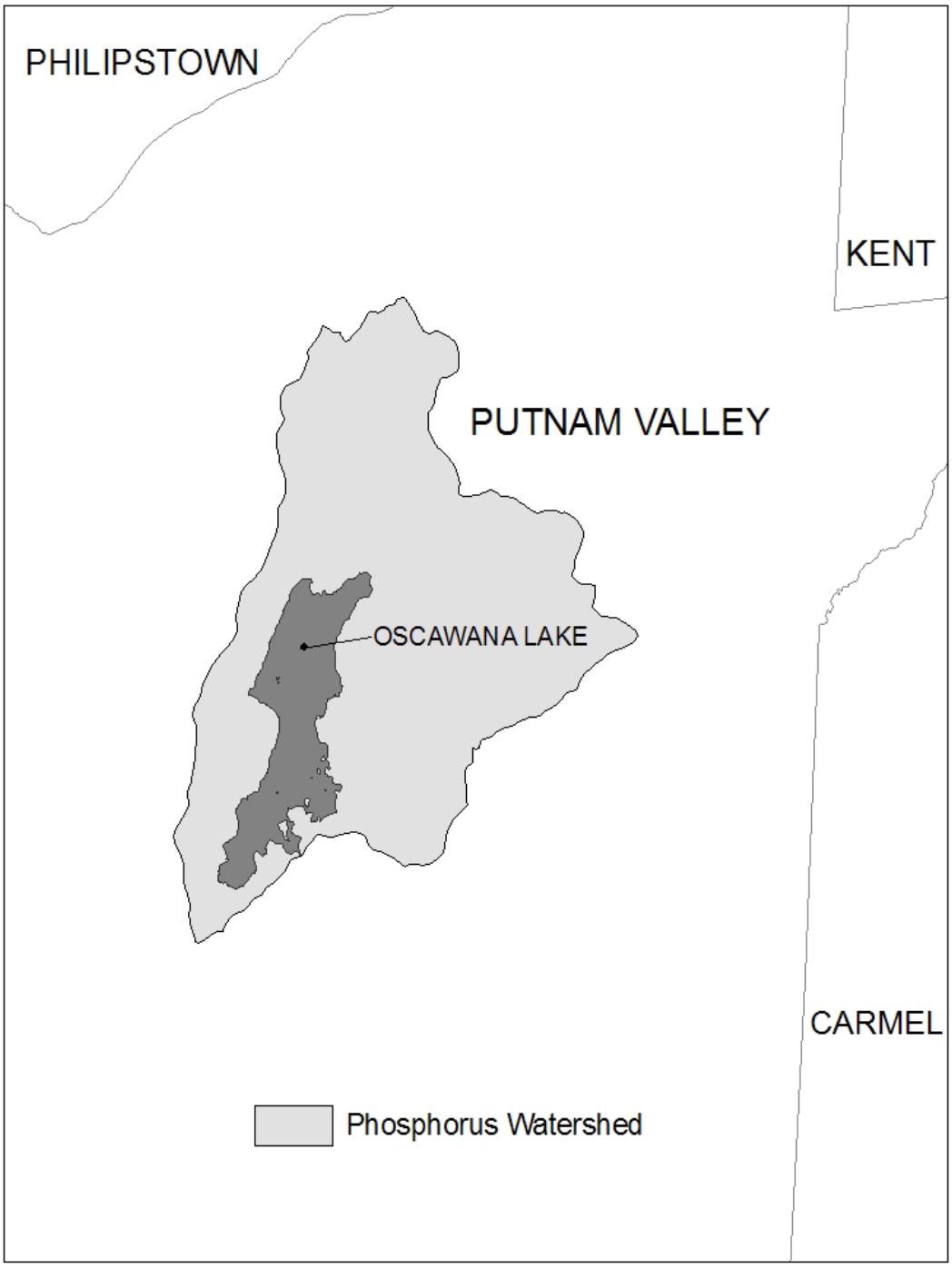
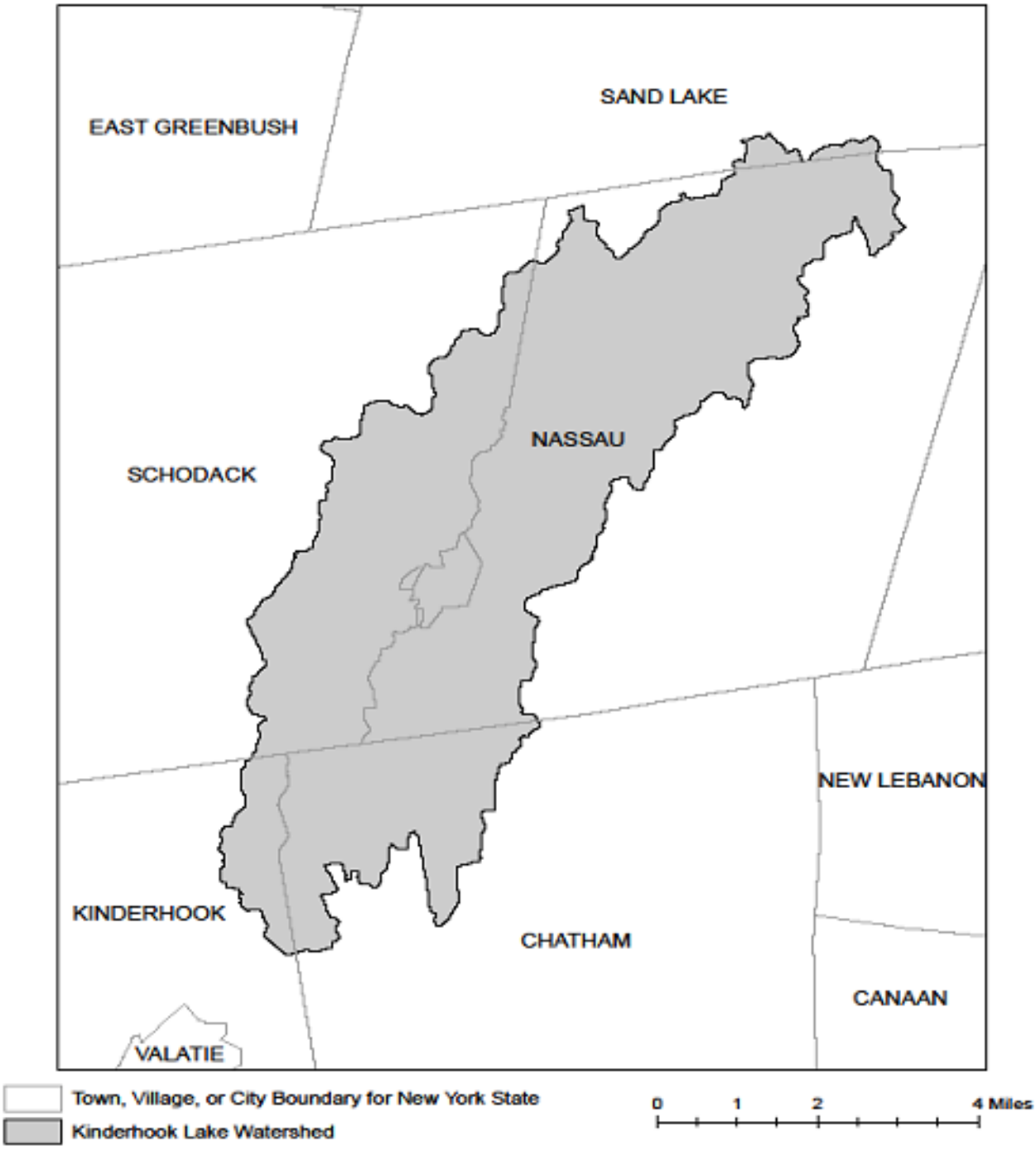


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Impaired Waterbodies (by Construction Related Pollutants)

List of waterbodies impaired by *pollutants* related to *construction activity*, including turbidity, silt/sediment, and nutrients (e.g. nitrogen, phosphorus). This list is a subset of "The Final New York State 2018 Section 303(d) List of Impaired Waters Requiring a TMDL" dated June 2020.

County	Waterbody	Pollutant
Albany	Ann Lee (Shakers) Pond, Stump Pond (1201-0096)	Phosphorus
Albany	Lawsons Lake (1301-0235)	Phosphorus
Allegany	Amity Lake, Saunders Pond (0403-0054)	Phosphorus
Allegany	Andover Pond (0403-0056)	Phosphorus
Bronx	Reservoir No.1/Lake Isle (1702-0075)	Phosphorus
Bronx	Van Cortlandt Lake (1702-0008)	Phosphorus
Broome	Blueberry, Laurel Lakes (1404-0033)	Phosphorus
Broome	Fly Pond, Deer Lake (1404-0038)	Phosphorus
Broome	Minor Tribs to Lower Susquehanna (0603-0044)	Phosphorus
Broome	Whitney Point Lake/Reservoir (0602-0004)	Phosphorus
Cattaraugus	Allegheny River/Reservoir (0201-0023)	Phosphorus
Cattaraugus	Beaver Lake/Alma Pond (0201-0073)	Phosphorus
Cattaraugus	Case Lake (0201-0020)	Phosphorus
Cattaraugus	Linlyco/Club Pond (0201-0035)	Phosphorus
Cayuga	Duck Lake (0704-0025)	Phosphorus
Cayuga	Owasco Inlet, Upper, and tribs (0706-0014)	Nutrients
Chautauqua	Chadakoin River and tribs (0202-0018)	Phosphorus
Chautauqua	Hulburt/Clymer Pond (0202-0079)	Phosphorus
Chautauqua	Middle Cassadaga Lake (0202-0002)	Phosphorus
Clinton	Great Chazy River, Lower, Main Stem (1002-0001)	Silt/Sediment
Columbia	Robinson Pond (1308-0003)	Phosphorus
Cortland	Dean Pond (0602-0077)	Phosphorus
Dutchess	Fallkill Creek (1301-0087)	Phosphorus
Dutchess	Hillside Lake (1304-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Silt/Sediment
Erie	Beeman Creek and tribs (0102-0030)	Phosphorus
Erie	Delaware Park Pond (0101-0026)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Silt/Sediment
Erie	Green Lake (0101-0038)	Phosphorus
Erie	Little Sister Creek, Lower, and tribs (0104-0045)	Phosphorus
Erie	Murder Creek, Lower, and tribs (0102-0031)	Phosphorus

Erie	Rush Creek and tribs (0104-0018)	Phosphorus
Erie	Scajaquada Creek, Lower, and tribs (0101-0023)	Phosphorus
Erie	Scajaquada Creek, Middle, and tribs (0101-0033)	Phosphorus
Erie	Scajaquada Creek, Upper, and tribs (0101-0034)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Silt/Sediment
Genesee	Bigelow Creek and tribs (0402-0016)	Phosphorus
Genesee	Black Creek, Middle, and minor tribs (0402 0028)	Phosphorus
Genesee	Black Creek, Upper, and minor tribs (0402-0048)	Phosphorus
Genesee	Bowen Brook and tribs (0102-0036)	Phosphorus
Genesee	LeRoy Reservoir (0402-0003)	Phosphorus
Genesee	Mill Pond (0402-0050)	Phosphorus
Genesee	Oak Orchard Cr, Upper, and tribs (0301-0014)	Phosphorus
Genesee	Oatka Creek, Middle, and minor tribs (0402-0031)	Phosphorus
Genessee	Tonawanda Cr, Middle, Main Stem (0102-0002)	Phosphorus
Greene	Schoharie Reservoir (1202-0012)	Silt/Sediment
Greene	Sleepy Hollow Lake (1301-0059)	Silt/Sediment
Herkimer	Steele Creek tribs (1201-0197)	Phosphorus
Herkimer	Steele Creek tribs (1201-0197)	Silt/Sediment
Kings	Hendrix Creek (1701-0006) 18	Nitrogen
Kings	Prospect Park Lake (1701-0196)	Phosphorus
Lewis	Mill Creek/South Branch, and tribs (0801-0200)	Nutrients
Livingston	Christie Creek and tribs (0402-0060)	Phosphorus
Livingston	Conesus Lake (0402-0004)	Phosphorus
Livingston	Mill Creek and minor tribs (0404-0011)	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs (0402-0033)	Phosphorus
Monroe	Buck Pond (0301-0017)	Phosphorus
Monroe	Cranberry Pond (0301-0016)	Phosphorus
Monroe	Durand, Eastman Lakes (0302-0037)	Phosphorus
Monroe	Lake Ontario Shoreline, Western (0301-0069) 9	Phosphorus
Monroe	Long Pond (0301-0015)	Phosphorus
Monroe	Mill Creek and tribs (0302-0025)	Phosphorus 2
Monroe	Mill Creek/Blue Pond Outlet and tribs (0402-0049)	Phosphorus
Monroe	Minor Tribs to Irondequoit Bay (0302-0038)	Phosphorus
Monroe	Rochester Embayment - East (0302-0002) [9]	Phosphorus
Monroe	Rochester Embayment - West (0301-0068) 9	Phosphorus
Monroe	Shipbuilders Creek and tribs (0302-0026)	Phosphorus 2
Monroe	Thomas Creek/White Brook and tribs (0302-0023)	Phosphorus

Nassau	Bannister Creek/Bay (1701-0380)	Nitrogen
Nassau	Beaver Lake (1702-0152)	Phosphorus
Nassau	Browswere Bay (1701-0383)	Nitrogen
Nassau	Camaans Pond (1701-0052)	Phosphorus
Nassau	East Meadow Brook, Upper, and tribs (1701-0211)	Silt/Sediment
Nassau	East Rockaway Channel (1701-0381)	Nitrogen
Nassau	Glen Cove Creek, Lower, and tribs (1702-0146)	Silt/Sediment
Nassau	Grant Park Pond (1701-0054)	Phosphorus
Nassau	Hempstead Bay, Broad Channel (1701-0032)	Nitrogen
Nassau	Hempstead Lake (1701-0015)	Phosphorus
Nassau	Hewlett Bay (1701-0382)	Nitrogen
Nassau	Hog Island Channel (1701-0220)	Nitrogen
Nassau	Massapequa Creek, Upper, and tribs (1701-0174)	Phosphorus
Nassau	Milburn/Parsonage Creeks, Upp, and tribs (1701-0212)	Phosphorus
Nassau	Reynolds Channel, East (1701-0215) [12]	Nitrogen
Nassau	Reynolds Channel, West (1701-0216) 12	Nitrogen
Nassau	Tidal Tribs to Hempstead Bay (1701-0218)	Nitrogen
Nassau	Tribs (fresh) to East Bay (1701-0204)	Silt/Sediment
Nassau	Tribs (fresh) to East Bay (1701-0204)	Phosphorus
Nassau	Tribs to Smith Pond/Halls Pond (1701-0221)	Phosphorus
Nassau	Woodmere Channel (1701-0219)	Nitrogen
New York	Harlem Meer (1702-0103)	Phosphorus
New York	The Lake in Central Park (1702-0105)	Phosphorus
Niagara	Bergholtz Creek and tribs (0101-0004)	Phosphorus
Niagara	Hyde Park Lake (0101-0030)	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0053) 9	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0072) 9	Phosphorus
Oneida	Ballou, Nail Creeks (1201-0203)	Phosphorus
Onondaga	Ley Creek and tribs (0702-0001) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nitrogen (NH3, NO2)
Onondaga	Onondaga Creek, Lower (0702-0023) 10	Nutrients (phosphorus)
Onondaga	Onondaga Creek, Lower, and tribs (0702-0023)	Turbidity
Onondaga	Onondaga Creek, Middle, and tribs (0702-0004)	Turbidity
Onondaga	Onondaga Creek, Upper, and tribs (0702-0024)	Turbidity
Ontario	Great Brook and minor tribs (0704-0034)	Phosphorus 2
Ontario	Great Brook and minor tribs (0704-0034)	Silt/Sediment

Ontario	Hemlock Lake Outlet and minor tribs (0402-0013)	Phosphorus
Ontario	Honeoye Lake (0402-0032)	Phosphorus
Orange	Brown Pond Reservoir (1303-0013)	Phosphorus
Orange	Lake Washington (1303-0012)	Phosphorus
Orange	Minor Tribs to Middle Wallkill (1306-0061)	Phosphorus
Orange	Monhagen Brook and tribs (1306-0074)	Phosphorus
Orange	Orange Lake (1301-0008) [16]	Phosphorus
Orange	Quaker Creek and tribs (1306-0025)	Phosphorus
Orange	Wallkill River, Middle, Main Stem (1306-0038)	Phosphorus
Orange	Wallkill River, Upper, and Minor tribs (1306-0017)	Phosphorus
Orleans	Glenvwood Lake (0301-0041)	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0070) 9	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0071) 9	Phosphorus
Oswego	Lake Neatahwanta (0701-0018)	Nutrients (phosphorus)
Oswego	Pleasant Lake (0703-0047)	Phosphorus
Putnam	Lost Lake, Putnam Lake (1302-0053)	Phosphorus
Putnam	Minor Tribs to Croton Falls Reservoir (1302-0001)	Phosphorus
Queens	Bergen Basin (1701-0009) 18	Nitrogen
Queens	Jamaica Bay, Eastern, and tribs, Queens (1701-0005) 18	Nitrogen
Queens	Kissena Lake (1702-0258)	Phosphorus
Queens	Meadow Lake (1702-0030)	Phosphorus
Queens	Shellbank Basin (1701-0001) 18	Nitrogen
Queens	Willow Lake (1702-0031)	Phosphorus
Rensselaer	Nassau Lake (1310-0001)	Phosphorus
Rensselaer	Snyders Lake (1301-0043)	Phosphorus
Richmond	Grassmere Lake/Bradys Pond (1701-0357)	Phosphorus
Rockland	Congers Lake, Swartout Lake (1501-0019)	Phosphorus
Rockland	Rockland Lake (1501-0021)	Phosphorus
Saratoga	Ballston Lake (1101-0036)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Silt/Sediment
Saratoga	Lake Lonely (1101-0034)	Phosphorus
Saratoga	Round Lake (1101-0060)	Phosphorus
Saratoga	Tribs to Lake Lonely (1101-0001)	Phosphorus
Schenectady	Collins Lake (1201-0077)	Phosphorus
Schenectady	Duane Lake (1311-0006)	Phosphorus
Schenectady Lake	Mariaville Lake (1201-0113)	Phosphorus
Schuyler	Cayuta Lake (0603-0005)	Phosphorus

Seneca	Reeder Creek and tribs (0705-0074)	Phosphorus
St.Lawrence	Black Lake Outlet, Black Lake (0906-0001)	Phosphorus
St.Lawrence	Fish Creek and minor tribs (0906-0026)	Phosphorus
Steuben	Smith Pond (0502-0012)	Phosphorus
Suffolk	Agawam Lake (1701-0117)	Phosphorus
Suffolk	Big/Little Fresh Ponds (1701-0125)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Silt/Sediment
Suffolk	Fresh Pond (1701-0241)	Phosphorus
Suffolk	Great South Bay, East (1701-0039)	Nitrogen
Suffolk	Great South Bay, Middle (1701-0040)	Nitrogen
Suffolk	Great South Bay, West (1701-0173)	Nitrogen
Suffolk	Lake Ronkonkoma (1701-0020)	Phosphorus
Suffolk	Mattituck/Marratooka Pond (1701-0129)	Phosphorus
Suffolk	Mill and Seven Ponds (1701-0113)	Phosphorus
Suffolk	Millers Pond (1702-0013)	Phosphorus
Suffolk	Moriches Bay, East (1701-0305)	Nitrogen
Suffolk	Moriches Bay, West (1701-0038)	Nitrogen
Suffolk	Quantuck Bay (1701-0042)	Nitrogen
Suffolk	Shinnecock Bay and Inlet (1701-0033)	Nitrogen
Suffolk	Tidal Tribs to West Moriches Bay (1701-0312)	Nitrogen
Sullivan	Bodine, Mongomery Lakes (1401-0091)	Phosphorus
Sullivan	Davies Lake (1402-0047)	Phosphorus
Sullivan	Evens Lake (1402-0004)	Phosphorus
Sullivan	Pleasure Lake (1402-0055)	Phosphorus
Sullivan	Swan Lake (1401-0063)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Silt/Sediment
Ulster	Ashokan Reservoir (1307-0004)	Silt/Sediment
Ulster	Esopus Creek, Lower, Main Stem (1307-0010) [17]	Turbidity
Ulster	Esopus Creek, Middle, Main Stem (1307-0003) 17	Turbidity
Ulster	Esopus Creek, Upper, and minor tribs (1307-0007)[3]	Silt/Sediment
Ulster	Wallkill River, Lower, Main Stem (1306-0027)	Phosphorus
Warren	Hague Brook and tribs (1006-0006)	Silt/Sediment
Warren	Huddle/Finkle Brooks and tribs (1006-0003)	Silt/Sediment
Warren	Indian Brook and tribs (1006-0002)	Silt/Sediment
Warren	Lake George (1006-0016) and tribs	Silt/Sediment
Warren	Tribs to Lake George, East Shore (1006-0020)	Silt/Sediment
Warren	Tribs to Lake George, Lk.George Village (1006-0008)	Silt/Sediment

Washington	Wood Cr/Champlain Canal and tribs (1005-0036)	Phosphorus
Westchester	Lake Katonah (1302-0136)	Phosphorus
Westchester	Lake Lincolndale (1302-0089)	Phosphorus
Westchester	Lake Meahagh (1301-0053)	Phosphorus
Westchester	Lake Mohegan (1301-0149)	Phosphorus
Westchester	Lake Shenorock (1302-0083)	Phosphorus
Westchester	Mamaroneck River, Lower (1702-0071)	Silt/Sediment
Westchester	Mamaroneck River, Upp, & minor tribs (1702-0123)	Silt/Sediment
Westchester	Saw Mill River (1301-0007)	Phosphorus
Westchester	Saw Mill River, Middle, and tribs (1301-0100)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Silt/Sedimnt
Westchester	Silver Lake (1702-0040)	Phosphorus
Westchester	Teatown Lake (1302-0150)	Phosphorus
Westchester	Truesdale Lake (1302-0054)	Phosphorus
Westchester	Wallace Pond (1301-0140)	Phosphorus

APPENDIX E – List of NYSDEC 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	220 White Plains Road, Suite 110 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1130 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	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7438	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 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	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7165	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7070

APPENDIX F – SWPPP Preparer Certification Form

The SWPPP Preparer Certification Form required by this permit begins on the following page.

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:

eNOI Submission ID:

Owner/Operator Name:

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SWPPP Preparer First Name | MI | SWPPP Preparer Last Name

Signature

Date

Revised: January 2025

APPENDIX G – MS4 SWPPP Acceptance Form

The MS4 SWPPP Acceptance Form required by this permit begins on the following page.

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information
8. SWPPP Reviewed by:
9. Title/Position:
10. Date Final SWPPP Reviewed and Accepted:
IV. Regulated MS4 Information
11. Name of MS4 Operator:
12. MS4 SPDES Permit Identification Number: NYR20A
13. Street Address:
14. City/State/Zip:
15. Telephone Number:

MS4 SWPPP Acceptance Form - continued

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

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP). Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name[1]:

Title/Position:

Signature:

Date:

VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

APPENDIX H – NYCDEP SWPPP Acceptance/Approval Form

The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval form required by this permit begins on the following page.

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Planning and Analysis
59-17 Junction Blvd., 9th Floor; Flushing, NY 11373

SWPPP Acceptance/Approval

Application Number:

I. Project Owner/Operator Information

1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:

II. Project Site Information

5. Project/Site Name:
6. Street Address:
7. City/State/Zip:

III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance/Approval

8. SWPPP Reviewed by:
9. Title/Position: /
10. Date Final SWPPP Reviewed and Accepted:
11. Acceptance/Approval Expiration Date:

IV. Regulated MS4 Information for projects that require coverage under the NY State Pollution Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity

12. Name of MS4: *CITY OF NEW YORK*
13. MS4 SPDES Permit Identification Number: *NY-0287890*
14. Contact Person:
15. Street Address: *59-17 Junction Blvd. 9th Floor*
16. City/State/Zip: *Flushing, NY 11373*
17. Telephone Number:

Projects in the MS4 area must submit a copy of this SWPPP Acceptance with a Notice of Intent for coverage under the NY SPDES General Permit for Stormwater Discharges from Construction Activity to: NYS Department of Environmental Conservation, Division of Water; 625 Broadway, 4th Floor; Albany, New York 12233-3505.

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

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s).

Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Conditions of Acceptance/Approval and Additional Information

Projects in the MS4 area must submit a copy of this SWPPP Acceptance with a Notice of Intent for coverage under the NY SPDES General Permit for Stormwater Discharges from Construction Activity to: NYS Department of Environmental Conservation, Division of Water; 625 Broadway, 4th Floor; Albany, New York 12233-3505.

APPENDIX I – MS4 No Jurisdiction Form

The MS4 No Jurisdiction Form required by this permit begins on the following page.

MS4 No Jurisdiction Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information

a. Owner/Operator Name:

b. Contact Person:

c. Street Address:

d. City/State/Zip:

II. Project Site Information

a. Project/Site Name:

b. Street Address:

c. City/State/Zip:

d. eNOI Submission ID:

III. Traditional Land Use Control MS4 Operator Information

a. Name of MS4 Operator:

b. MS4 SPDES Permit ID Number: NYR20A

c. Street Address:

d. City/State/Zip:

e. Telephone Number:

IV. Certification Statement

In accordance with CGP Part I.D.2.b.ii.3., I hereby certify that the Traditional Land Use Control MS4 Operator identified in section III. of this form does not have review authority over the construction project identified in section II. of this form, which is owned/operated by the entity identified in section I. of this form. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

a. Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.:

b. Title/Position:

c. Signature:

d. Date:

APPENDIX J – Owner/Operator Certification Form

The Owner/Operator Certification Form required by this permit begins on the following page.

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: _____

eNOI Submission ID: _____

eNOI Submitted by: ☐ **Owner/Operator** ☐ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name MI Owner/Operator Last Name

_____

Signature

_____

Date

Revised: January 2025

APPENDIX O

CONSTRUCTION PERSONNEL CONTACT LIST

TO BE PROVIDED

APPENDIX P

CONTRACTOR CERTIFICATION FORM

CONR 5
(10/19)

Contractor / Subcontractor SPDES Permit Certification

Contract No.: _____ PIN: _____

Description: _____

Town, Village, City: _____

County: GENESSEE

Check Applicable Box: ☐ Prime Contractor ☐ Subcontractor

Name of Contractor/
Subcontractor: _____

Address: _____

City: _____ State: _____ ZIP: _____

Phone: _____ Fax: _____

Core Pay Item Groups for which the Contractor/Subcontractor will be responsible (e.g. 203, 207, 209, etc.): _____ _____ _____ _____ _____ _____ _____ _____

Mandatory Certification: The SPDES General Permit for Stormwater Discharges from Construction Activities requires the Prime Contractor and subcontractors to certify they understand the Stormwater Pollution Prevention Plan (SWPPP), the General Permit conditions, and their responsibilities for compliance. The certification must be signed prior to performing any contract work. The certification shall be signed by an Owner, Principal, President, Secretary or Treasurer of the firm in accordance with the signature requirements of 102-05 *Proposal Submission* of the Standard Specifications.

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

Signature: _____ Date: _____

Name: _____ Title: _____

Required Training: Effective April 30, 2010, the SPDES General Permit also requires the Prime Contractor and all subcontractors ***performing earthwork or soil-disturbing activities*** to identify at least one trained individual ***from each company*** who will be responsible for implementing the SWPPP and who shall be on-site on a daily basis when the company is performing soil disturbance activities. These activities include clearing, grubbing, grading, filling, excavation, stockpiling, demolition, landscaping, and installation and maintenance of Erosion & Sediment Control practices. Training must consist of 4 hours of NYSDEC-endorsed Erosion & Sediment Control Training every 3 years. (Training is not required if the individual is a licensed Professional Engineer, registered licensed Landscape Architect, or CPESC.) Provide the information below for trained individuals who will be on-site and responsible for SWPPP implementation on this Contract (attach a separate sheet if needed for additional Trained Individuals):

Trained Individual Name/Title : _____

Name of Training Course: _____

Trainee Number: _____ Date of Training: _____

Trained Individual Name/Title : _____

Name of Training Course: _____

Trainee Number: _____ Date of Training: _____

Print Form | Make Form Read-Only (Cannot be undone)

APPENDIX Q

SWPPP INSPECTION FORMS

Stormwater Construction Site Inspection Report

General Information			
Project Name	BUFA – PROJECT DOUBLE REED		
SPDES Tracking No.		**Location**	6840 CROSBY ROAD, TOWN OF ALABAMA, NY 14228
Date of Inspection		**Start/End Time**	
Inspector's Name(s)			
Inspector's Contact Information			
Inspector's Qualifications			
Describe present phase of construction			
Type of Inspection: ❑ Regular ❑ Pre-storm event ❑ During storm event ❑ Post-storm event			
Weather Information			
Has there been a storm event since the last inspection? ❑Yes ❑No **If yes, provide:** Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in):			
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: Temperature:			
Have any discharges occurred since the last inspection? ❑Yes ❑No **If yes, describe:**			
Are there any discharges at the time of inspection? ❑Yes ❑No **If yes, describe:**			

Site-specific BMPs

- *Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below (add as many BMPs as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
1	Stabilized Entrance	❑Yes ❑No	❑Yes ❑No	
2	Standard Silt Fence	❑Yes ❑No	❑Yes ❑No	
3	Reinforced Silt Fence	❑Yes ❑No	❑Yes ❑No	
4	Silt Sock	❑Yes ❑No	❑Yes ❑No	
5	Topsoil stockpile	❑Yes ❑No	❑Yes ❑No	
6	Inlet Protection filters	❑Yes ❑No	❑Yes ❑No	
7	Concrete Washout	❑Yes ❑No	❑Yes ❑No	
8		❑Yes ❑No	❑Yes ❑No	
9		❑Yes ❑No	❑Yes ❑No	
10		❑Yes ❑No	❑Yes ❑No	
11		❑Yes ❑No	❑Yes ❑No	
12		❑Yes ❑No	❑Yes ❑No	
13		❑Yes ❑No	❑Yes ❑No	
14		❑Yes ❑No	❑Yes ❑No	

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
15		❑Yes ❑No	❑Yes ❑No	
16		❑Yes ❑No	❑Yes ❑No	
17		❑Yes ❑No	❑Yes ❑No	
18		❑Yes ❑No	❑Yes ❑No	
19		❑Yes ❑No	❑Yes ❑No	
20		❑Yes ❑No	❑Yes ❑No	

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	❑Yes ❑No	❑Yes ❑No	
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	❑Yes ❑No	❑Yes ❑No	
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	❑Yes ❑No	❑Yes ❑No	
4	Are discharge points and receiving waters free of any sediment deposits?	❑Yes ❑No	❑Yes ❑No	
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	
6	Is the construction exit preventing sediment from being tracked into the street?	❑Yes ❑No	❑Yes ❑No	
7	Is trash/litter from work areas collected and placed in covered dumpsters?	❑Yes ❑No	❑Yes ❑No	
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No	

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	❑Yes ❑No	❑Yes ❑No	
10	Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No	❑Yes ❑No	
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No	
12	(Other)	❑Yes ❑No	❑Yes ❑No	

Non-Compliance

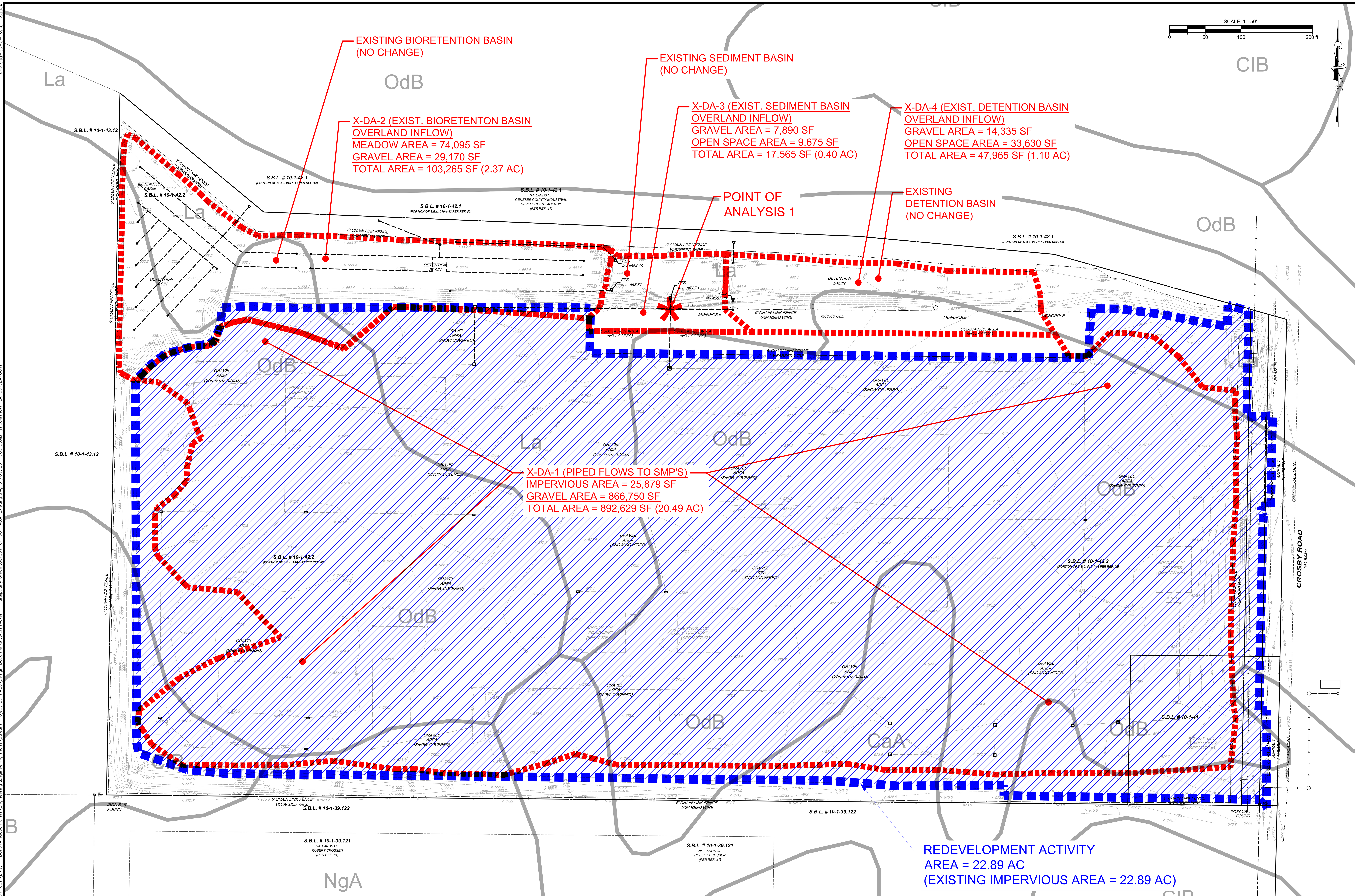
Describe any incidents of non-compliance not described above:

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name and title: _____

Signature:_____ **Date:**_____



LEGEND

- IMPERVIOUS SURFACE AREA (WITHIN REDEVELOPMENT AREA)
- DRAINAGE AREA BOUNDARY LINE
- POINT OF ANALYSIS (POA)
- SOIL UNIT BOUNDARY LINE
- OdB — SOIL UNIT TYPE
- TIME OF CONCENTRATION CALCULATION FLOW PATH
- REDEVELOPMENT AREA BOUNDARY

PROJECT ANALYSIS - EXISTING CONDITION AREAS:

- REDEVELOPMENT ACTIVITY AREA = 22.89 AC
- EXISTING IMPERVIOUS AREA = 22.89 AC

NOTES:

1. EXISTING IMPERVIOUS AREA INCLUDES ROOF, PAVEMENT, CONCRETE, AND GRAVEL SURFACES.

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WARNING IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF THE LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR LANDSCAPE ARCHITECT WHO SIGNED THIS DRAWING, TO ALTER THIS DRAWING IN ANY WAY.

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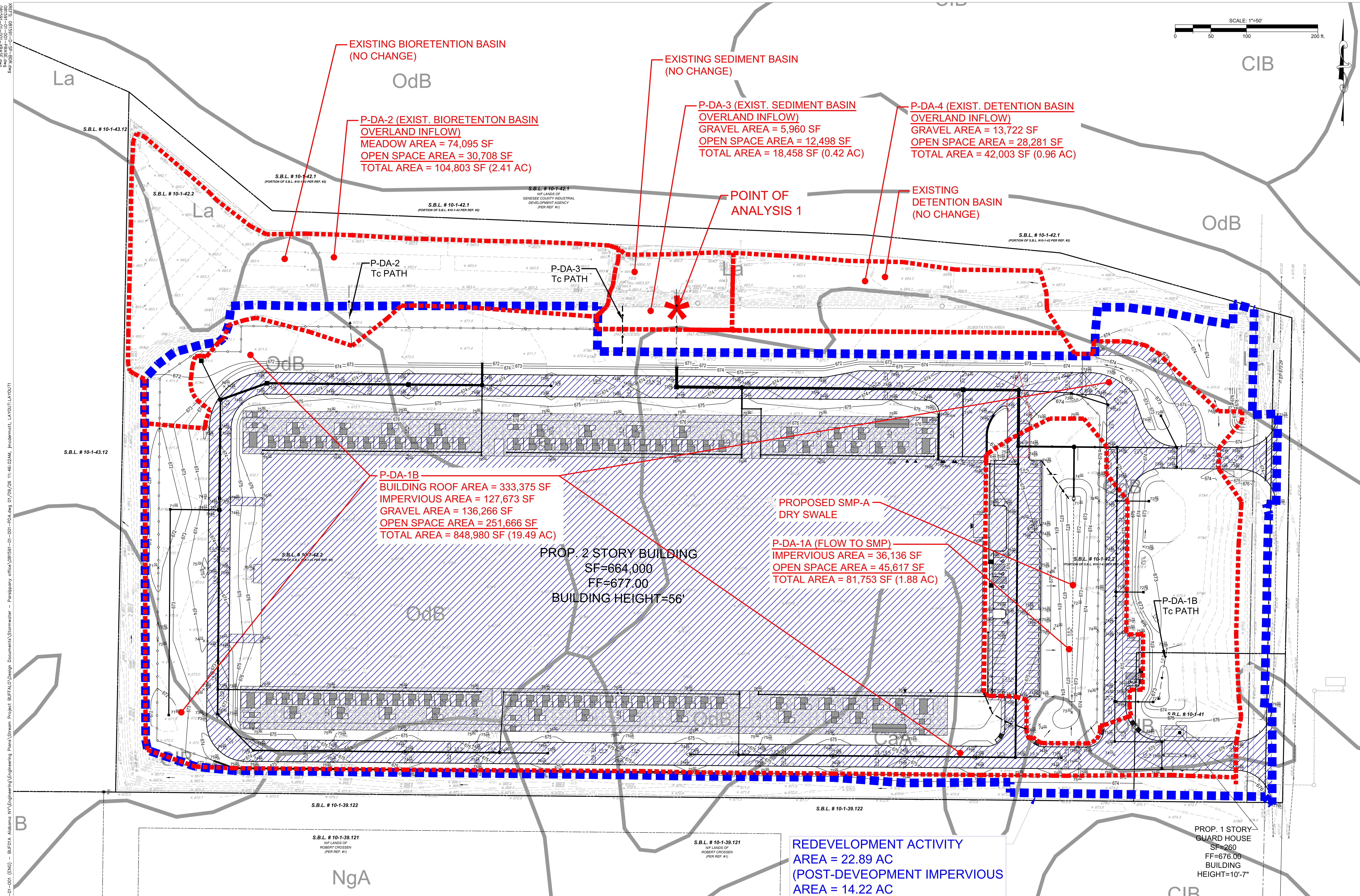
ERIC L. KELLER, N.Y. Professional Engineer, Lic. 065234-1

BUFA - PROJECT DOUBLE REED SOUTH CAMPUS
EXISTING DRAINAGE AREA MAP

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

SHEET No.

1 OF 3



EXISTING BIORETENTION BASIN
(NO CHANGE)
EXISTING SEDIMENT BASIN
(NO CHANGE)
P-DA-2 (EXIST. BIORETENTON BASIN
OVERLAND INFLOW)
MEADOW AREA = 74,095 SF
OPEN SPACE AREA = 30,708 SF
TOTAL AREA = 104,803 SF (2.41 AC)
P-DA-3 (EXIST. SEDIMENT BASIN
OVERLAND INFLOW)
GRAVEL AREA = 5,960 SF
OPEN SPACE AREA = 12,498 SF
TOTAL AREA = 18,458 SF (0.42 AC)
P-DA-4 (EXIST. DETENTION BASIN
OVERLAND INFLOW)
GRAVEL AREA = 13,722 SF
OPEN SPACE AREA = 28,281 SF
TOTAL AREA = 42,003 SF (0.96 AC)
POINT OF
ANALYSIS 1
EXISTING
DETENTION BASIN
(NO CHANGE)
P-DA-2
Tc PATH
P-DA-3
Tc PATH
P-DA-1B
BUILDING ROOF AREA = 333,375 SF
IMPERVIOUS AREA = 127,673 SF
GRAVEL AREA = 136,266 SF
OPEN SPACE AREA = 251,666 SF
TOTAL AREA = 848,980 SF (19.49 AC)
PROP. 2 STORY BUILDING
SF=664,000
FF=677.00
BUILDING HEIGHT=56'
PROPOSED SMP-A
DRY SWALE
P-DA-1A (FLOW TO SMP)
IMPERVIOUS AREA = 36,136 SF
OPEN SPACE AREA = 45,617 SF
TOTAL AREA = 81,753 SF (1.88 AC)
P-DA-1B
Tc PATH
REDEVELOPMENT ACTIVITY
AREA = 22.89 AC
(POST-DEVEOPMENT IMPERVIOUS
AREA = 14.22 AC
PROP. 1 STORY
GUARD HOUSE
SF=260
FF=676.00
BUILDING
HEIGHT=10'-7"
SCALE: 1"=50'
0 50 100 200 ft.
La
OdB
CIB
NgA
CaA
S.B.L. # 10-1-43.12
S.B.L. # 10-1-42.1
S.B.L. # 10-1-42.2
S.B.L. # 10-1-39.122
S.B.L. # 10-1-39.121
S.B.L. # 10-1-41

LEGEND

- IMPERVIOUS SURFACE AREA (WITHIN REDEVELOPMENT AREA)
- DRAINAGE AREA BOUNDARY LINE
- * POINT OF ANALYSIS (POA)
- SOIL UNIT BOUNDARY LINE
- OdB SOIL UNIT TYPE
- TIME OF CONCENTRATION CALCULATION FLOW PATH
- REDEVELOPMENT AREA BOUNDARY

PROJECT ANALYSIS - POST-DEVELOPMENT AREAS:

- REDEVELOPMENT ACTIVITY AREA = 22.89 AC
- POST-DEVELOPMENT IMPERVIOUS AREA = 14.22 AC
- CHANGE IN IMPERVIOUS AREA FROM PRE-DEVELOPMENT CONDITION = 22.89 AC - 14.22 AC = 8.67 AC (37.9% DECREASE)

NOTES:

1. POST-DEVELOPMENT IMPERVIOUS AREA INCLUDES PROPOSED ROOF, PAVEMENT, CONCRETE, AND GRAVEL SURFACES.

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DATE: JANUARY 9, 2026

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Bowman Consulting Engineering, Land Surveying & Landscape Architecture
ERIC L. KELLER, N.Y. Professional Engineer, Lic. 065234-1

BUFA - PROJECT DOUBLE REED SOUTH CAMPUS
POST-DEVELOPMENT DRAINAGE AREA MAP
TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

SHEET No.

2 OF 3

SCALE: 1"=50'
0 50 100 200 ft.

S.B.L. # 10-1-43.12

S.B.L. # 10-1-42.1
(PORTION OF S.B.L. #10-1-42 PER REF. #2)

S.B.L. # 10-1-42.2

S.B.L. # 10-1-42.1
(PORTION OF S.B.L. #10-1-42 PER REF. #2)

S.B.L. # 10-1-42.1
N/F LANDS OF
GENESEE COUNTY INDUSTRIAL
DEVELOPMENT AGENCY
(PER REF. #1)

S.B.L. # 10-1-42.1
(PORTION OF S.B.L. #10-1-42 PER REF. #2)

EX. 50 CB
DA=30,734 SF

11 CB
DA=23,225 SF

12 CB
DA=17,902 SF

13A CB
DA=13,121 SF

10A CB
DA=21,964 SF

EX. 32 CB
DA=39,380 SF

71A CB
DA=25,293 SF

72 CB
DA=15,468 SF
SUBSTATION AREA

73A CB
DA=9,054 SF

76C CB
DA=11,947 SF

76 MH
DA=9,178 SF

76A CB
DA=3,663 SF

76B CB
DA=3,106 SF

77A CB
DA=15,240 SF

78A CB
DA=19,469 SF

79A CB
DA=16,014 SF

81 CB
DA=4,008 SF

82 CB
DA=2,913 SF

80 CB
DA=6,348 SF

92B CB
DA=11,193 SF

93 CB
DA=12,908 SF

94 CB
DA=22,296 SF

96 CB
DA=20,980 SF

21A CB
DA=21,563 SF

21 CB
DA=22,128 SF

20 CB
DA=11,677 SF

18 CB
DA=13,785 SF

16B CB
DA=11,173 SF

17 CB
DA=7,562 SF

16A CB
DA=21,200 SF

15 CB
DA=14,555 SF

70 CB
DA=19,400 SF

TRENCH DRAIN
DA=4,522 SF

ROOF DRAIN 11 RD
DRAINAGE AREA = 51,375 SF

ROOF DRAIN 32 RD
DRAINAGE AREA = 63,842 SF

ROOF DRAIN __ RD
DRAINAGE AREA = 40,573 SF

ROOF DRAIN __ RD
DRAINAGE AREA = 10,936 SF

ROOF DRAIN 20 RD
DRAINAGE AREA = 51,375 SF

ROOF DRAIN __ RD
DRAINAGE AREA = 31,880 SF

ROOF DRAIN __ RD
DRAINAGE AREA = 31,880 SF

ROOF DRAIN __ RD
DRAINAGE AREA = 51,520 SF

DRY SWALE SMP
DA=81,753 SF

PROP. 2 STORY BUILDING
SF=664,000
FF=677.00
BUILDING HEIGHT=56'

PROP. 1 STORY
GUARD HOUSE
SF=260
FF=676.00
BUILDING
HEIGHT=10'-7"

S.B.L. # 10-1-42.2
(PORTION OF S.B.L. #10-1-43 PER REF. #2)

S.B.L. # 10-1-42.2
(PORTION OF S.B.L. #10-1-42 PER REF. #2)

S.B.L. # 10-1-41

S.B.L. # 10-1-39.122

S.B.L. # 10-1-39.122

S.B.L. # 10-1-39.121
N/F LANDS OF
ROBERT CROSSEN
(PER REF. #1)

S.B.L. # 10-1-39.121
N/F LANDS OF
ROBERT CROSSEN
(PER REF. #1)

APPROX. LOC. EQUIPMENT (SEE NOTE #3)

APPROX. LOC. TRAILERS (SEE NOTE #3)

NO.	REVISION	DATE	CHKD
12			
11			
10			
9			
8			
7			
6			
5			
4			
3			
2			
1			

PROJ. 08195-01.001
DATE: JANUARY 2, 2026
CHKD: PDQ

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ERIC L. KELLER, N.Y. Professional Engineer, Lic. 065234-1

BUFA - PROJECT DOUBLE REED
SOUTH CAMPUS

INLET DRAINAGE AREA MAP

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

SHEET No.

3 OF 3