SWPPP

Stormwater Pollution Prevention Plan

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Evergreen Apartments (PG Dryden, LLC)

1061 Dryden Road (55.-1-16)

Town of Dryden - Tompkins County - New York State

October 10, 2023

Prepared By:

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1495-22

Prepared For:

PG Dryden, LLC
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SECTION 1: PROJECT INFORMATION

1.1 Owner-Operator-SWPPP Contact-SWPPP Preparer Contact Information

Owner/Operator:	Contact Person:
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SWPPP Preparer:	Contact Person:
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1.2 Site Address, Site Map, Scope of Project, Type and Size of Project

Address:	1061 Dryden Road
Municipality:	Town of Dryden
County:	Tompkins
Tax Parcel #s	55.-1-16
Nearest Cross Street:	Turkey Hill Road (940')
Watershed:	Lower Fall Creek
Size:	±6.54 acres

Project Description:

This project proposes the development of six (6) townhouse buildings, one (1) maintenance garage, asphalt access road, asphalt driveways, concrete sidewalk, associated grading, drainage, erosion control, utilities and access improvements. This project includes a total of 43 townhouse units situated along a residential drive.

Based on available record mapping, it appears that there are no federally regulated wetlands within the project site according to US Fish and Wildlife Service's National Wetlands Inventory.

This project drains to Lower Fall Creek and ultimately discharges to Cayuga Lake.

An initial geotechnical investigation has been provided for this site via test pits and infiltration tests conducted by CME Associates, INC dated May 16, 2016. Based on the findings provided, most of the surface profile of the first 8' is a silty clay soil with sand.

In addition, infiltration tests were conducted within the vicinity of the proposed stormwater management practices were performed. Groundwater was not encountered within the test pits excavated as part of the infiltration rate investigation. An infiltration rate of 1.0 in/hr was used as a basis of design for the infiltration basin where 2.8 in/hr was observed.

SECTION 2: STORMWATER SITE PLANNING, PRACTICE SELECTION, AND DETAILS

2.1 Stormwater Management

The total site development area is approximately ±6.54 acres with ±4.17 acres of the site area being disturbed. Disturbed areas include areas associated with the townhouse foundation installation, asphalt road installation, concrete sidewalk installation, driveway installation, trenching for electrical conduits and utilities, grading for stormwater management practices, and installation of concrete pad for electrical equipment. The projected disturbed area exceeds the allowable site disturbance (1 acre) outlined in the New York State Department of Environmental Conservation's (NYSDEC) General Permit for Stormwater Pollutant Discharges. Therefore, a full Stormwater Pollution Prevention Plan (SWPPP) is required which includes Stormwater Quality and Quantity provisions.

The entire site is located within the jurisdiction of the Town of Dryden, NY. The Town of Dryden is classified as a Municipal Separate Storm Sewer System Community (MS4). Therefore, jurisdiction over stormwater discharges lies with the Town of Dryden. The stormwater management plan and associated grading/drainage improvements are proposed so to comply with the NYSDEC Stormwater Management Design Manual (SMDM).

Ground disturbances associated with the development include underground electrical conduit installation, minor surface grading, minor vegetation removal, installation of an asphalt access road, installation of associated driveways, installation of concrete sidewalks, installation of townhouse foundations, and concrete pads for electrical equipment. Within the disturbed area, a post-developed impervious cover of ±2.0 acres are associated with the development.

2.2 Drainage Analysis Methodology

The stormwater management and drainage analysis enclosed was prepared per the requirements outlined in the New York State Department of Environmental Conservation's Stormwater Management Design Manual (SMDM). As outlined in the SMDM, the United States Department of Agriculture Natural Resources Conservation Service's (NRCS) Urban Hydrology for Small Watersheds, Technical Release 55 (TRGG) was used to analyze the runoff characteristics associated with the site's drainage basin.

Rainfall amounts for the 1, 10, & 100-year storm events were taken from Figures 4.2, 4.3 & 4.4 respectively provided in the January 2015 SMDM. Rainfall amounts for the other storm events analyzed were taken from online data provided by http://precip.eas.cornell.edu/ "Extreme Precipitation in New York & New England".

Three (1) Analysis Pointes (Analysis Point #1, Analysis Point #2 and Analysis Point #3) were established to analyze the pre versus post stormwater runoff rates for the project site. Analysis Point #1 is located on the southern boundary of the project adjacent to the former railroad right of way. Analysis Point #2 is located along the northern boundary of the project site. Analysis Point #3 is located at the northeast corner of the project site.

2.3 Existing Drainage Conditions

Under Pre-Development Drainage Conditions, the site was separated into three (3) subareas with three (3) analysis points given the existing topography across the site. A description of the subareas is as follows:

Area #1: Area 1 consists of the subject parcel as well as portions of the offsite parcel to the east. Ground cover consists of wooded and meadow areas as well as impervious and lawn areas. Surface runoff from this area tends to flow to the north/northwest/southwest where it is collected by proposed onsite storm sewer where it combines with runoff from Area #2, Area #2A & Area #2B in the Detention Basin.

Area #2: Area 2 consists of the subject parcel as well as portions of the offsite parcel to the east. Ground cover consists of wooded and meadow areas as well as impervious and lawn areas. Surface runoff from this area tends to flow to the south/southwest where it ultimately discharges off the site at Analysis Point #2.

Area #3: Area 3 consists of the subject parcel as well as portions of the offsite parcel to the northeast. Ground cover consists of wooded areas as well as impervious and lawn areas. Surface runoff from this area tends to flow to the north/northeast where it ultimately discharges off the site at Analysis Point #3.

Refer to the HydroCAD analysis provided in Appendix E for more information.

Table 1 below provides a summary of Pre-Development runoff rates (CFS) at the chosen Analysis Points.

Table 1

	Analysis Point #1	Analysis Point #2	Analysis Point #3	Analysis Point #4
1-Year	1.99	1.77	1.17	0.15
2-Year	2.81	2.55	1.52	0.21
10-Year	5.91	5.52	2.74	0.47
100-Year	13.84	13.19	5.62	1.13

2.5 Proposed Drainage Conditions

Under Pre-Development Drainage Conditions, the site was separated into nine (9) subareas with four (4) analysis points given the existing topography across the site. A description of this subarea is as follows:

Area #1: Area 1 consists of the southeastern portion of the subject parcel as well as portions of the offsite parcel to the east. Ground cover consists of lawn, wooded, existing and proposed impervious areas. Surface runoff from this area tends to flow to the south/southwest where it ultimately discharges off the site at Analysis Point #1.

Area #2: Area #2 consists of the southern 1/3 of the access drives interior to the site. Ground cover generally consists of impervious roadway areas with some lawn/landscaped areas. Surface runoff is collected by the proposed storm sewers and discharges to the Bioretention Area. Discharge from the Bioretention Area combines with flow from Area #1 and Area #2B which flows into the Detention Basin where it combines with runoff from Area #2A.

Area #2A: Area #2A consists of the area draining directly into the Detention Basin. Ground cover consists of lawn. Surface runoff flows into the Detention Basin where it combines with discharge from the Bioretention Basin, Area #2, Area #2B and Area #1 before discharging to the Infiltration Basin.

5Area #2B: Area #2B consists of the central portion of the site. Ground cover consists of impervious areas associated with proposed pavement and roof areas as well as lawn and landscaped areas. Surface runoff flows into proposed storm sewers which combines with flow from Area #1 #2 before discharging to the Detention Basin.

Area #3: Area #3 consists of the area draining directly to the infiltration basin. Ground cover consists generally of lawn areas and approximately 50% of the roof area associated with the tri-plex townhome building. Surface runoff flows into the Infiltration Basin where it combines with discharge from the Detention Basin before combining with runoff from Area #6 at Analysis Point #1.

Area #4: Area #4 is located at the northeast corner of the site. Ground cover consists of impervious cover from the proposed driveway as well as existing driveway and roof areas along with lawn and some wooded areas. Surface runoff flows north to Analysis Point #3.

Area #5: Area #5 is the small perimeter area at the southwest corner of the project site. Ground cover generally consists of perimeter wooded areas with some lawn cover. Surface runoff flows west to Analysis Point #4.

Area #6: Area #6 is the perimeter area along the west side of the site. Ground cover generally consists of lawn with some wood cover. Surface runoff flows west to Analysis Point #1 where it combines with discharge from the Infiltration Basin.

Area #7: Area #7 is the perimeter area along the north side of the site. Surface cover generally consists of lawn with some impervious roof cover. Surface runoff flows northwest to Analysis Point #3.

Refer to the HydroCAD analysis provided in Appendix E for more information.

Table 2 below provides a summary of Post-Development runoff rates (CFS) at the chosen Analysis Points

Table 2

	Analysis Point #1 (Proposed	Analysis Point #2 (Proposed	Analysis Point #3 (Proposed	Analysis Point #4 (Proposed
1-Year	0.70	0.81	0.86	0.14
2-Year	1.00	1.04	1.11	0.21
10-Year	2.66	1.80	1.99	0.45
100-Year	13.79	3.58	4.03	1.07

Table 3 below provides a comparison of the Pre vs. Post Development runoff rates (CFS) at the chosen Analysis Points

Table 3

	Analysis Point #1 (Existing)	Analysis Point #1 (Proposed	Analysis Point #2 (Existing)	Analysis Point #2 (Proposed	Analysis Point #3 (Existing)	Analysis Point #3 (Proposed	Analysis Point #4 (Existing)	Analysis Point #4 (Proposed
1-Year	1.99	0.70	1.77	0.81	1.17	0.86	0.15	0.14
2-Year	2.81	1.00	2.55	1.04	1.52	1.11	0.21	0.21
10-Year	5.91	2.66	5.52	1.80	2.74	1.99	0.47	0.45
100-Year	13.84	13.80	13.19	3.58	5.62	4.03	1.13	1.07

In conclusion, this project does not substantially alter the existing site hydrology and drainage conditions.

2.6 Determine Water Quality Treatment Volume (WQv)

Per the NYSDEC Stormwater Design Manual (SMDM), Stormwater Quality is addressed by capturing and treating 100% of the runoff volume from the 90% annual storm event. This captured volume is considered the Water Quality Volume (WQv). WQv is directly related to the amount of impervious cover created/maintained on site.

As outlined in the NYSDEC SMDM, the WQv shall be calculated for 100% of the new impervious area. Within the disturbed area, **±1.54** acres of impervious cover will either be constructed. As a result, using the NYSDEC's Green Infrastructure Worksheets (11/09/2015 version), the calculated total WQv to be provided is **±7,405**CF (±0.17 ac-ft).

To address Water Quality concerns, one (1) bioretention area and one (1) infiltration base are proposed.

Bioretention Areas:

The SMDM outlines required elements to be incorporated into the design for bioretention which includes: pretreatment, separation from water table, minimum planting soil media depth and surface mulch treatments.

Pretreatment: As noted above, the SMDM requires that a grass filter strip and/or a gravel diaphragm be used as pretreatment. All bioretention areas will utilize a combination of stone mulch, filter fabric and outlet protection as well as a stone filter for pretreatment.

Separation from Water Table: The SMDM requires that a 2' vertical separation be maintained between the bottom of bioretention practices and the groundwater. Based on the geotechnical data available, we anticipate that the 2' separation can be achieved. Therefore, the bioretention areas do not need to be lined.

Minimum Planting Soil Media Depth: As outlined in the SMDM, the minimum bioretention soil media depth is 2.5' which equals the depth of soil media provided. The bioretention areas proposed all provide the required 2.5' minimum soil media depth.

Surface Mulch Treatments: The SMDM recommends that aged hardwood mulch be used as a surface treatment in the bioretention areas. However, in an effort to prolong the operational life of the bioretention area and possibly the introduction of additional phosphorus into the stormwater discharges, rolled river stone mulch on non-woven geotextile is proposed in lieu of hardwood bark mulch.

Maximum Ponding Depth: The SMDM recommends limiting the WQv ponding depth to no more than six (6) inches within the bioretention area. Flows in excess of the WQv would need to be discharged from the bioretention area(s) via a non-erosive outlet. The Bioretention Areas proposed all provide the 6 inches of available ponding between the stone mulch surface and the overflow outlet.

Infiltration Basin

The SMDM outlines required elements to be incorporated into the design for infiltration basins including: pretreatment, separation from water table, and infiltration requirements.

Pretreatment: The SMDM requires that pretreatment be sized to accommodate a minimum of 25% of the contributing WQv draining to the infiltration basin be provided. Pretreatment can be provided in the form of a sedimentation basin, sump pit, grass channel, plunge pool, or other such measures. In the event that the f_c for the underlying soils is greater than 2.00 inches per hour, pretreatment capable of accommodating 50% of the WQv must be provided. 100% of the WQv must be provided as pretreatment if the f_c for the underlying soils is greater than 5.00 inches per hour. Based on the infiltration test results observed during the geotechnical investigation (infiltration rate is 2.8 inch/hour), 50% of the WQv is provided as pretreatment via forebay in the detention basin. As a basis of design modeling the infiltration basin, an infiltration rate of 1.0 inches/hour was used.

Separation from Boundary Condition (i.e., Groundwater and/or Bedrock): The SMDM requires that the bottom of the infiltration basin be separated by at least three feet from the seasonally high water table or bedrock. Four feet of separation must be provided in sole source aquifers.

Based on the geotechnical boring information, groundwater nor bedrock were not encountered within 3 feet of the proposed bottom of the infiltration basin.

Infiltration Requirements: Infiltration practices shall be designed to exfiltrate the entire WQv within 48 hours of the storm event and shall have a minimum soil infiltration rate of 0.5 inches per hour. As noted above, all of the infiltration tests had an infiltration rate greater than 2 inches per hour. As a basis of design modeling the infiltration basin, an infiltration rate of 1.0 inches/hour was used.

Stormwater Hotspot Concern: According to the NYSDEC Stormwater Management Design Manual (SMDM), a Stormwater Hotspot is defined as a land use or activity that generates higher concentrations of hydrocarbons, trace metals or toxicants than are found in typical stormwater runoff, based on monitoring studies. Residential uses are not considered stormwater hotspots.

Refer to the Green Infrastructure worksheets provided in Appendix E for more information.

2.7 Runoff Reduction by Applying Green Infrastructure Techniques and Standard Stormwater Management Practices with RRv Capacity

The goal of Runoff Reduction Volume (RRv) as defined in Chapter 4 of the NYSDEC SMDM is the 100% reduction of the Water Quality Volume (WQv) by the application of green infrastructure techniques and Stormwater Management Practices (SMPs) to replicate pre-development hydrology. However, projects may experience limitations which may prevent this design goal from being achieved.

According to the NYSDEC Green Infrastructure Worksheets, a project that utilized an infiltration basin may receive a credit equaling 90% of the storage provided or the WQv, whichever is smaller. The bioretention area and infiltration basin was sized to provide a total RRv of ±**0.324** ac-ft. which exceeds the minimum RRv of **0.032** ac-ft.

Refer to the Green Infrastructure worksheets provided in Appendix E for more information.

2.8 Apply Standard Stormwater Management Practices to Address Remaining Water Quality Volume

As stated above, 100 % of the required WQv is addressed via the bioretention area and infiltration basin. Therefore, applying standard stormwater management practices to address the remaining WQv is not required.

2.9 Apply Volume Peak Rate Control Practices if Needed to Meet Requirements

Stream Channel Protection Volume, CPv:

CPv is defined as the 24-hour extended detention of the post-development 1-year, 24-hour storm event. As discussed in the SMDM the CPv requirement does not apply where a reduction in the total CPv volume is achieved through Runoff Reduction practices. While this project proposes Runoff Reduction practices as noted above, a total reduction of the CPv is not feasible. The enclosed calculations provided in Appendix C illustrates the initial total required CPv is **±0.239 ac-ft**. As noted in the SMDM, volume reduction achieved through green infrastructure can be deducted from the required CPv. Therefore, using the provided RRv noted above, the adjusted total required CPv is **±0.069 ac-ft**. This volume is temporarily detained within the proposed Detention Pond. With the provided average head on the low flow outlet, a 2.0" diameter orifice would be required to discharge the required CPv over 24 hours. Given the clogging potential of such an orifice size, a 2" perforated riser pipe is used which will connect to the orifice. Refer to Appendix C for CPv calculations for the Detention Pond.

Overbank Flood Control, Qp (10 year storm event):

Chapter 4 of the NYSDEC SMDM requires that Qp control be provided such that the peak discharge rate from the 10-year storm event under post-development conditions be reduced so to not exceed that of the pre-development conditions. As illustrated in Table 3 below, the 10-year storm event discharge rate under post-development conditions is less than that of the pre-development conditions. Therefore, this project satisfies the Overbank Flood Control (Qp) requirement.

Extreme Flood Control Criteria, Qf (100 year storm event):

Chapter 4 of the NYSDEC SMDM requires that Qf control be provided such that the peak discharge rate from the 100-year storm event under post-development conditions be reduced so to not exceed that of the pre-development conditions. As illustrated in Table 3 below, the 100-year storm event discharge rate under post-development conditions is less than that of the pre-development conditions. Therefore, this project satisfies the Extreme Control (Qf) requirement.

2.10 Reference the Map/Construction Drawing for the Descriptions, Dimensions, Material Specifications and Installation Details for each Post-Construction Stormwater Control Practice

Refer to Appendix B, for a reduced-size set of the Site Development Plans

2.11 Long Term Operation and Maintenance of Post-Construction Stormwater Management Practices

1. **General Landscape Maintenance**

- Landscape maintenance shall include necessary watering, cultivation, weeding, pruning, wound dressing, disease and insect pest control, protective spraying, straightening plants which lean or sag, adjustments of plants which settle or are planted too low, mowing, replacement of mulch that has been displaced, etc. Such maintenance shall be performed as needed or annually at minimum.

2. **Grass Area**

- Fertilize and lime as needed to maintain dense vegetation.
- Mow as required during the growing season to maintain grass heights at 4 inches to 6 inches.
- Inspect for pools of standing water. Re-grade to restore design grade and re-vegetate.
- Use of heavy equipment for mowing and removing plants/debris should be avoided to minimize soil compaction. Disturbed areas should be stabilized with seed and mulch, or revetment as necessary.

3. **SWMF Maintenance**

One Bioretention Area, one Detention Pond, and one infiltration basin have been selected to provide Stormwater Management for this project. Long term operation and maintenance and requirements are as follows:

- Plantings: Monitor annually and replace those that appear to be diseased, dead or dying in a timely manner. Prune and weed areas as necessary or at minimum once annually.
- Landscaping: Mow upland and adjacent areas as needed during growing season, and seed bare areas.
- Dewatering: If dewatering is required in the event of an unanticipated failure of the soil in the filtration zone, the standing water shall be pumped out of the bioretention areas. The water shall be discharged to

a stabilized outlet location and be conveyed off the project site in a non-erosive manner and the owner and engineer of record should be contacted to evaluate potential cause for failure and/or remediation plan.

- Storm Sewer Pipes: Inspect annually and remove any accumulated debris and sediment; make any necessary repairs.
- Bioretention Areas: Washed stone aggregate is proposed as a surface pretreatment for the bioretention areas. Areas where the stone has become silted up shall be excavated and fresh, clean stone applied as needed. Stone condition should be evaluated annually.
- Infiltration Basin: Washed stone aggregate is proposed as a surface treatment for the infiltration basin. Areas where the stone has become silted in shall be excavated and fresh, clean stone applied as needed. Stone condition should be evaluated annually. (Under no circumstances should heavy equipment be used to excavate the silted in stone.)

2.12 Logs of Borehole Investigations and Supporting Geotechnical Report (if applicable)

The boring logs are provided in Appendix E.

SECTION 3: CONSTRUCTION EROSION AND SEDIMENT CONTROL PLANS, VEGETATIVE MEASURES & CONTROL OF NON-STORMWATER DISCHARGES

3.1 Description of Temporary and Permanent Structural and Vegetative Measures

Permanent stabilization requires the soil restoration methods to be followed in lawn areas and seeding/ plantings be installed per the contract documents (see Appendix B).

A) Temporary Stabilization

Topsoil stockpiles and disturbed portions of the site where construction activity temporarily ceases for 14 days or more will be stabilized with temporary seed and mulch within 7 days of cessation of work. The temporary seed shall be annual rye applied at the rate of 100 lbs. per acre. After seeding, each area shall be mulched with 2 tons per acre or 3 bales per 1000 square feet of straw. The straw mulch is to be tacked into place by a disk with blades set nearly straight. Areas of the site that are to be paved will be temporarily stabilized by applying geotextile and stone sub-base until bituminous pavement can be applied.

B) Soil Restoration

Soil restoration **is a required practice** applied across areas of a development site where soils have been disturbed and will be vegetated in order to recover the original properties of the soil. Soil restoration is applied in the cleanup, restoration, and landscaping phase of construction followed by the permanent establishment of an appropriate, deep-rooted groundcover to help maintain the restored soil structure.

Soil restoration is required in areas where existing impervious areas will be converted to pervious areas. Contractor shall keep all construction equipment, staging and storage within the existing/proposed paved areas only. In areas where construction equipment use is required in and around areas to be landscaped, the Contractor shall perform Soil Restoration as discussed below.

Limits of Soil Restoration are shown on the Grading and Erosion Control Plans.

Below is a summary of soil disturbance activities related to land development, soil types and the requirements for soil restoration for each activity as outlined in the NYSDEC Stormwater Design Manual, Dated January 2015:

For soils having HSG A and/or B classification:

- Areas where topsoil is stripped only – no change in grade:
  1. Apply 6 inches of topsoil and protect area from any ongoing construction activities.

- Areas of cut or fill:
  1. Aerate and apply 6 inches of topsoil

- Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls):
  1. Apply full soil restoration [2] (de-compaction and compost enhancement)

- Areas where Runoff Reduction (bioretention) and/or Infiltration Practices are applied)
  1. Restoration not required, but may be applied to enhance the reduction specified for appropriate practices.

For soils having HSG C and/or D classification:

- Areas where topsoil is stripped only – no change in grade:
  1. Aerate[1] and apply 6 inches of topsoil and protect area from any ongoing construction activities.

- Areas of cut or fill:
  1. Apply full soil Restoration [2]

- Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls):
  1. Apply full soil restoration [2] (de-compaction and compost enhancement)

- Areas where Runoff Reduction (bioretention) and/or Infiltration Practices are applied)
  1. Restoration not required, but may be applied to enhance the reduction specified for appropriate practices.

- Redevelopment Projects

1. Soil restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.

[1] Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.

[2] per "Deep Ripping and De-compaction, DEC 2008". A copy is provided in Appendix E.

Compost shall be aged, from plant derived materials, free of viable weed seeds, have no visible free water or dust produced when handling, pass through a half inch screen and have a pH suitable to grow desired plants.

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

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

Contractor shall locate and avoid all underground utilities during soil restoration procedures. If depths of utilities are located in areas to be restored which prevent the achieving the soil restoration depth, the Contractor shall contact the Civil Engineer of Record and request directive.

At the end of the project an inspector should be able to push a 3/8" metal bar 12 inches into the soil just with body weight.

A copy of NYSDEC's Deep Ripping and Decompaction guidelines are provided in Appendix E.

C) <u>Permanent Stabilization</u>

Disturbed portions of the site where construction activities permanently cease shall have 6" of topsoil placed and be stabilized with permanent seed no later than 7 days after the last construction activity. Lime and fertilizer will be applied as determined by soil tests. After seeding, each area shall be mulched as described above. All slopes greater than or equal to 3H: 1V shall have jute or other erosion control fabric applied. Seed mix shall be as specified by the owner at the seed suppliers recommended rates.

D) <u>Off-Site Vehicle Tracking</u>

If the stabilized construction entrance is not sufficient to reduce vehicle tracking of sediments to an acceptable amount the contractor shall install a truck wash station on-site. The paved street adjacent to the site entrance will be swept daily to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

3.2 Reference the Map/Construction Drawing for the Material Specifications, Dimensions and Installation Details for All Erosion and Sediment Control Practices

See Appendix B, Site Development Plans:

3.3 Identification of Design Elements not in Conformance with the New York State Standard and Specifications for Erosion and Sediment Control

N/A

3.4 Inspection Schedule and Operation and Maintenance Schedule of all Erosion and Sediment Control Practices

Contractor Maintenance Inspection Requirements: The Permittee/Operator agrees to have the *"Trained Contractor"* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable timeframe.

As defined in the NYSDEC SPDES General Permit, a "Trained Contractor" is defined as an employee from the contracting (construction) company 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 Department endorsed entity. After receiving the initial training, the trained contractor shall receive four (4) hours of training every three (3) years. Copies of the trained contractor certification cards shall be kept in Appendix D of this SWPPP. Copies of the Contractor's daily inspections shall be kept in Appendix H of this SWPPP.

Qualified Inspector Inspection Requirements: The Permittee/Operator agrees to contract with a *"Qualified Inspector"* to conduct an assessment of the site prior to the commencement of construction and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

As defined in the NYSDEC SPDES General Permit, a *"Qualified Inspector"* is a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individuals(s).

It can also mean someone working under direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After 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.

"Qualified Professional" means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (See Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Following the commencement of construction, site inspections shall be conducted by the qualified professional once every 7 calendar days. During each inspection, the qualified professional will record the following information:

1) On a site map, indicate the extent of all disturbed site areas.
2) Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;
3) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;
4) Indicate all disturbed site areas that have not undergone active site work during the previous 14- day period
5) 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, 50 percent);
6) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures.
7) Document all deficiencies that are identified with the implementation of the SWPPP.

Copies of the inspection reports prepared by the Qualified Professional shall be provided to the Applicant, the Applicant's Contractor and the Town of Kingsbury's staff within 24 hours of the inspection.

See Appendix J for full schedule and corrective log book.

3.5 Description of the Structural Practices to Divert Flows

Not applicable.

3.6 Construction Phasing and Sequencing Plans

- Contractor shall denote the location of equipment storage/laydown, job trailers, porta-potty, waste receptacles, etc. On the construction drawings prior to the start of work.
- Protect existing vegetation and environmental features to remain.
- Protect existing utilities to remain
- Install perimeter sediment controls.
- Install stabilized construction entrance and temporary haul roads as necessary.
- Complete clearing and grubbing.
- Strip and stockpile topsoil within those areas to undergo minor grading activities. Topsoil stockpile shall be encircled by silt fence. Contractor to denote location of topsoil stockpile area(s) on the construction drawings.
- Begin site grading.
- Stabilize denuded areas within 14 days of last construction activity in each area.
- Install/place concrete washout area(s). Contractor to denote location of concrete washout area(s) on the construction drawings.
- Install utilities, solar arrays, conduits, etc.
- Complete grading, reapply topsoil, and perform soil restoration on any and all areas that were disturbed or compacted as a result of the construction operations.
- Install permanent seeding, fertilizer and mulch to stabilize the soils.
- Complete construction of stone driveway.
- Remove all temporary sediment control products after soils are stabilized.

3.7 Description of Pollution Prevention Measures to Control Construction Litter, Construction Chemicals and Debris

Note: blanks to be filled in prior to the pre-construction meeting

I. Pollution Prevention Measures (from Construction-Phase Operations other than soil disturbance)

A. ___________________________________ (site superintendent responsible for the day-to-day site operations) will be the spill prevention and cleanup coordinator.

B. Product Specific Practices:

The following product specific practices will be followed onsite:

1. Petroleum Products - All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer’s recommendations.

2. Fertilizers - Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

3. Paints - All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed according to manufacturers' instructions or state and local regulations.
4. Concrete Trucks - Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site.
5. Waste Disposal - All waste materials will be collected and stored in a securely lidded metal dumpster rented from ____, which is a licensed solid waste management company in __________________ (city). The dumpster will meet all local and any State solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as often as necessary, and the trash will be hauled to _________________________________ (landfill). No construction waste materials will be buried onsite. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the office trailer. ______________________________ (site superintendent responsible for the day-to-day site operations), will be responsible for seeing that these procedures are followed.
6. Hazardous Waste - All hazardous waste materials will be disposed of in the manner specified by local or State regulation or by the manufacturer. Site personnel will be instructed in these practices. _______________________________________ (site superintendent responsible for the day-to-day site operations) will be responsible for seeing that these practices are followed.
7. Sanitary Waste - All sanitary waste will be collected from the portable units a minimum of three times per week by ____________________________________, a licensed sanitary waste management contractor.
8. Recyclable Waste – All recyclable waste (cardboard, wood etc.) shall be collected and recycled.

II. On-Site Storage of Construction and Waste Materials

A. Spill Prevention Inventory: The materials or substances listed below are expected to be present onsite during construction: (Check appropriate boxes)

☐ Concrete	☐ Detergents	☐ Roofing shingles
☐ Metal studs	☐ Paints (enamel and latex)	☐ Wood
☐ Petroleum-based products	☐ Fertilizers	☐ Tar
☐ Masonry block	☐ Cleaning solvents	☐ Other (specify)

B. Material Management Practices

The following are the management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances listed above to stormwater runoff:

- ☐ Products will be kept in original containers unless they are not resealable.
- ☐ Original labels and material safety data sheets will be retained; they contain important product information.
- ☐ An effort will be made to store only enough product required to do the job.
- ☐ All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure and/or on blacktop.
- ☐ Products will be kept in their original containers with the original manufacturer’s label.
- ☐ Substances will not be mixed with one another unless recommended by the manufacturer.
- ☐ Whenever possible, all of a product will be used up before disposing of the container.
- ☐ Manufacturer’s recommendations for proper use and disposal will be followed.
- ☐ The site superintendent will inspect daily to ensure the proper use and disposal of materials onsite.
- ☐ Manufacturers’ recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- ☐ Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- ☐ All spills will be cleaned up immediately after discovery.
- ☐ The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- ☐ Spills, of any size, of toxic or hazardous material will be reported to the appropriate State or local government agency.
- ☐ The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

3.8 Description and Location of any Stormwater Discharges Associated with Industrial Activity other than Construction at the Site

N/A

SECTION 4: EXISTING AND PROPOSED MAPPING AND PLANS

4.1 Vicinity Map and Project Boundary

See Appendix A for site location map.

4.2 Existing and Proposed Topography

See Appendix B.

4.3 Location of Perennial and Intermittent Streams

The project drains to Lower Fall Creek and ultimately discharges to Cayuga Lake.

4.4 Map and Descriptions of Soils from USDA Soil Survey

Soil Name – Symbol	Hydrologic Soil Group
Bath, Valois, and Lansing soils, 35 to 60 percent slopes- BtF	C
Chenango gravelly loam, fan, 0 to 8 percent slopes- CnB	A
Darien gravelly silt loam, 2 to 8 percent slopes- DgB	C/D

See Appendix E for soil survey information.

4.5 Boundaries of Existing Vegetation and Proposed Limits of Clearing

See Appendix B.

4.6 Location & Boundaries of Resource Protection Areas such as Wetlands, Lakes, Ponds, etc.

Wetlands were not identified within this parcel according to US Fish and Wildlife wetland Mapper, as shown in Appendix A.

4.7 Boundary and Acreage of Upstream Watershed

Upstream watershed was not evaluated in this analysis.

4.8 Name and Locations of Receiving Waters

Site drains to Lower Fall Creek and ultimately discharges to Cayuga Lake.

4.9 Location of Existing and Proposed Roads, Lot Boundaries, Buildings and Other Structures

See Appendix B.

4.10 Location and Size of Staging Areas, Equipment Storage Areas, Borrow Pits, Waste Areas, and Concrete Washout Areas

The above referenced items will be determined at the preconstruction meeting. The contractor shall be responsible for denoting the location of these areas on the plans.

4.11 Existing and Proposed Utilities (Sewer, Water, Gas, etc) and Easements

See Appendix B.

4.12 Location and Flow Paths of Existing and Proposed conveyance Systems, such as Channels, Swales, Culverts, and Storm Drains

See Appendix B.

4.13 Location of Floodplain/Floodway Limits

This project site appears to be located within "Zone C" which is classified as areas outside the 500 year flood plain. Refer to Appendix A for a copy of the FEMA FIRM Map.

4.14 Location and Dimensions of Proposed Channel Modifications, such as Bridge or Culvert Crossings

See Appendix B.

4.15 Location, Size, Maintenance Access and Limits of Disturbance of Proposed Temporary and Permanent Stormwater Management and Erosion and Sediment Control Practices, Including Timing and Duration of Temporary Practices

See Appendix B.

4.16 Existing and Proposed Structural Elevation

See Appendix B.

4.17 Construction Drawings Identifying the Specific Locations and Sizes of each Post-Construction Stormwater Control Practice

See Appendix B.

4.18 Final Landscaping Plans

See Appendix B.

SECTION 5: RECORD KEEPING

5.1 Copy of NOI Signed by SWPPP Preparer, NOI Acknowledgement Letter

The NOI and NOI acknowledgement letter (when received) are located in Appendix C.

5.2 Contractor/Subcontractors; Name, Responsibilities, and Certification Statements

The owner or operator shall have each of the contractors and subcontractors identified sign a copy of the following certification statement before they commence any construction activity:

CONTRACTORS' CERTIFICATION

I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.

1. Name (please print) ____

Prime or General Contractor, President (or print title)

Signature: ______________________________________ Date: _______

____

For (Company Name and Address) Responsible For

2. Name (please print) ____

Subcontractor, President (or print title)

Signature: ______________________________________ Date: _______

____

For (Company Name and Address) Responsible For

3. Name (please print) ____

Subcontractor, President (or print title)

Signature: ______________________________________ Date: _______

____

For (Company Name and Address) Responsible For

5.3 Contractor/Subcontractors; Stormwater Training Cards and Numbers

Appendix D: will include Contractor/ Subcontractor training cards and numbers as soon as the contractor is selected.

5.4 Documentation from NYS-Historic Preservation Office

Nothing of cultural or historic significance has been identified on this site as shown by the Cultural Resource Information System found in Appendix A.

5.5 Documentation from the NYSDEC Division of Fish and Wildlife, New York Heritage Program

Appendix A shows that no rare or endangered plants or animals have been identified as possible habitation within this site as shown by the NYSDEC Environmental Resource Mapper.

5.6 Wetland Permit Documentation

Appendix A contains information identifying no wetlands present on this site according to US Fish and Wildlife Service's National Wetlands Inventory.

5.7 MS4 SWPPP Acceptance Form (if applicable)

The MS4 SWPPP Acceptance Form is located in appendix I.

5.8 Most Current Version of the NYS-DEC SPDES General Permit for Stormwater Discharges from Construction Activity

Appendix F includes the current version of the SPDES General Permit.

5.9 Revisions to SWPPP

Appendix K includes any revisions to the SWPPP.

5.10 Corrective Action Log

Appendix J includes the Corrective Action Log.

5.11 Plans Stamped by a Qualified Professional

Appendix B includes the Site Plans, which are stamped by Adam M. Fishel a licensed Professional Engineer.

This SWPPP has been prepared by Adam Fishel, a licensed Professional Engineer.

5.12 Dedication/As-Builts for all Post-Construction Stormwater Management Facilities

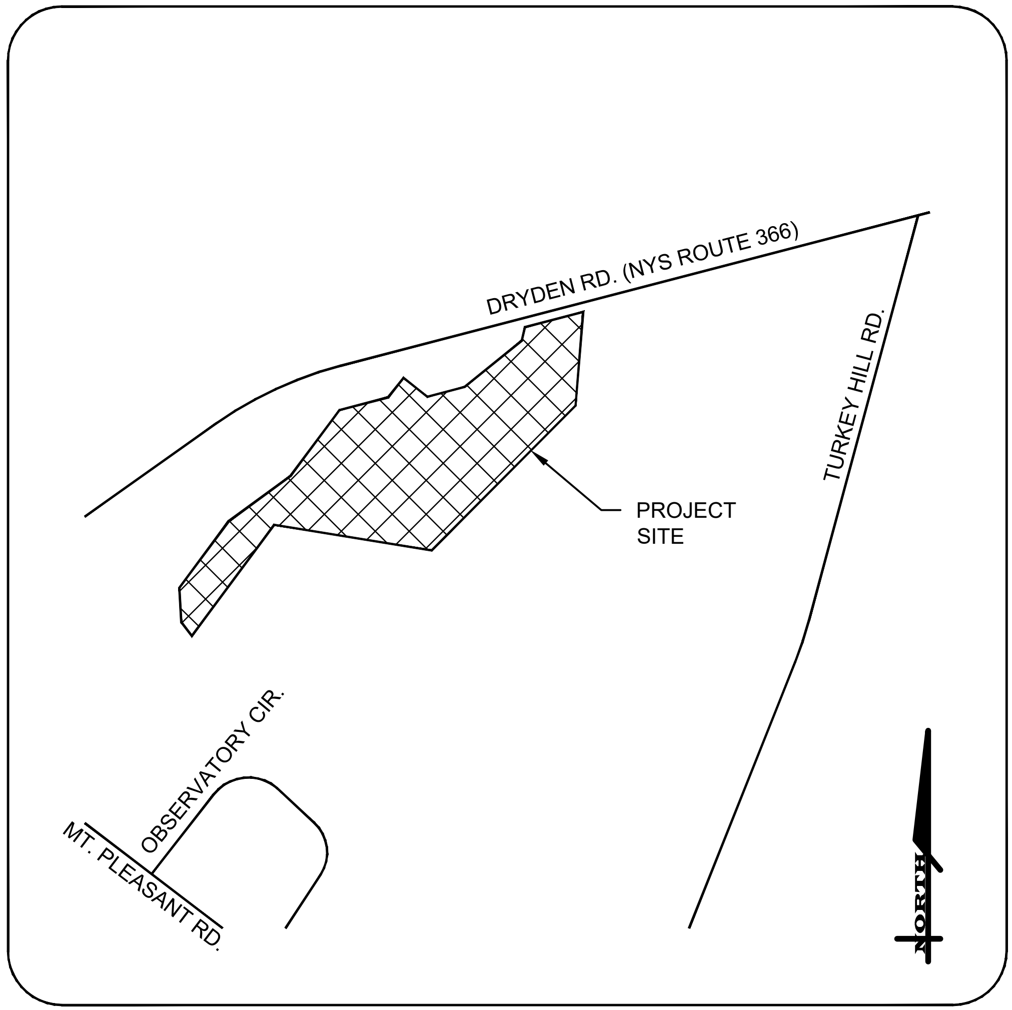
Not applicable.

5.13 Notice of Termination

Appendix C will include the NOT, once completed.

Appendix A

Maps and Figures



LOCATION MAP

N.T.S.


76° 26' 5" W
76° 25' 45" W
382040
382080
382120
382160
382200
382240
382280
382320
382360
382400
382440
382480
42° 27' 33" N
42° 27' 24" N
4701770
4701730
4701690
4701650
4701610
4701570
4701530
4701490
BtF
DgB
BtF
CnB
366
Dryden Rd
Soil Map may not be valid at this scale.
Map Scale: 1:2,090 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
30
60
120
180
Feet
0
100
200
400
600
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tompkins County, New York
Survey Area Data: Version 18, Sep 10, 2022

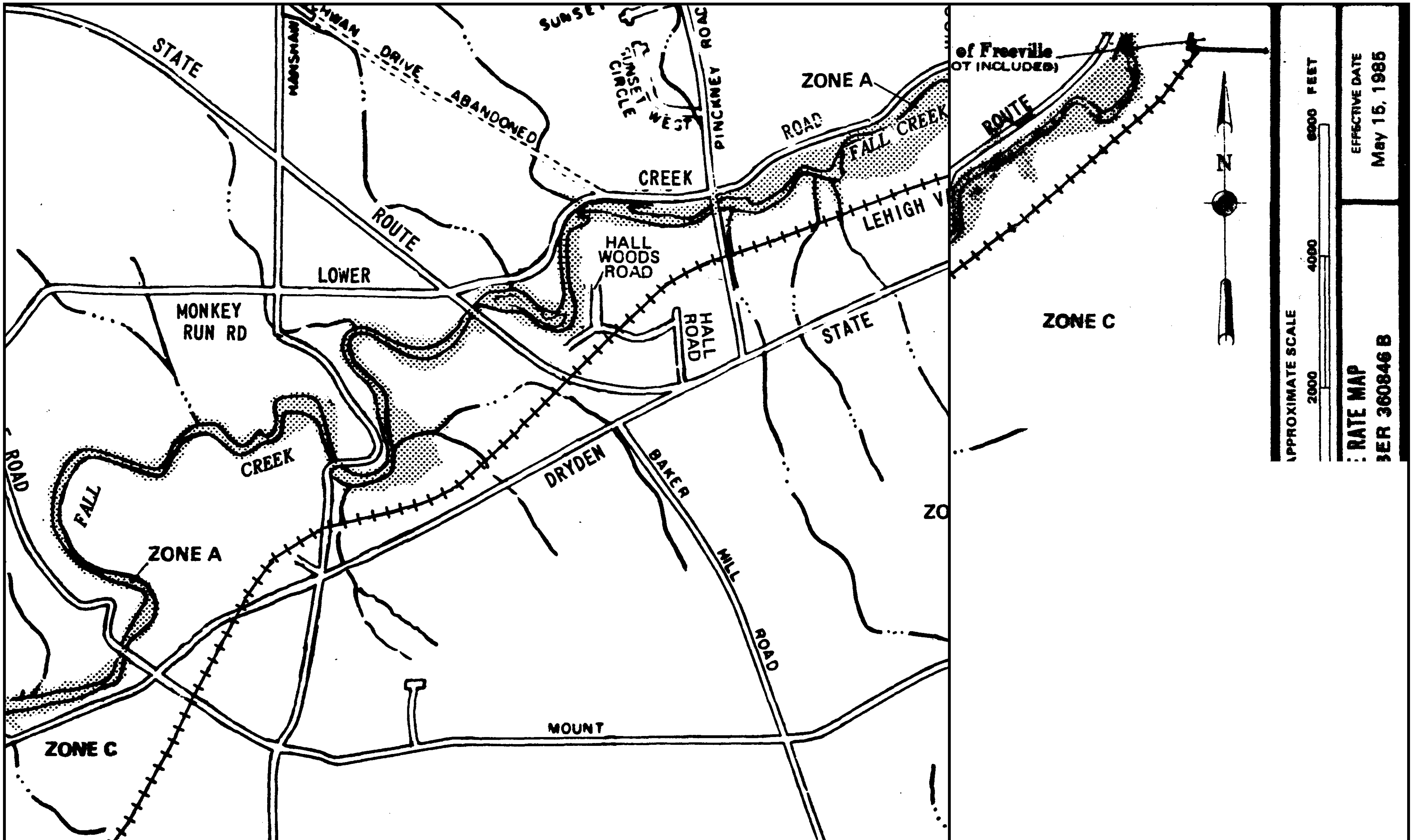
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2020—Oct 1, 2020

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

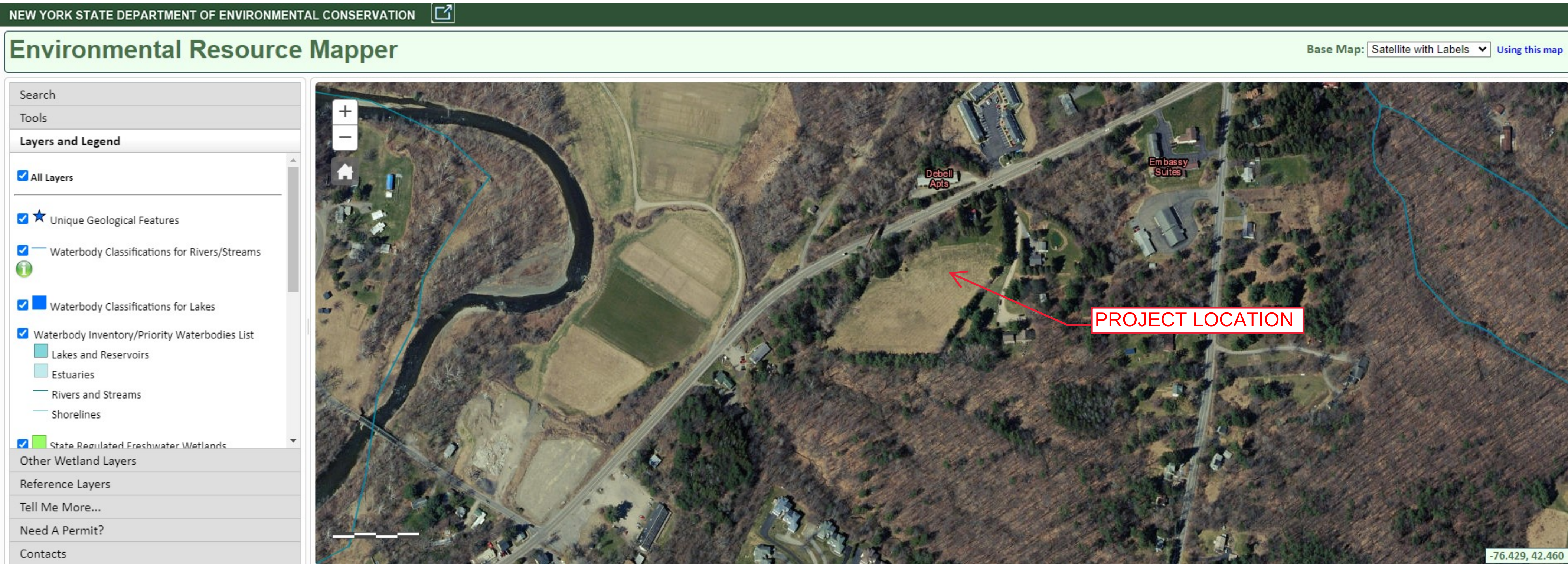
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BtF	Bath, Valois, and Lansing soils, 35 to 60 percent slopes	0.8	12.9%
CnB	Chenango gravelly loam, fan, 0 to 8 percent slopes	0.1	2.2%
DgB	Darien gravelly silt loam, 2 to 8 percent slopes	5.4	84.9%
Totals for Area of Interest		**6.4**	**100.0%**



This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.

03	federal emergency management agency **TOWN OF DRYDEN, NY** (TOMPKINS CO.)	APPROXIMATE SCALE 2000 0 2000 4000 6000 FEET **FLOOD INSURANCE RATE MAP** COMMUNITY NUMBER 360846 B	EFFECTIVE DATE May 15, 1985


NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Environmental Resource Mapper
Base Map: Satellite with Labels
Using this map
Search
Tools
Layers and Legend
All Layers
Unique Geological Features
Waterbody Classifications for Rivers/Streams
Waterbody Classifications for Lakes
Waterbody Inventory/Priority Waterbodies List
Lakes and Reservoirs
Estuaries
Rivers and Streams
Shorelines
State Regulated Freshwater Wetlands
Other Wetland Layers
Reference Layers
Tell Me More...
Need A Permit?
Contacts
Debell Apts
Embassy Suites
PROJECT LOCATION
-76.429, 42.460


CRIS
NYS
Cultural Resource Information System
HOME
SUBMIT
SEARCH
COMMUNICATE
Welcome Guest User | Contact Us | FAQ | Help | Sign
Debell Apts
PROJECT LOCATION
Embassy Suites
Varna Volunteer Fire Co Inc.
County of Tompkins, Esri, HERE, Garmin, iPC | New York State, Maxar, Microsoft
POWERED BY esri

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetland Inventory

March 23, 2023

Wetlands

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

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

Appendix B

Site Development Plans

(reduced size)

SITE DEVELOPMENT PLANS

FOR

PG DRYDEN, LLC

1061 DRYDEN ROAD / NYS RT. 366

SITUATED IN:

TOWN OF DRYDEN - TOMPKINS COUNTY - NEW YORK

PROJECT CONTACTS:

APPLICANT:
TIM CRILLY
PG DRYDEN, LLC
46 PRINCE STREET
ROCHESTER, NY 14607
(585) 481-6091

ARCHITECT:
JAMES FAHY DESIGN
2024 WEST HENRIETTA ROAD
ROCHESTER, NY 14623
(585) 272-1650

SANITARY SEWER:
RICK YOUNG
TOWN OF DRYDEN DEPARTMENT
OF PUBLIC WORKS
61 EAST MAIN STREET
DRYDEN, NY 13053
(607) 844-5188

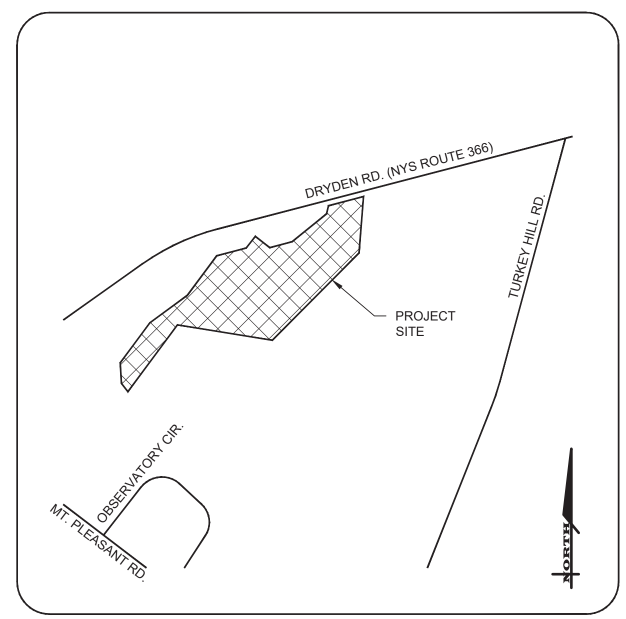
ELECTRIC:
NEW YORK STATE ELECTRIC & GAS
18 LINK DRIVE
BINGHAMTON, NY 13904
(607) 343-5283

SURVEYOR:
LEE DRESSER, L.S.
TG MILLER, PC
605 W STATE STREET SUITE A
ITHACA, NY 14850
(607) 272-6477

CIVIL ENGINEER:
ADAM M. FISHEL, PE
MARATHON ENGINEERING
840 HANSHAW ROAD, SUITE 12
ITHACA, NY 14850
(607) 241-2917

WATER:
BOLTON POINT WATER SYSTEM
STEVE RIDDLE
1402 EAST SHORE DRIVE
ITHACA, NY 14850
(607) 277-0660

GAS:
NEW YORK STATE ELECTRIC & GAS
18 LINK DRIVE
BINGHAMTON, NY 13904
(607) 343-5283



LOCATION MAP
N.T.S.

LEGEND:

EXISTING | **PROPOSED** | **DESCRIPTION**

- SIGN
- LIGHT POLE
- POWER POLE
- GAS MAIN & VALVE
- ELECTRIC CONDUIT & STRUCTURE
- TELEPHONE CONDUIT & STRUCTURE
- CENTERLINE AND STATIONING
- RIGHT-OF-WAY OR PROPERTY LINE
- CURB
- FENCE (DESCRIPTION)
- SANITARY SEWER WITH MANHOLE
- STORM SEWER, MANHOLE & FIELD/DROP INLET
- WATER MAIN WITH HYDRANT & GATE VALVE
- CENTERLINE OF SWALE
- CONTOUR
- DRAINAGE FLOW ARROW
- SPOT ELEVATION
- TREE LINE
- TREE PROTECTION
- PARKING SPACE COUNT

ABBREVIATIONS

ABBR.	TERM	ABBR.	TERM
AC.	ACRE	LS	LUMP SUM
A.O.B.E.	AS ORDERED BY ENGINEER	LT.	LEFT
ASPH.	ASPHALT	MB.	MAILBOX
AZ.	AZIMUTH	M.O.	MIDDLE ORDINATE
BL	BASELINE	MON.	MONUMENT OR MONTH
BM	BENCHMARK	MCGS	MONROE COUNTY GEODETIC SURVEY
℄	CENTERLINE	M.H.	MANHOLE
CLF	CHAIN LINKED FENCE	NEC.	NECESSARY
C.O.	CLEAN-OUT	N.I.C.	NOT-IN- CONTRACT
CONC.	CONCRETE	NTS	NOT TO SCALE
CPP	CORRUGATED POLYETHYLENE PIPE	N/F	NOW OR FORMERLY
CSP	CORRUGATED STEEL PIPE	PAV'T.	PAVEMENT
COV.	COVER	PE	POLYETHYLENE PIPE
CB	CURB BOX	PPE	PERFORATED POLYETHYLENE PIPE
CY	CUBIC YARD	PC	POINT OF CURVATURE
D.	DEGREE OF CURVE	PI	POINT OF INTERSECTION
DIA.	DIAMETER	PT	POINT OF TANGENCY
DI	DROP INLET	PVC	POINT OF VERTICAL CURVATURE
D.I.P.	DUCTILE IRON PIPE	PVI	POINT OF VERTICAL INTERESECTION
EA.	EACH	PVT	POINT OF VERTICAL TANGENCY
EIC	ENGINEER IN CHARGE	PP	POWER POLE
ELEV.	ELEVATION	PL	PROPERTY LINE
EP	EDGE OF PAVEMENT	R.	RADIUS
FF	FINISH FLOOR = FINISH FLOOR ELEVATION	RCP	REINFORCED CONCRETE PIPE
FI	FIELD INLET	RG&E	ROCHESER GAS AND ELECTRIC
FR.	FRAME	R.O.W.	RIGHT-OF-WAY
FP	FINISH PAD = GARAGE FLOOR ELEVATION	RT.	RIGHT
FT.	FEET	RTC	ROCHESTER TELEPHONE COMPANY
G	GAS MAIN	SA.	SANITARY SEWER
GAL.	GALLON	ST.	STORM SEWER
GR.	GRAVEL	STA.	STATION
G.R.	GUIDE RAIL	STY.	STORY
HCL	HORIZONTAL CONTROL LINE	SY	SQUARE YARD
HYD.	HYDRANT	T.	TANGENT DISTANCE
INV.	INVERT	TGL	THEORETICAL GRADE LINE
IP	IRON PIPE OR IRON PIN	TYP.	TYPICAL
L.	LENGTH OR LENGTH OF CURVE	VC	VERTICAL CURVE
LF	LINEAR FEET	VTP	VITRIFIED TILE PIPE
LP	LIGHT POST (PRIVATE)	Δ	CENTRAL ANGLE

LIST OF DRAWINGS

OWNER/ APPLICANT:

PG DRYDEN, LLC
46 PRINCE STREET
ROCHESTER, NY 14607

COPYRIGHT © 2023
MARATHON ENGINEERING
OF ROCHESTER, P.C.

DESIGNER CONTACT STATEMENT:
MARATHON ENGINEERING IS RESPONSIBLE FOR THE DESIGN OF THIS PROJECT. ADAM M. FISHEL, PE IS THE DESIGNER AND IS FAMILIAR WITH THE NYSDOT STANDARDS AND REQUIREMENTS AND SHALL BE CONTACTED AT (607) 241-2917 TO RESOLVE ISSUES OR PROBLEMS DURING CONSTRUCTION. ALL REVISIONS, INCLUDING REVISIONS NECESSARY DUE TO FIELD CONDITIONS, SHALL BE APPROVED BY THE NYSDOT.

MARATHON ENGINEERING
ROCHESTER LOCATION
39 CASCADE DRIVE
ROCHESTER, NY 14614
585-458-7770
ITHACA LOCATION
840 HANSHAW RD, STE 6
ITHACA, NY 14850
607-241-2917
www.marathoneng.com

SOIL RESTORATION REQUIREMENTS			
TYPE OF SOIL DISTUBANCE	*RESTORATION REQUIREMENTS*		*COMMENTS/EXAMPLES*
NO SOIL DISTURBANCE	RESTORATION NOT REQUIRED		PRESERVATION OF NATURAL FEATURES
MINIMAL SOIL DISTURBANCE	RESTORATION IS NOT REQUIRED		CLEARING & GRUBBING
AREAS WHERE TOPSOIL IS STRIPPED ONLY – NO CHANGE TO GRADE	HSG A & B: APPLY 6 INCHES OF TOPSOIL	HSG C & D: AERATE* & APPLY 6 INCHES OF TOPSOIL	PROTECT AREA FROM ANY ONGOING CONSTRUCTION ACTIVITIES
AREAS OF CUTS OR FILLS	HSG A & B: AERATE & APPLY 6 INCHES OF TOPSOIL	HSG C & D: APPLY FULL SOIL RESTORATION**	
HEAVY TRAFFIC AREAS (ESEPCIALLY WITHIN A ZONE OF 5-25 FFET AROUND BUILDINGS, BUT NOT WITHIN 5 FEET OF THE FOUNDATION WALLS)	APPLY FULL SOIL RESTORATION (DE-COMPACTION & COMPOST ENHANCEMENT)		
AREAS WHERE RUNOFF REDUCTION AND OR INFILTRATION PRACTICES ARE APPLIED	SOIL RESTORATION IS NOT REQUIRED, BUT MAY BE APPLIED TO ENHANCE THE REDUCTION SPECIFIED FOR APPROPRIATE PRACTICES		KEEP CONSTRUCTION EQUIPMENT FROM CROSSING THESE AREAS. TO PROTECT NEWLY INSTALLED PRACTICES FROM ANY ONGOING CONSTRUCTION ACTIVITIES, CONSTRUCT A SINGLE PHASE OPERATION FENCE AREA
REDEVELOPMENT PROJECTS	SOIL RESTORATION IS REQUIRED ON REDEVELOPMENT PROJECTS IN AREAS WHERE EXISTING IMPERVIOUS AREAS WILL BE CONV ERTED TO PERVIOUS		

*Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.

** Per "Deep Ripping and De -compaction, DEC 2008".

NOTES:

1. DURING PERIODS OF RELATIVELY LOW TO MODERATE SUBSOIL MOISTURE, THE DISTURBED SUBSOILS ARE RETURNED TO ROUGH GRADE AND THE FOLLOWING SOIL RESTORATION STEPS APPLIED:
   - APPLY 3 INCHES OF COMPOST OVER SUBSOIL.
   - TILL COMPOST INTO SUBSOIL TO A DEPTH OF AT LEAST 12 INCHES USING A CAT MOUNTED RIPPER, TRACTOR-MOUNTED DISC, OR TILLER, MIXING, AND CIRCULATING AIR AND COMPOST INTO SUBSOILS
   - ROCKPICK UNTIL UPLIFTED STONE/ROCK MATERIALS OF FOUR INCHES AND LARGER SIZE ARE CLEANED OFF THE SITE
   - APPLY TOPSOIL TO A DEPTH OF 6 INCHES

EROSION CONTROL

1. **CERTIFICATION** - THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH INCLUDES THE "GRADING PLAN", "EROSION CONTROL PLAN", "EROSION CONTROL NOTES", ALONG WITH THE "DRAINAGE REPORT", DEFINES AND MEETS THE REQUIREMENTS OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) LATEST STORM WATER REGULATIONS.
2. **CONTRACTOR RESPONSIBILITY** - ALL CONTRACTORS AND SUB-CONTRACTORS SHALL CERTIFY WITHIN THE SWPPP THAT THEY WILL IMPLEMENT AND MAINTAIN STORM WATER MANAGEMENT PRACTICES.
3. **INSPECTION** - EROSION CONTROL (EC) MEASURES INSTALLED AND MAINTAINED BY THE SITE WORK CONTRACTOR ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE: MUNICIPALITY, DESIGN ENGINEER, NYSDEC, AND OWNER'S REPRESENTATIVE. IMMEDIATE ACTION BY THE CONTRACTOR SHALL BE TAKEN IF ADDITIONAL OR CORRECTIVE MEASURES ARE REQUIRED BY ANY ONE OF THESE CITED REVIEWERS. EROSION CONTROL MEASURES NOT SPECIFICALLY SHOWN ON CONTRACT DRAWINGS (I.E.., STRAW BALES, COLLARS, FABRICS, ETC.) SHALL BE INSTALLED AS WARRANTED BY FIELD CONDITIONS, AND AS DIRECTED BY THE AFOREMENTIONED REVIEWERS.
4. **NOTIFICATION** - AS DESIGN ENGINEER, OUR OFFICE HAS NOTIFIED THE OWNER OF THE INSPECTION REQUIREMENTS UNDER GP-0-20-002. DISTURBANCES OF 1.0 ACRE OR GREATER REQUIRE THAT THE OWNER FILE A NOTICE OF INTENT (NOI) AND A SWPPP WITH THE NYSDEC UNDER STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) GENERAL PERMIT #GP-0-20-001. THE REGULATIONS REQUIRE THAT A LICENSED PROFESSIONAL COMPLETE A WEEKLY INSPECTION (THROUGHOUT THE PERIOD OF LAND DISTURBANCE).
5. **PRE-CONSTRUCTION** - THE APPROPRIATE EROSION CONTROL MEASURES AS DEFINED BY THE CONSTRUCTION DOCUMENTS SHALL BE INSTALLED PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. A PRE-CONSTRUCTION MEETING WITH THE TOWN OF DRYDEN SHALL OCCUR PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.
6. **TOPSOIL** - UPON COMPLETION OF THE STOCKPILE STRIPPING OPERATION, STOCKPILES SHALL BE STABILIZED IN ACCORDANCE TO NYSDEC REGULATIONS.
7. **SLOPES** - UPON COMPLETION OF GRADING, SLOPES WITH A GRADIENT OF ONE FOOT VERTICAL TO THREE FEET HORIZONTAL (1 ON 3) OR GREATER SHALL BE: TOPSOILED, SEEDED, FERTILIZED AND MULCHED OR TREATED AS SPECIFIED ON CONTRACT DRAWINGS.
8. **DUST** - THE CONTRACTOR SHALL APPLY WATER AND/OR CALCIUM CHLORIDE, AS CONDITIONS WARRANT, TO CONTROL WIND BORN EROSION. THIS MEASURE APPLIES TO: HAUL ROADS, CUT AND FILL OPERATIONS, SUB-BASE AND ANY OTHER EXPOSED SURFACES.
9. **OPERATION & MAINTENANCE** - THROUGHOUT THE PERIOD OF CONSTRUCTION AND PRIOR TO ESTABLISHING FINAL GROUND COVER THE SITE CONTRACTOR IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE TEMPORARY EROSION CONTROL MEASURES. FOR EXAMPLE, THE SILTATION FACILITIES SHALL BE RE-EXCAVATED WHEN THE VOLUME (3600 CUBIC FEET/DISTURBED ACRE) IS REDUCED BY ONE-HALF OR MORE OF ITS SPECIFIED CAPACITY AND/OR THE MATERIAL IS WITHIN ONE FOOT OF THE DISCHARGE POINT.
10. **WORK STOPPAGE** - ALL DISTURBED AREAS NOT TO BE WORKED WITHIN 14 DAYS MUST BE SEEDED WITHIN 7 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THAT AREA.
11. **TEMPORARY STABILIZATION** - TEMPORARY STABILIZATION SHALL REQUIRE 4 TONS OF STRAW/ ACRE OF DISTURBANCE PLACED WITH TACKIFIER OR ROLLED WITH A TRACKED VEHICLE TO ENSURE NOT DISPLACED.
12. **WINTER STABILIZATION** - ALL WINTER STABILIZATION METHODS IDENTIFIED IN THE NYS 'BLUE BOOK' SHALL BE FOLLOWED FOR ANY DISTURBANCE OR NON-STABILIZED AREAS FROM NOVEMBER 15TH - APRIL 1ST.
13. **SUBSOIL RESTORATION** - ALL AREAS TO BE RESTORED AS LAWN SHALL BE RESTORED PER CHAPTER 5 (5.1.6) OF THE NEW YORK STATE STORMWATER DESIGN MANUAL AND THE SOIL RESTORATION TABLE (TABLE 5.3 - SOIL RESTORATION REQUIREMENTS) SHOWN ON THE PLANS. THE PROJECT SOILS ARE HYDROLOGIC SOIL GROUP D AND SHALL BE RESTORED AS SPECIFIED.
14. **SEQUENCE** - THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES IN THE FOLLOWING SEQUENCE UNLESS AUTHORIZED OTHERWISE AT PRE-CONSTRUCTION MEETING:
    - INSTALL PERIMETER SEDIMENT CONTROLS, I.E. EROSION FENCING.
    - INSTALL STABILIZED CONSTRUCTION ENTRANCE.
    - PROTECT VEGETATION TO REMAIN.
    - CLEAR/GRUB AND CONSTRUCT DIVERSIONARY SWALES, AND SEDIMENT BASINS.
    - COMPLETE CLEARING AND GRUBBING OPERATION.
    - PLACE EROSION CONTROL MEASURES AT TOPSOIL STOCKPILES AND STRIP TOPSOIL.
    - CONSTRUCT SWALES AND SILTATION DEVICES AS EARTHWORK OPERATIONS PROGRESS.
    - MAINTAIN EROSION CONTROL MEASURES AND PLACE ADDITIONAL MEASURES AS EARTHWORK AND UNDERGROUND UTILITIES ARE CONSTRUCTED.
    - RESTORE AREAS AS DEFINED BY CONTRACT DOCUMENTS.
    - REMOVE EROSION CONTROL MEASURES AS AREAS ARE REESTABLISHED WITH GROUND COVER.

UTILITIES

1. STORM

1.1 REGULATIONS - STORM SEWERS AND APPURTENANCES SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE LATEST REGULATIONS OF THE MUNICIPALITY AND ALL THERMOPLASTIC PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D-2321.

1.2 MATERIALS - THE CONTRACTOR MAY USE THE FOLLOWING PIPE MATERIAL FOR THE MAIN SEWER AS ALLOWED BY THE MUNICIPALITY, PROVIDING THAT THE ROUGHNESS COEFFICIENT ("N" FACTOR) IS 0.013 OR BETTER:
- REINFORCED CONCRETE PIPE (RCP), CLASS III
- HIGH DENSITY CORRUGATED POLYETHYLENE PIPE (PE), AASHTO M-294, TYPE S, ASTM D-3350.

1.3 ROOF DRAINAGE - ALL ROOF DRAINAGE SHALL BE COLLECTED AND PIPED TO THE STORM SEWER SYSTEM UNLESS SPECIFIED OTHERWISE.

1.4 TESTING - UPON COMPLETION OF SYSTEM INSTALLATION, THE MAIN SEWER SYSTEM AND LEADS TO STRUCTURES SHALL BE FLUSHED AND LAMPED TO THE SATISFACTION OF THE MUNICIPALITY.

TOWN OF DRYDEN
MATERIAL AND PERFORMANCE STANDARDS
FOR WATER SYSTEM EXTENSIONS

1. Water pipe - Cl 52 Ductile Iron double cement lined (in accordance with AWWA C151 and AWWA C104).
2. Fittings - Ductile Iron double cement lined (in accordance with AWWA C151 and AWWA C104).
3. Services - type K copper tubing (min. size determined by the design professional).
4. Corp stop and curb stops - Brass body ball type.
5. Valves - Resilient seat gate with stainless steel bonnet blots (in accordance with AWWA C509).
6. Hydrants - Dry barrel (5 1/4") break top type with 6" MJ connection, guard valve, anchoring tee, one 4 1/2" nozzle (NST) and two 2 1/2" nozzles (NST) in accordance with AWWA C502.
7. Bedding - not required for mains in earth when at least 6" of earth exists beneath the bottom of the main (in rock it is to be bedded a minimum of 8'' on all sides).
8. Pipe bedding (mains) - # 1 stone, # 2 stone or a mix of #1 and #2 stone a minimum of 8'' on all sides. 1a stone bedding will not be allowed.
9. Refer to the Bolton Point Rules and Regulations for further information on testing and installation.
10. Backfill - Select earth (native material 6" and smaller in size and within 2% of optimum moisture content) to 2' below asphalt subgrade within the ditchlines of an existing or proposed Town road and to the surface in other areas. The top 2' below the asphalt subgrade within the ditchlines of an existing or proposed Town road shall be Item 4 Base material as outlined in the Town Road Specifications.
11. Placement and compaction of backfill - 8" lifts compacted to 95% of maximum density ASTM 698 between the ditch lines.
12. Surface restoration of existing Town roads – 2.5" of Type 3-asphalt binder and 1.5" of Type 7 asphalt top.
13. Work within a County or State ROW will be governed by the respective standards.

TOWN OF DRYDEN
MATERIAL AND PERFORMANCE STANDARDS
FOR SANITARY SEWER SYSTEM EXTENSIONS

1. Sewer pipe - SDR 35 PVC bedded a minimum of 8'' on all sides.
2. Pipe size - Main 8" (min.), Laterals 4" (min.).
3. Depth of cover - Mains 6' min. (except 4' in areas without conflict with water mains or services), Laterals 3' min.
4. Pipe bedding - # 1 stone, # 2 stone or a mix of #1 and #2 stone. 1a stone bedding will not be allowed.
5. Lateral connections to existing sewer - Romac Industries Style CB sewer saddle, 4" SDR 35 PVC extended to the edge of the road Right-of-Way (ROW), cap end.
6. Lateral connections to new sewer - SDR 35 PVC sanitary tee, extended to the edge of the road ROW, cap end.
7. Clean outs - Shall be provided at the edge of the ROW when the homes are connected to the sewer.
8. Manholes - precast concrete 4' diameter (5' for 3 way or interior drop) in accordance with ASTM C478 coated inside and out (including grouted joints, benchwork, and flow channel) with 2 coats of coal tar-epoxy coating.
9. Benchwork and flow channel - cast-in-place concrete.
10. Flow channel walls are to be vertical from the springline of the pipe to the top of the pipe and the benchwork slope at 1/2" per foot from that point to the wall of the manhole.
11. Frame and cover - Syracuse Castings Pattern 1009 with Flow Seal Cover (Sanitary Sewer cast into the cover in 2" letters).
12. Manhole steps - Copolymer polypropylene encapsulated steel in accordance with ASTM C478, 12" on center.
13. Testing - Sewer mains including laterals to the edge of the ROW shall be air tested.
14. Backfill - Select earth (native material 6" and smaller in size and within 2% of optimum moisture content) to 2' below asphalt subgrade within the ditchlines of an existing or proposed Town road and to the surface in other areas. The top 2' below the asphalt subgrade within the ditchlines of an existing or proposed Town road shall be Item 4 Base material as outlined in the Town Road Specifications.
15. Placement and compaction of backfill - 8" lifts compacted to 95% of maximum density ASTM 698 between the ditch lines.
16. Surface restoration of existing Town roads – 2.5" of Type 3-asphalt binder and 1.5" of Type 7 asphalt top.
17. Work within a County or State ROW will be governed by the respective standards.
18. Accurately record actual location of pipe runs, fittings, manholes, termination of laterals, couplings, lateral connections to the main, and invert elevations.

RESTORATION AND LANDSCAPING

1. **GUARANTEE** - THE **AGREEMENT BETWEEN THE OWNER AND CONTRACTOR SHALL** DEFINE THE REQUIREMENTS, MAINTENANCE, AND TIME TO ESTABLISH NEW TURF AND LANDSCAPING ACCEPTANCE BY THE OWNER.
2. **TOPSOIL** - PLACE A MINIMUM OF **4 INCHES** (REQUIRED) OF TOPSOIL ON ALL DISTURBED SURFACES. FINE GRADE TO ESTABLISH THE DESIGN ELEVATIONS AND DRAINAGE PATTERNS. OBTAIN OWNER'S REPRESENTATIVE APPROVAL PRIOR TO SEEDING.
3. **SEED** - LAWN AREAS SHALL BE HYDROSEEDED WITH AN APPROVED; SEED MIXTURE, MULCH, AND FERTILIZER. THE APPLICATION RATE SHALL BE DETERMINED BY CONTRACTOR TO ESTABLISH A "STAND" OF GRASS. THE CONTRACTOR SHALL SUBMIT MATERIAL AND APPLICATION SPECIFICATIONS TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO APPLICATION.
4. **PLANT STOCK** - PLANT MATERIALS SHALL BE IN ACCORDANCE WITH "AMERICAN STANDARD FOR NURSERY STOCK". THE CONTRACTOR SHALL SUBMIT PLANT MATERIAL SPECIFICATIONS TO THE OWNER'S ON-SITE REPRESENTATIVE FOR APPROVAL PRIOR TO DELIVERY TO THE SITE.
5. **PLANT LOCATIONS** - THE PLANT LOCATIONS DEPICTED ON THE PLAN MAY BE FIELD ADJUSTED (SO THEY DO NOT INTERFERE WITH UTILITIES) AND TO THE SATISFACTION OF OWNER'S REPRESENTATIVE.
6. **PLANTING BEDS** - PROVIDE TWELVE INCHES (12") OF TOPSOIL, WEED FABRIC (AS DIRECTED BY OWNER), AND THREE INCHES (3") OF MULCH AT PLANTING BEDS, UNLESS SPECIFIED OTHERWISE ON DRAWINGS.

LIGHTING NOTES

1. ALL LUMINARES TO BE AS SPECIFIED IN THE LUMINARE SCHEDULE ON THIS PLAN.
2. LIGHTING CONTOURS GENERATED USING LITEPRO SOFTWARE, VERSION 2.013 AS PROVIDED BY COLUMBIA LIGHTING, INC. AND MICROWARE CONCEPTS. LIGHTING CONTOURS REPRESENT THE ADDITIVE EFFECT OF LIGHTING FIXTURES.
3. LIGHTING CALCULATIONS ARE PERFORMED IN ACORDANCE WITH IESNA PROCEDURES.
4. LIGHTING CONTRACTOR SHALL PROVIDE SHIELDS RESULTING IN ZERO LIGHT SPILLAGE TO ADJACENT PROPERTIES.
5. REFER TO ARCH. PLANS FOR ROUTING OF SITE ELECTRICAL.

GENERAL

1. **APPLICABILITY** - THE NOTES AND INFORMATION PROVIDED ON THIS SHEET ARE APPLICABLE TO ALL "C" SERIES DRAWINGS. THE "C" SERIES DRAWINGS COVER SITE RELATED IMPROVEMENTS OUTSIDE THE BUILDING ENVELOPE. THE BUILDING ENVELOPE INCLUDES ALL AREA WITHIN 5' OUTSIDE OF THE BUILDING'S EXTERIOR WALL.
2. **MAPPING** - THE EXISTING UNDERGROUND UTILITIES WERE PLOTTED BASED ON RECORD MAPPING SUPPLIED BY OTHERS. THE ENGINEER MAKES NO WARRANTY AS TO THE LOCATION, SIZE, TYPE, ELEVATION, AND/OR NUMBER OF EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE VICINITY OF THE NEW INFRASTRUCTURE.
3. **UTILITY STAKEOUT** - THE CONTRACTOR SHALL NOTIFY UDIG NY (1-800-962-7962) FOR A UTILITY STAKEOUT 48 HOURS IN ADVANCE OF COMMENCING WORK. STAKEOUT OF PRIVATE UTILITIES SHALL BE COORDINATED WITH THE OWNER.
4. **PROPERTY PROTECTION** - THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO EXISTING PAVEMENT, CURBS, WALKS, LAWNS, TREES, ETC. CAUSED BY THEIR CONSTRUCTION OPERATIONS. ALL DAMAGE SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO THE OWNER'S SATISFACTION AT NO ADDITIONAL EXPENSE.
5. **ACCESS** - THE CONTRACTOR SHALL PROVIDE SATISFACTORY VEHICULAR ACCESS TO ALL ADJOINING PROPERTIES, PRIVATE ROADWAYS, PARKING FACILITIES, AND PUBLIC STREETS DURING CONSTRUCTION.
6. **SITE SAFETY** - PRIOR TO AND THROUGHOUT CONSTRUCTION, THE CONTRACTOR SHALL POST SIGNAGE IN CONFORMANCE WITH THE REQUIREMENTS OF THE LOCAL MUNICIPALITY AND OCCUPATIONAL HEALTH AND SAFETY ACT (OHSA). JOB SAFETY AND MAINTENANCE AND PROTECTION OF TRAFFIC IS THE RESPONSIBILITY OF THE CONTRACTOR.
7. **EXCAVATIONS** - ALL EXCAVATIONS SHALL BE BACKFILLED/BARRICADED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE CONCLUSION OF EACH WORKING DAY.
8. **MAINTENANCE** - PUBLIC STREETS, PRIVATE DRIVES AND PARKING FACILITIES SHALL BE KEPT FREE OF FOREIGN MATERIALS. ALL AREAS SHALL BE SWEPT CLEAN AT THE END OF EACH WORKING DAY AND/OR AS DIRECTED BY THE OWNER'S ON-SITE REPRESENTATIVE.
9. **CONSTRUCTION STORAGE** - STORAGE OF EQUIPMENT AND MATERIALS SHALL BE WITHIN A SPECIFIED AND SECURED AREA AS DETERMINED IN CONTRACT DOCUMENTS OR AS SPECIFIED BY THE OWNER'S ON-SITE REPRESENTATIVE.
10. **PERMIT(S)** - PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN THE NECESSARY PERMITS FROM THE APPLICABLE MUNICIPALITY OR AGENCY. THE CONTRACTOR IS RESPONSIBLE FOR ALL BONDS AND INSURANCES AND THE OWNER IS RESPONSIBLE FOR PERMIT FEES UNLESS OTHERWISE STATED IN THE OWNER/ CONTRACTOR AGREEMENT
11. **INTERIM CONDITIONS** - THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDINGS AND WITHIN PROJECT AREA TO A STABILIZED OUTLET THROUGHOUT THE CONSTRUCTION PERIOD. THIS MAY REQUIRE INTERIM GRADING, SHIMMING OF PAVEMENT ETC. THAT IS NOT SPECIFICALLY SHOWN ON THE PLANS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
12. **SPECIFICATIONS** - TECHNICAL SPECIFICATIONS, IF SUPPLIED AS PART OF CONTRACT DOCUMENTS, ARE INTENDED TO AID AND HELP DEFINE THE CONTRACTOR'S WORK SCOPE. IF DISCREPANCIES OCCUR THE CONTRACTOR SHALL REQUEST A CLARIFICATION.

CONSTRUCTION

1. **STAKEOUT** - THE CONSTRUCTION STAKEOUT SHALL BE PERFORMED BY A LICENSED LAND SURVEYOR USING CONTROL PROVIDED ON THE "LAYOUT PLAN". THE BUILDING FOOTPRINT(S), DATED 12/23/22, WERE PROVIDED BY HOLT ARCHITECTURE. DISCREPANCIES WITH BUILDING(S), CONTROL POINTS, AND/ OR TIE DIMENSIONS SHALL BE REPORTED TO THE DESIGN ENGINEER (PRIOR TO THE INSTALLATION OF IMPROVEMENTS) FOR COORDINATION AND CLARIFICATION.
2. **BOUNDARY** - BOUNDARY INFORMATION WAS TAKEN FROM BOUNDARY AND TOPOGRAPHIC MAP PREPARED BY TG MILLER ENGINEERS AND SURVEYORS DATED 10/21/2015 AND IS SHOWN FOR GRAPHICAL REPRESENTATION ONLY.
3. **LAYOUT** - DIMENSIONS SHOWN, WHERE APPLICABLE, SHALL BE FROM THE FACE OF CURB UNLESS SPECIFICALLY CALLED OUT OTHERWISE.
4. **DEMOLITION** - CLEARING AND GRUBBING SHALL BE LIMITED TO THE SITE BOUNDARIES OR WITHIN THE "WORK LIMIT LINE" AS DEFINED ON THE PLAN. TREES AND OBJECTS DESIGNATED FOR REMOVAL SHALL BE COORDINATED AND FIELD VERIFIED WITH PROJECT ON-SITE REPRESENTATIVE. ALL MATERIALS SHALL BE LEGALLY DISPOSED OF OFF-SITE OR RETURNED TO OWNER AS DIRECTED BY CONTRACT DOCUMENTS. ALL ITEMS NOT SPECIFICALLY CALLED OUT TO BE REMOVED SHALL REMAIN.
5. **COORDINATION** - THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITY WORK WITH OTHER SITE UTILITIES (I.E. GAS, ELECTRIC, LIGHTING, COMMUNICATIONS) TO AVOID POTENTIAL INSTALLATION CONFLICTS.
6. **STAGING** - AS DEFINED BY THE CONTRACT DOCUMENTS THE CONTRACTOR SHALL CONSTRUCT A SECURE STAGING AREA FOR STORAGE OF EQUIPMENT, MATERIALS, EMPLOYEE PARKING AND OFFICE SPACE. IF THE AREA/METHOD IS NOT SPECIFICALLY DEFINED ON THE DOCUMENTS THEN IT SHALL BE COORDINATED WITH THE OWNER'S ON-SITE REPRESENTATIVE.
7. **CLOSE-OUT** - THE CONTRACTOR'S WORK SCOPE INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING AT PROJECT CLOSE-OUT TO THE SATISFACTION OF OWNER'S ON-SITE REPRESENTATIVE:
   - REMOVAL OF ANY CONSTRUCTION DEBRIS.
   - CLEANING PAVEMENT AND WALKWAY SURFACES.
   - RESTORATION OF ALL DISTURBED GRASS AND LANDSCAPED AREAS.
   - PROVIDING BONDS, GUARANTEES, CERTIFICATIONS, ETC. AS REQUIRED BY CONTRACT DOCUMENTS.
   - PROVIDING REDLINES FOR RECORD DRAWING.
   - COMPLETION OF FINAL PUNCH LIST ITEMS.

EARTHWORK

1. **PREPARATION** - PRIOR TO START OF EARTHWORK OPERATIONS THE CONTRACTOR SHALL COMPLETE THE FOLLOWING APPLICABLE ITEMS AS DEFINED BY CONTRACT DOCUMENTS:
   - **SITE DEMOLITION** - REMOVAL AND DISPOSAL OFF-SITE IN A LEGAL MANNER; STRUCTURES, UTILITIES, PAVEMENTS, ETC.
   - **CLEARING AND GRUBBING** - REMOVAL AND DISPOSAL OFF-SITE IN A LEGAL MANNER; TREES, BRUSH, STUMPS, ETC.
   - **TOPSOIL STRIPPING** - STRIP AND STOCKPILE TOPSOIL FOR REUSE. EXCESS TOPSOIL MAY BE REMOVED FROM SITE WITH APPROVAL BY OWNER AND MUNICIPALITY.
2. **RESPONSIBILITY** - THE CONTRACTOR IS RESPONSIBLE FOR:
   - **ESTIMATE** - COMPLETION OF A QUANTITY TAKEOFF TO DETERMINE THE VOLUME OF CUT, FILL, AND TOPSOIL. COMPARE AND COORDINATE WITH INFORMATION PROVIDED BY THE DESIGN ENGINEER.
   - **GRADE TOLERANCES** - ESTABLISHING DESIGN SUBGRADE ELEVATIONS TO WITHIN ONE TENTH OF ONE FOOT (0.10') IN PAVEMENT AREAS (INCLUDING WALKS) AND TO WITHIN THIRTY-THREE HUNDREDTHS OF ONE FOOT (0.33') FOR ALL REMAINING AREAS.
   - **COMPACTION** - ACHIEVING THE SPECIFIED MINIMUM COMPACTION VALUES FOR EMBANKMENT/FILL AREAS. THE TERMS "FILL" AND EMBANKMENT" ARE INTERCHANGEABLE.
   - **CUTS** - ONCE EXCAVATIONS ARE SHAPED TO THE DESIGN GRADES THE AREAS SHALL BE PROTECTED TO ASSURE THAT THE INTEGRITY OF MATERIAL IS NOT COMPROMISED BY CONSTRUCTION VEHICLES AND/OR IMPROPER DRAINAGE. AREAS DETERMINED BY CONTRACTOR TO BE **NOT** SUITABLE FOR SUBGRADE PLACEMENT SHALL BE IMMEDIATELY REPORTED WHEN THE SUBGRADE IS ESTABLISHED TO OWNER'S REPRESENTATIVE. STABILIZATION MEASURES FOR CUT AREAS MAY BE CONSIDERED BY OWNER'S REPRESENTATIVE AS A CHANGE TO THE BASE CONTRACT.
3. **TESTING** - THE FOLLOWING MAXIMUM DRY DENSITIES SHALL BE ACHIEVED AS MEASURED BY THE MODIFIED PROCTOR METHOD ASTM D-1557:
   - **95%** UNDER PAVEMENTS, WALKS, AND IN STRUCTURAL FILL AREAS
   - **85%** IN REMAINING AREAS

   THE AGREEMENT BETWEEN THE OWNER AND CONTRACTOR SHALL DEFINE THE NUMBER OF TESTS AND RESPONSIBILITY. WE RECOMMEND IN EMBANKMENT AREAS ONE PER LIFT AND/OR ONE PER 1,000 CUBIC YARDS.
4. **LIFT THICKNESS** - THE MAXIMUM LIFT THICKNESS UNDER PAVEMENTS, WALKS, AND STRUCTURAL FILLS SHALL BE 12 INCHES. HAND OPERATED COMPACTION FILLS SHALL NOT EXCEED 6 INCHES.
5. **PROOF ROLLING** - THE OWNER'S REPRESENTATIVE MAY REQUEST A PROOF ROLL (I.E. LOADED TEN WHEELER) OF SUBGRADE AREAS PRIOR TO PLACEMENT OF SUBBASE MATERIALS. AREAS THAT "FAIL" SHALL BE REMOVED AND REPLACED TO ACHIEVE A PASSING SUBGRADE.

SEED & MULCH

SEED MIX SHALL BE TOWN & COUNTRY SEED MIX
AS MANUFACTURED BY CROSSMAN SEED CORPORATION.
SEED MIX SHALL CONSIST OF:
30% CREEPING RED FESCUE
20% GATOR 3 PERENNIAL RYEGRASS
20% ALL STAR 3 PERENNIAL RYEGRASS
20% KEYSTONE 2 PERENNIAL RYEGRASS
10% KENTUCKY BLUEGRASS 98 / 85
SEEDING RATE SHALL BE 6LBS./ 1000 S.F. OF PURE LIVE SEED.

MULCH: SHALL BE STRAW APPLIED AT 2 TONS/ACRE

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SITE DEVELOPMENT PLANS
for
EVERGREEN APARTMENTS /
PG DRYDEN, LLC
1061 DRYDEN ROAD (NYS ROUTE 366)
TOWN OF DRYDEN
TOMPKINS COUNTY
STATE OF NEW YORK

JOB NO:	1495-22
SCALE:	1"=30'
DRAWN:	RLJ
DESIGNED:	AMF
DATE:	8/30/23

REVISIONS

DATE	BY	REVISION
9/21/23	AF	TOWN SUBMITTAL
10/11/23	AF	TOWN SUBMITTAL

IT IS A VIOLATION OF NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209 FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER IN ANY WAY. AN ITEM BEARING THE SEAL OF A PROFESSIONAL ENGINEER OR LAND SURVEYOR. IF AN ITEM BEARING THE SEAL OF A PROFESSIONAL ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING ENGINEER OR LAND SURVEYOR SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

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STATE OF NEW YORK
ADAM MCKINLEY FISHEL
NO. 086648
LICENSED PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION
ADAM M. FISHEL

DRAWING TITLE:
Notes Sheet

1 of 18 SHEET No:	C-1.0 DRAWING No:
1495-22 JOB No:	

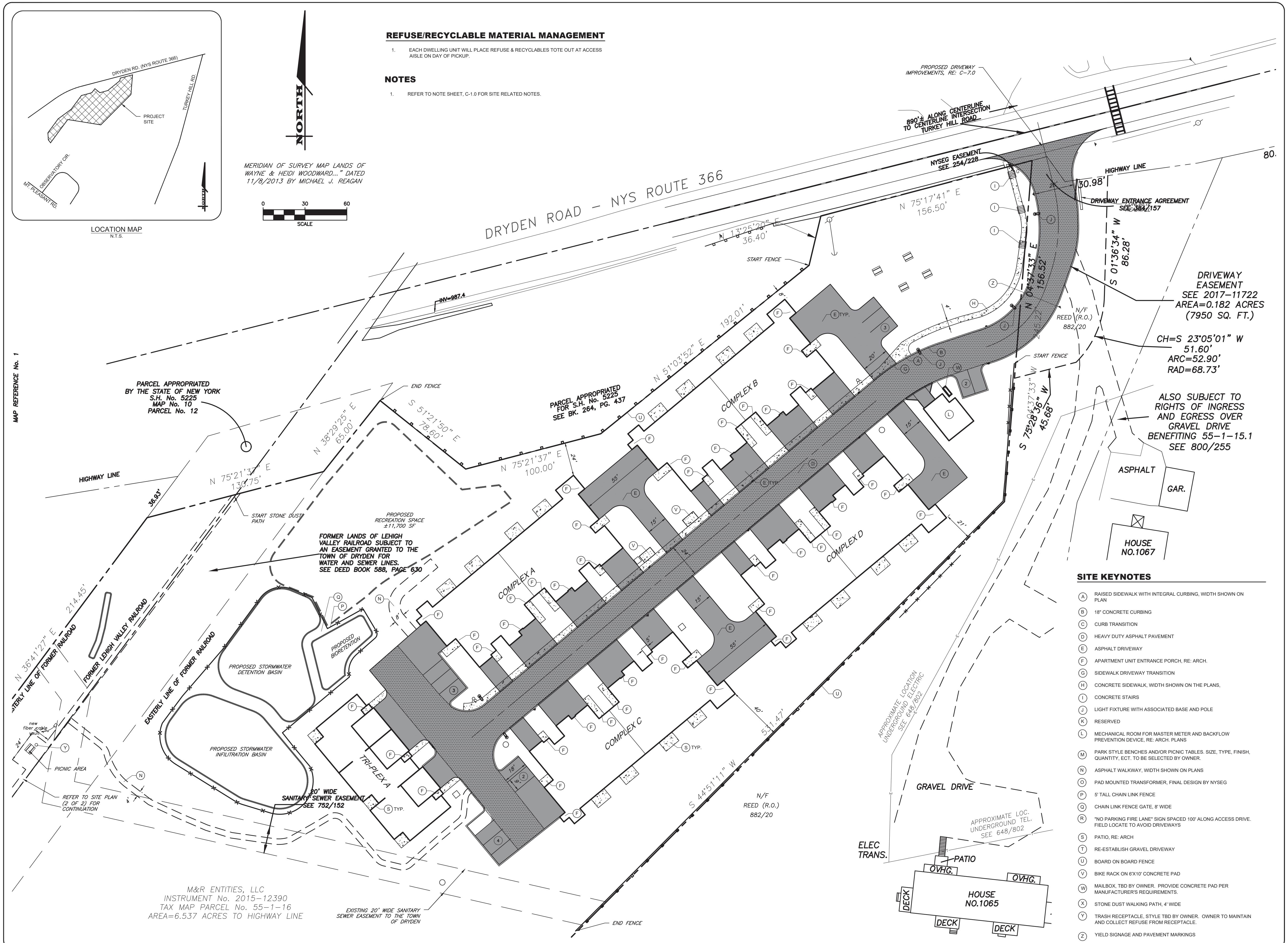
File: I:\Engineering\Job Files\1495-22\Drawings\Sheets\C-1.0 Notes Sheet.dwg, Last saved: 4/5/2023, Plot Date: 10/11/2023, By: AFISHEL, Plot Style: MARATHON STANDARD.CTB

REFUSE/RECYCLABLE MATERIAL MANAGEMENT

1. EACH DWELLING UNIT WILL PLACE REFUSE & RECYCLABLES TOTE OUT AT ACCESS AISLE ON DAY OF PICKUP.

NOTES

1. REFER TO NOTE SHEET, C-1.0 FOR SITE RELATED NOTES.



SITE KEYNOTES

- (A) RAISED SIDEWALK WITH INTEGRAL CURBING, WIDTH SHOWN ON PLAN
- (B) 18" CONCRETE CURBING
- (C) CURB TRANSITION
- (D) HEAVY DUTY ASPHALT PAVEMENT
- (E) ASPHALT DRIVEWAY
- (F) APARTMENT UNIT ENTRANCE PORCH, RE: ARCH.
- (G) SIDEWALK DRIVEWAY TRANSITION
- (H) CONCRETE SIDEWALK, WIDTH SHOWN ON THE PLANS,
- (I) CONCRETE STAIRS
- (J) LIGHT FIXTURE WITH ASSOCIATED BASE AND POLE
- (K) RESERVED
- (L) MECHANICAL ROOM FOR MASTER METER AND BACKFLOW PREVENTION DEVICE, RE: ARCH. PLANS
- (M) PARK STYLE BENCHES AND/OR PICNIC TABLES. SIZE, TYPE, FINISH, QUANTITY, ECT. TO BE SELECTED BY OWNER.
- (N) ASPHALT WALKWAY, WIDTH SHOWN ON PLANS
- (O) PAD MOUNTED TRANSFORMER, FINAL DESIGN BY NYSEG
- (P) 5' TALL CHAIN LINK FENCE
- (Q) CHAIN LINK FENCE GATE, 8' WIDE
- (R) "NO PARKING FIRE LANE" SIGN SPACED 100' ALONG ACCESS DRIVE. FIELD LOCATE TO AVOID DRIVEWAYS
- (S) PATIO, RE: ARCH
- (T) RE-ESTABLISH GRAVEL DRIVEWAY
- (U) BOARD ON BOARD FENCE
- (V) BIKE RACK ON 6'X10' CONCRETE PAD
- (W) MAILBOX, TBD BY OWNER. PROVIDE CONCRETE PAD PER MANUFACTURER'S REQUIREMENTS.
- (X) STONE DUST WALKING PATH, 4' WIDE
- (Y) TRASH RECEPTACLE, STYLE TBD BY OWNER. OWNER TO MAINTAIN AND COLLECT REFUSE FROM RECEPTACLE.
- (Z) YIELD SIGNAGE AND PAVEMENT MARKINGS

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TOWN OF DRYDEN
STATE OF NEW YORK

JOB NO:	1495-22
SCALE:	1"=30'
DRAWN:	RLJ
DESIGNED:	AMF
DATE:	8/30/23

REVISIONS

DATE	BY	REVISION
9/21/23	AF	TOWN SUBMITTAL
10/11/23	AF	TOWN SUBMITTAL

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STATE OF NEW YORK · ADAM MCKINLEY FISHEL · NO. 086648 · LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

ADAM M. FISHEL

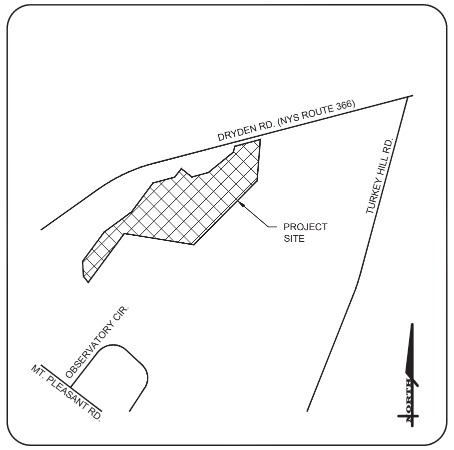
DRAWING TITLE:
Site Plan

2 of 18
SHEET No:

1495-22
JOB No:

C-2.0
DRAWING No:

File: I:\Engineering\Job Files\1495-22\Drawings\Sheets\C-2.0 Site Plan (1 of 2).dwg, Last saved: 10/11/2023, Plot Date: 10/11/2023, By: AFISHEL, Plot Style: MARATHON STANDARD.CTB



LOCATION MAP
N.T.S.

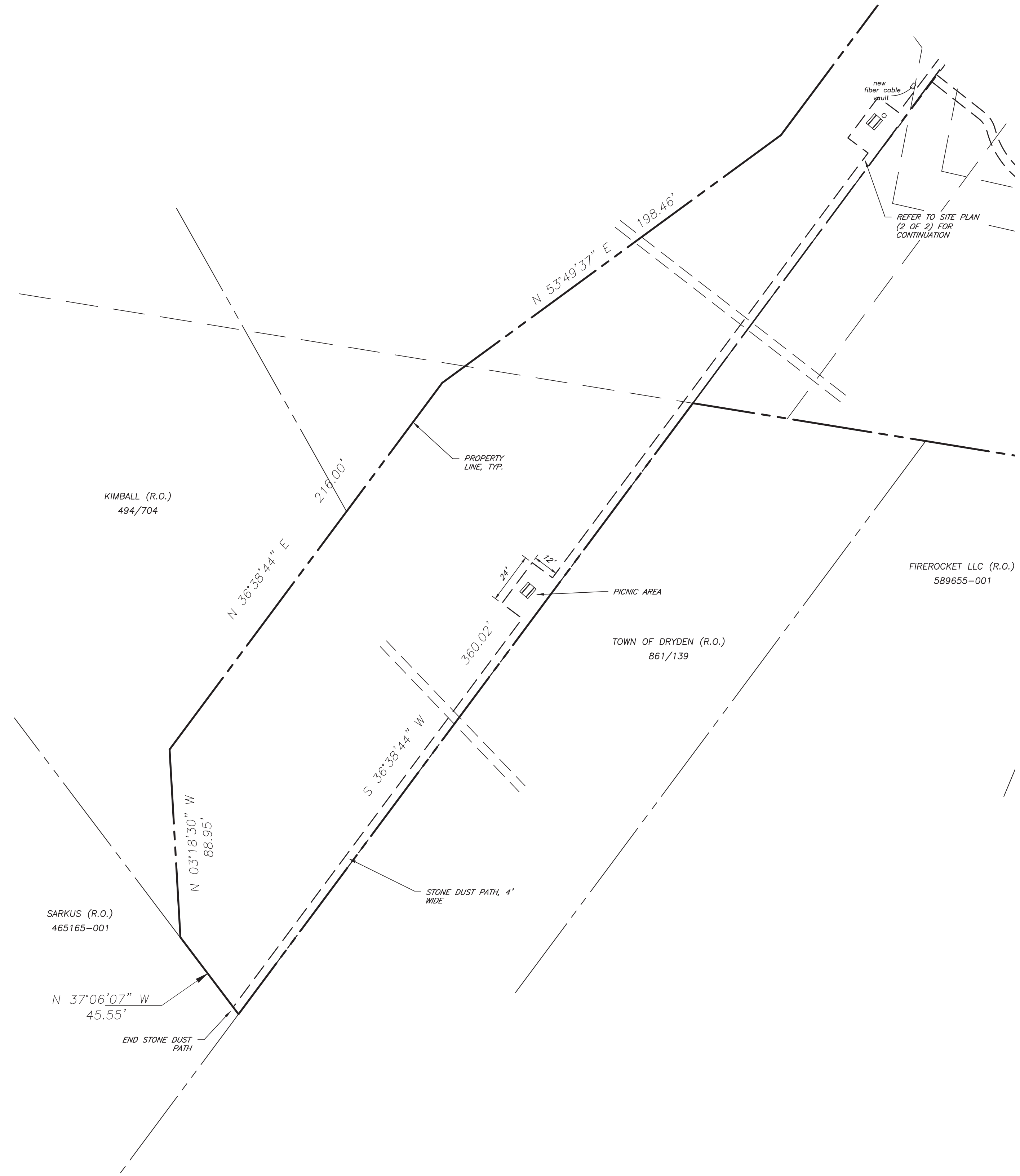
NORTH

MERIDIAN OF SURVEY MAP LANDS OF WAYNE & HEIDI WOODWARD..." DATED 11/8/2013 BY MICHAEL J. REAGAN

0 30 60
SCALE

NOTES

1. REFER TO NOTE SHEET, C-1.0 FOR SITE RELATED NOTES.



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SITE DEVELOPMENT PLANS
for
EVERGREEN APARTMENTS /
PG DRYDEN, LLC
1061 DRYDEN ROAD (NYS ROUTE 366)
TOWN OF DRYDEN
TOMPKINS COUNTY
STATE OF NEW YORK

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LICENSED PROFESSIONAL ENGINEER
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ADAM M. FISHEL

DRAWING TITLE:
Site Plan (2 of 2)

3 of 18
SHEET No:
C-2.1
1495-22
JOB No:
DRAWING No:

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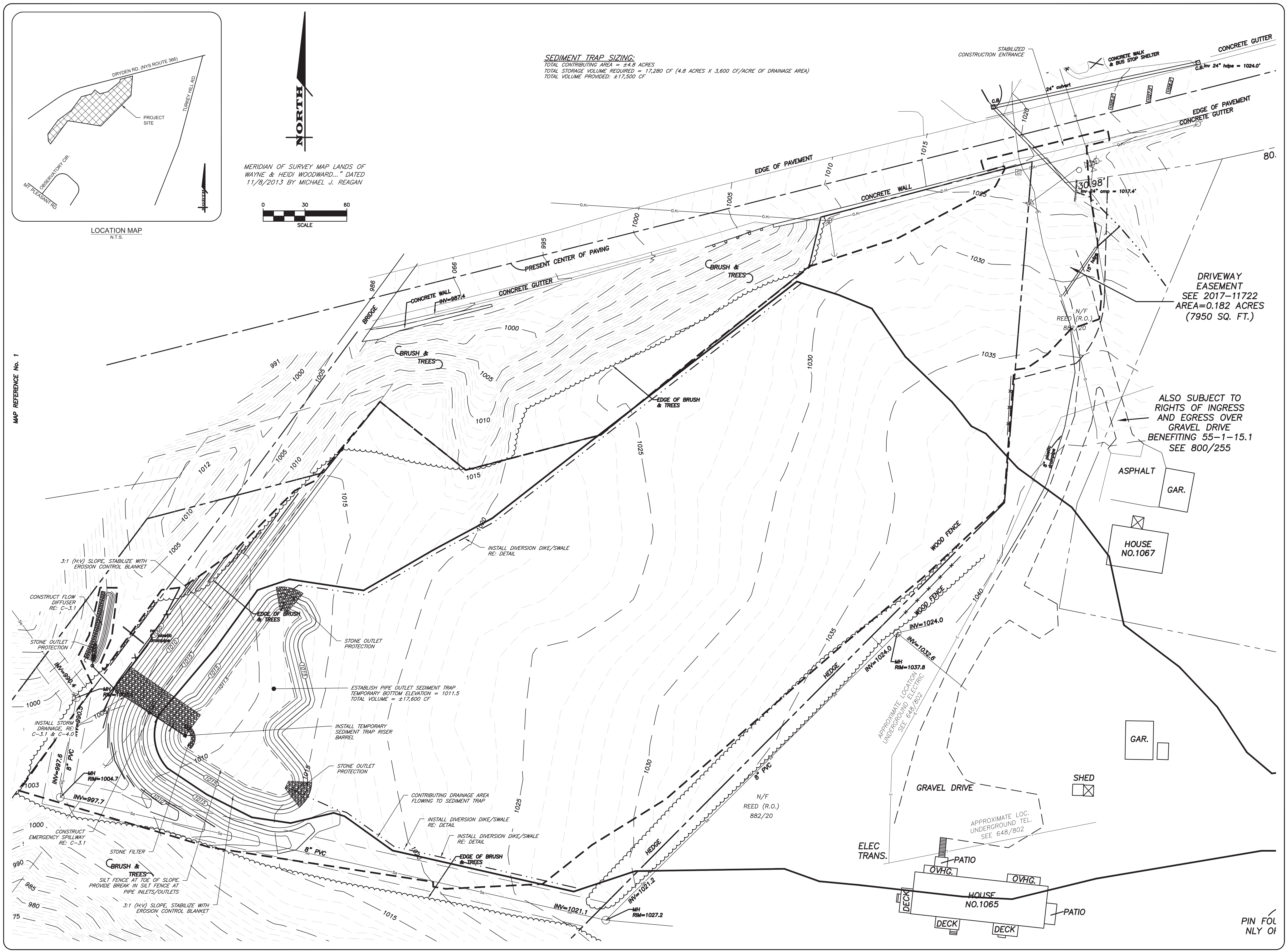

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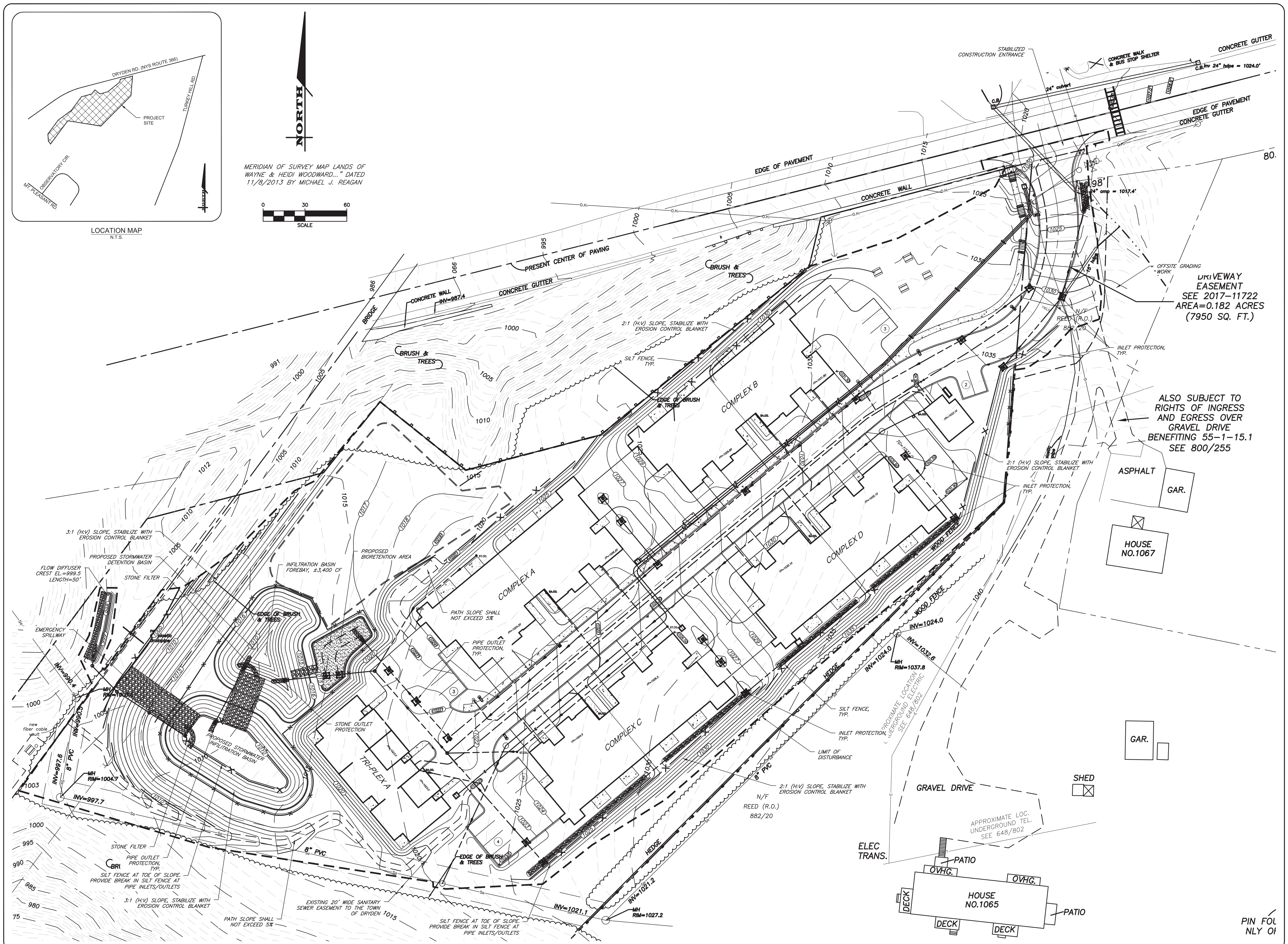
DRAWING TITLE:
Grading Drainage and Erosion Control Plan (1 of 2)

4 of 18
SHEET No:
1495-22
JOB No:
C-3.0
DRAWING No:

File: I:\Engineering\Job Files\1495-22\Drawings\Sheets\C-3.0 Grading, Drainage and Erosion Control Plan (1 of 2).dwg, Last saved: 10/11/2023, Plot Date: 10/11/2023, By: AFISHEL, Plot Style: MARATHON STANDARD.CTB



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DRAWING TITLE:
Grading Drainage and Erosion Control Plan (2 of 2)

5 of 18 SHEET No:	C-3.1 DRAWING No:
1495-22 JOB No:	

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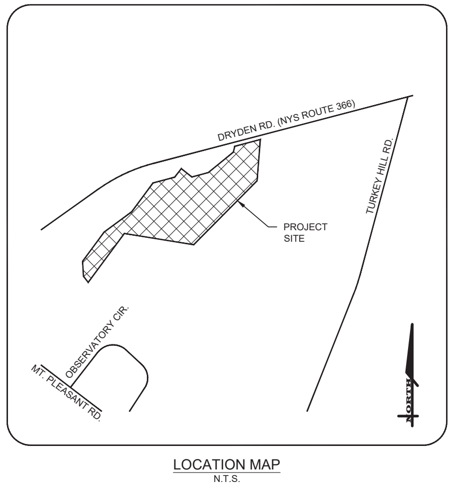


NORTH

MERIDIAN OF SURVEY MAP LANDS OF WAYNE & HEIDI WOODWARD..." DATED 11/8/2013 BY MICHAEL J. REAGAN

0 30 60
SCALE

DROP STRUCTURES

ALL STORM SEWER MANHOLES DENOTED AS "DROP MH" SHALL BE A DROP STRUCTURE WITH INTERNAL DROP PIPING. DROP PIPING AND FITTINGS SHALL BE RELINER/DURAN, INC. OR EQUAL. ALL PIPING, FITTINGS, MOUNTING ETC. SHALL BE IN ACCORDANCE WITH RELINER/DURAN, INC. RECOMMENDATIONS.

HYDRO-DYNAMIC WATER QUALITY STRUCTURE NOTES:

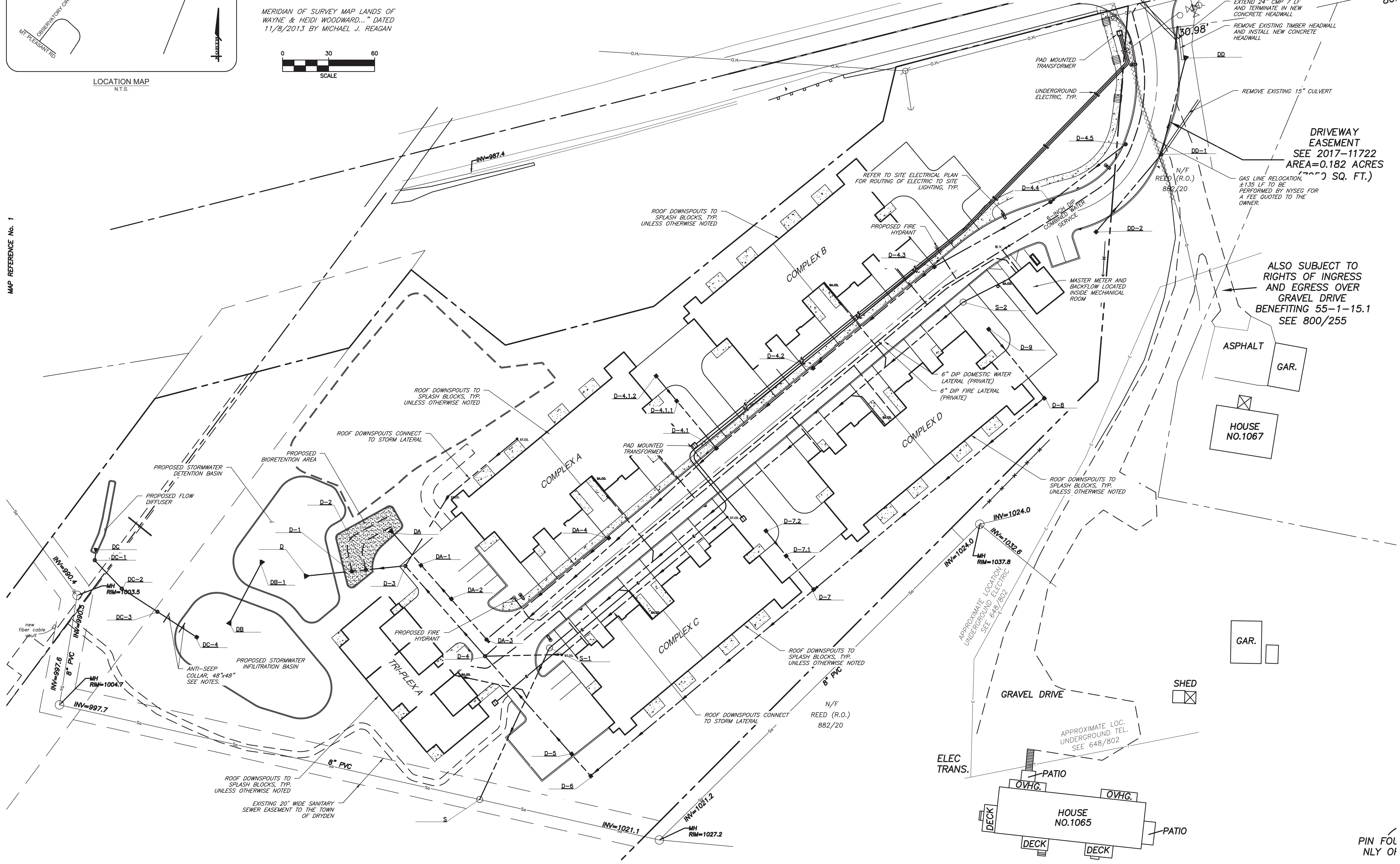
1. THE HYDRO-DYNAMIC WATER QUALITY STRUCTURE SHALL BE ADS BARRACUDA S4.

ANTI SEEP COLLAR NOTES

1. ANTI-SEEP COLLARS SHALL BE AGRI-DRAIN OR APPROVED EQUAL. THE CONTRACTOR MAY USE 200 PSI FLOWABLE FILL FORMED TO THE STATED DIMENSIONS WITH A THICKNESS OF 1' AS A SUBSTITUTE TO THE AGRIDRAIN COLLAR.

NOTES

1. REFER TO NOTE SHEET FOR UTILITY NOTES.
2. REFER TO UTILITY PLAN (2 OF 2), C-4.1 FOR SANITARY SEWER SCHEDULE.
3. REFER TO UTILITY PLAN (2 OF 2), C-4.1 FOR STORM SEWER SCHEDULE.



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ADAM M. FISHEL

DRAWING TITLE:
Utility Plan (1 of 2)

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SHEET No:
C-4.0
1495-22
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DRAWING No:

SANITARY SEWER SCHEDULE

STRUCTURE ID	STRUCTURE TYPE	TOP OF RIM	INVERT OUT	INVERT IN	LENGTH (FT)	PIPE DIA. & MAT'L	SLOPE (%)
S-2 S-2 TO S-1	PROPOSED 4' DIA. MANHOLE	1032.00	1025.62	1025.72	161	6" PVC.	5.00%
S-1 S-1 TO S	PROPOSED 4' DIA. MANHOLE	1023.40	1017.47	1017.57	109	6" PVC.	3.00%
S -	PROPOSED 4' DIA. DOG HOUSE	1020.80	1014.10	1014.20	-	-	-

NOTES:

(1) INVERT ELEVATION OF EXISTING SANITARY SEWER SHOWN IS APPROXIMATE. CONTRACTOR TO CONFIRM PRIOR TO THE START OF WORK.

DRAINAGE SCHEDULE (D)

STRUCTURE DESIGNATIONS	FROM	TO	DIA. (IN)	PIPE MAT'L	LENGTH (FT)	SLOPE (%)
30x30 CB	**D-9**	D-8				
TG	1031.00					
INV=	1026.94	1025.80	12	HDPE	57	2.00%
30x30 CB	**D-8**	D-7				
TG	1031.85					
INV=	1025.80	1021.88	12	PERF. HDPE	196	2.00%
30x30 CB	**D-7.2**	D-7.1				
TG	1025.90					
INV=	1021.88	1021.68	12	HDPE	20	1.00%
30x30 CB	**D-7.1**	D-7				
TG	1025.90					
INV=	1021.68	1021.40	12	PERF. HDPE	28	1.00%
30x30 CB	**D-7**	D-6				
TG	1025.90					
INV=	1021.40	1017.64	12	PERF. HDPE	188	2.00%
30x30 CB	**D-6**	D-5				
TG	1023.90					
INV=	1017.64	1016.74	15	HDPE	18	5.00%
30x30 CB	**D-5**	D-4				
TG	1023.70					
INV=	1016.74	1012.54	15	HDPE	84	5.00%
INMH 4	**D-4.5**	D-4.4				
TG	1030.10					
INV=	1027.05	1025.34	12	HDPE	62	2.75%
INMH 4	**D-4.4**	D-4.3				
TG	1032.00					
INV=	1025.34	1022.95	12	HDPE	87	2.75%
30X30 CB	**D-4.3**	D-4.2				
TG	1031.40					
INV=	1022.95	1020.15	12	HDPE	102	2.75%
30X30 CB	**D-4.2**	D-4.1				
TG	1028.60					
INV=	1020.15	1018.12	15	HDPE	81	2.50%
30X30 CB	**D-4.1.2**	D-4.1.1				
TG	1025.50					
INV=	1021.22	1020.17	15	HDPE	21	5.00%
30X30 CB	**D-4.1.1**	D-4.1				
TG	1025.50					
INV=	1020.17	1018.12	15	HDPE	41	5.00%
30X30 CB	**D-4.1**	D-4				
TG	1026.50					
INV=	1018.12	1012.54	15	HDPE	203	2.75%
MH 4	**D-4**	D-3				
TG	1022.00					
INV=	1012.54	1011.76	18	HDPE	78	1.00%
MH 4	**D-3**	D-2				
TG	1021.90					
INV=	1011.76	1011.50	18	HDPE	26	1.00%
INMH 4	**D-2**	D-1				
TG	1015.50					
INV=	1011.50	1011.41	18	HDPE	9	1.00%
INMH 4	**D-1**	D				
TG	1015.50					
INV=	1011.41	1011.00	18	HDPE	28	1.46%
ES	**D**					
INV=	1011.00					

DRAINAGE SCHEDULE (DA)

STRUCTURE DESIGNATIONS	FROM	TO	DIA. (IN)	PIPE MAT'L	LENGTH (F	SLOPE (%)
30X30 CB	**DA-4**	DA-3				
TG	1024.1					
INV=	1019.07	1018.04	12	HDPE	103	1.00%
INMH 4	**DA-3**	DA-2				
TG	1021.3					
INV=	1018.04	1016.34	18	HDPE	34	5.00%
30X30 CB	**DA-2**	DA-1				
TG	1021.3					
INV=	1016.34	1015.78	18	HDPE	28	2.00%
30X30 CB	**DA-1**	DA				
TG	1021.3					
INV=	1015.78	1015.00	18	HDPE	26	3.00%
ES	**DA**					
INV=	1015					

DRAINAGE SCHEDULE (DB)

STRUCTURE DESIGNATIONS	FROM	TO	DIA. (IN)	PIPE MAT'L	LENGTH (F	SLOPE (%)
OCS1	**DB-1**	DB				
TR	1014.00					
INV=	1010.43	1010.00	18	HDPE	43	1.00%
ES	**DB-1**					
INV=	1010.00					

DRAINAGE SCHEDULE (DC)

STRUCTURE DESIGNATIONS	FROM	TO	DIA. (IN)	PIPE MAT'L	LENGTH (F	SLOPE (%)
OCS2	**DC-4**	DC-3				
TR	1010.00					
INV=	1005.40	1004.50	24	PVC	30	3.00%
MH 4	**DC-3**	DC-2				
TR	1015.00					
INV=	999.65	998.81	24	PVC	28	3.00%
MH 4	**DC-2**	DC-1				
TR	1005.90					
INV=	998.81	998.06	24	PVC	25	3.00%
MH 4	**DC-1**	DC				
TR	1002.00					
INV=	998.06	998.00	24	PVC	5	1.20%
ES	**DC**					
INV=	998					

DRAINAGE SCHEDULE (DD)

STRUCTURE DESIGNATIONS	FROM	TO	DIA. (IN)	PIPE MAT'L	LENGTH (FT)	SLOPE (%)
30X30 CB	**DD-2**	DD-1				
TG	1032.90					
INV=	1029.02	1026.51	15	HDPE	66	3.80%
INMH 4	**DD-1**	DD				
TG	1030.20					
INV=	1026.51	1024.00	15	HDPE	66	3.80%
ES	**DD**					
TR	1024.00					

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Utility Plan (2 of 2)

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SHEET No:
1495-22
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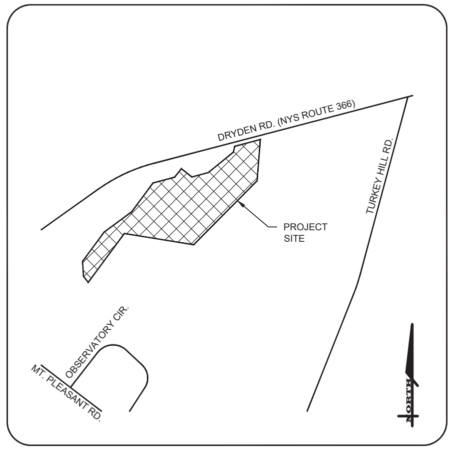
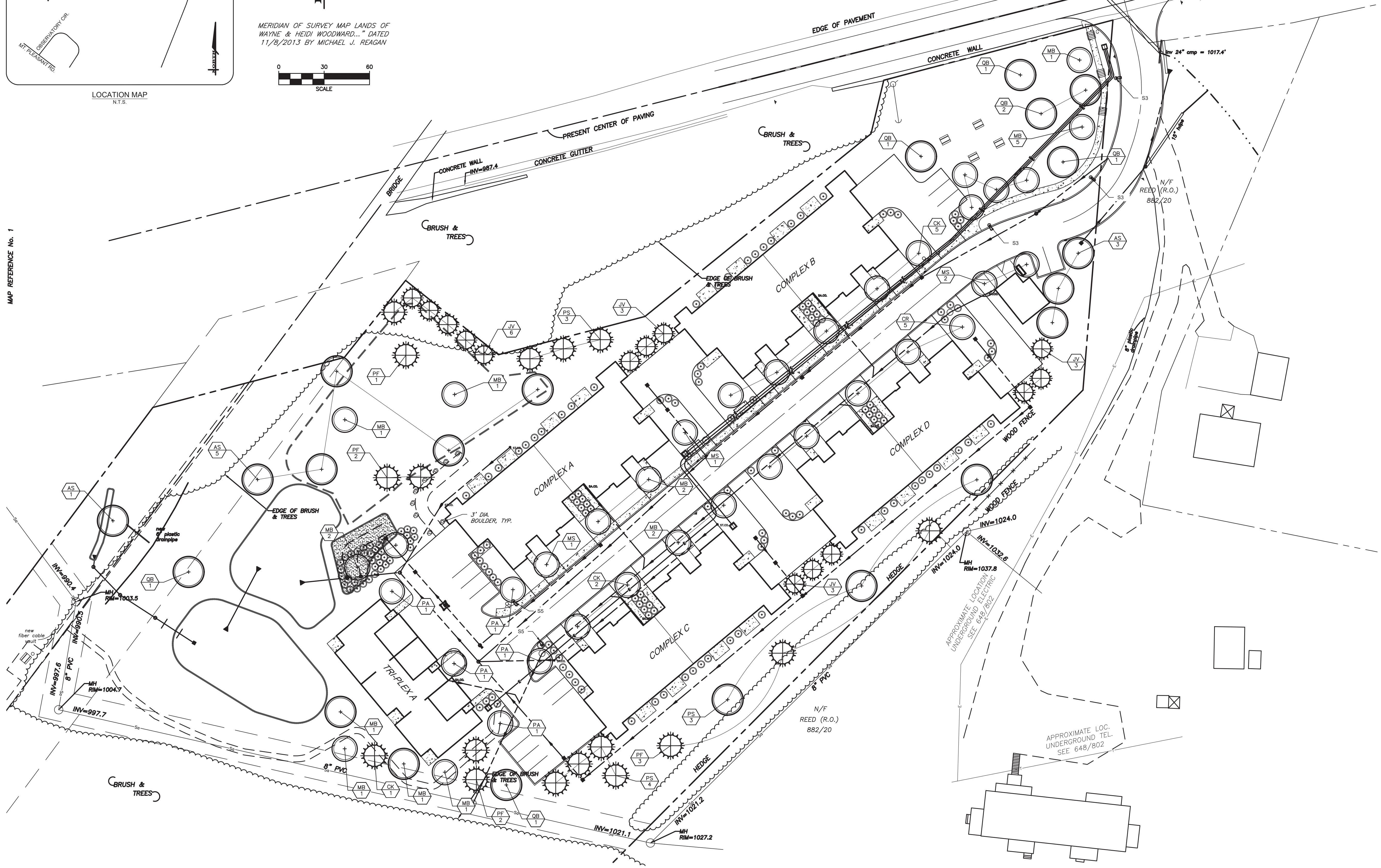
C-4.1
DRAWING No:

SYMBOL	LABEL	QUANTITY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	LAMP	NUMBER LAMPS	LUMENS PER LAMP	LIGHT LOSS FACTOR	WATTAGE
	S3	3	STEMBERG LIGHTING	SL760-FFG-84L45T3R-MDL03	SOLANA SERIES, POST TOP, FLAT FROSTED, ACRYLIC TYPE 3R OPTIC	84 LEDS	1	6815	0.9	95.4
	S5	2	STEMBERG LIGHTING	SL760-FFG-84L45T5-MDL03	SOLANA SERIES, POST TOP, FLAT FROSTED, ACRYLIC TYPE 5 OPTIC	84 LEDS	1	7132	0.9	95



LOCATION MAP
N.T.S.



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LICENSED PROFESSIONAL ENGINEER

ADAM M. FISHEL

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Lighting & Landscaping Plan

8 of 18
SHEET No:

C-5.0
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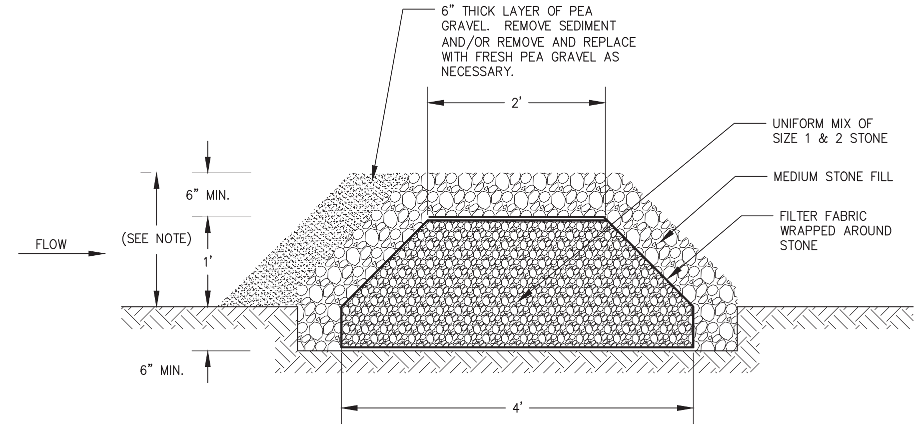
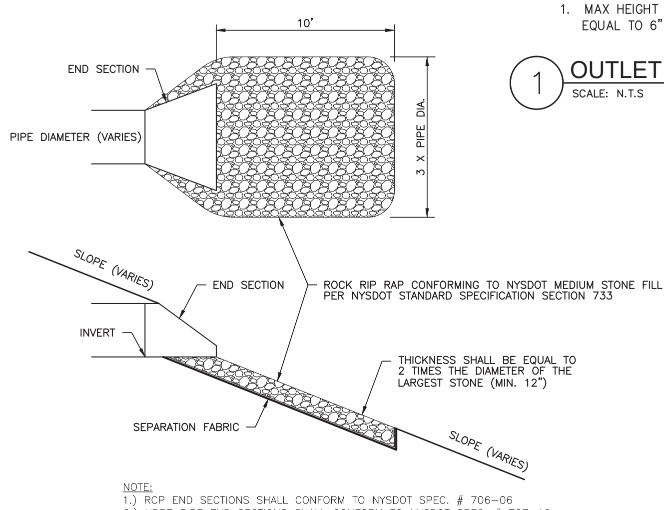
1495-22
JOB No:



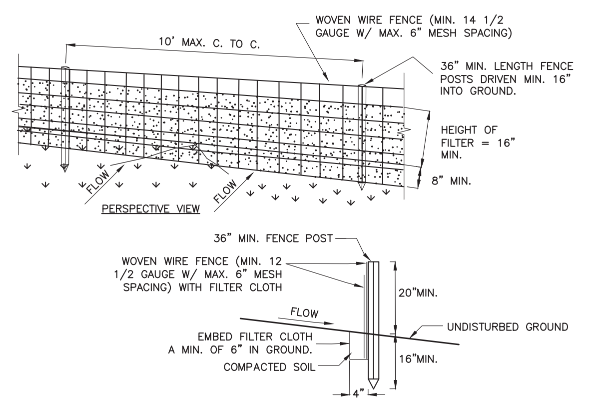
NOTES:
1. MAX HEIGHT OF STONE FILTER SHALL NOT EXCEED 18" OR AN ELEVATION EQUAL TO 6" LOWER THAN THE ELEVATION OF THE RESPECTIVE POND'S EMERGENCY SPILLWAY.

1 OUTLET CONTROL STRUCTURE STONE FILTER
SCALE: N.T.S



NOTE:
1.) RCP END SECTIONS SHALL CONFORM TO NYSDOT SPEC. # 706-06
2.) HDPE PIPE END SECTIONS SHALL CONFORM TO NYSDOT SPEC. # 707-10

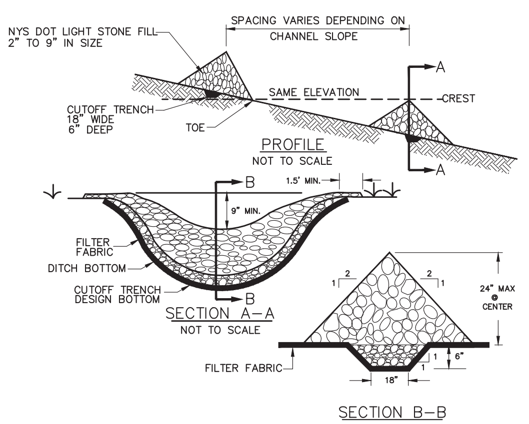
7 PIPE OUTLET PROTECTION
SCALE: N.T.S



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES, POSTS SHALL BE STEEL "T" OF "U" TYPE OF HARDWOOD.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABLINKKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. ENVIRO-FENCE WITH INTEGRAL MESH IS ACCEPTABLE SUBSTITUTE.

4 SILT FENCE
SCALE: N.T.S

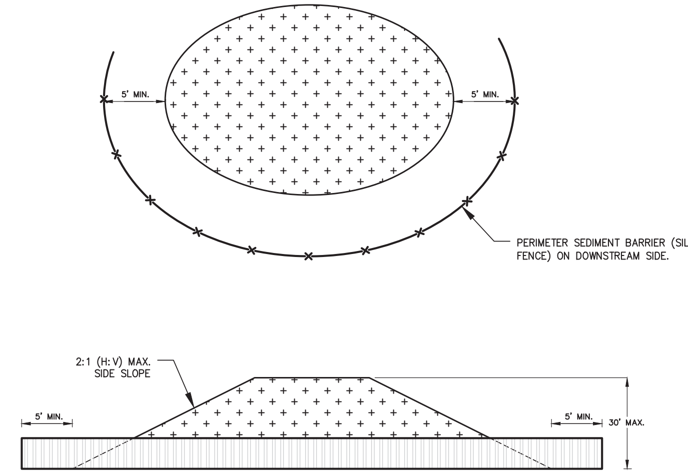


CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATION SHOWN ON IN THE PLAN
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM,
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OF BLOCKAGE FROM DISPLACED STONES.

MAXIMUM DRAINAGE AREA – 2 ACRES

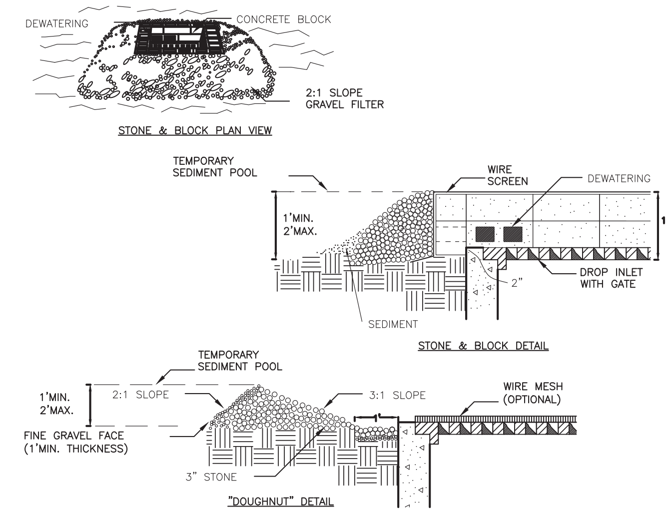
8 STONE CHECK DAM
SCALE: N.T.S



CONSTRUCTION SPECIFICATIONS

1. SEDIMENT BARRIER (SILT FENCE) SHALL BE PLACED AROUND THE PERIMETER OF ALL STOCKPILES OF ALL ERODIBLE MATERIAL.
2. OFFSET SEDIMENT BARRIER FROM STOCKPILE A MINIMUM OF 5' FROM THE TOE OF STOCKPILE FOR SEDIMENT ACCUMULATION.
3. IMMEDIATELY STABILIZED STOCKPILED MATERIAL WITH SEED AND MULCH.
4. INSPECT STOCKPILE PERIMETER CONTROL AFTER EACH RAIN EVENT.
5. ONCE SEDIMENT HAS ACCUMULATED TO A HEIGHT OF 50% OF THE SEDIMENT BARRIER HEIGHT, THE CONTRACTOR SHALL REMOVE COLLECTED SEDIMENT AND SPOIL MATERIAL ON STOCKPILE AND RESTABILIZE WITH SEED AND MULCH.

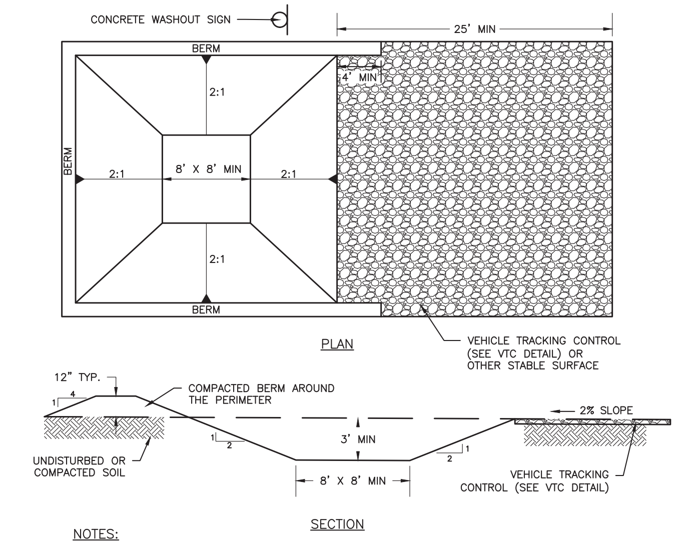
2 STOCKPILE AREA



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2–3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.
5. MAXIMUM DRAINAGE AREA 1 ACRE

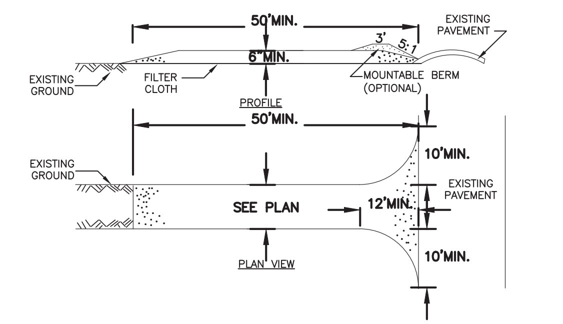
5 STONE & BLOCK DROP INLET PROTECTION
SCALE: N.T.S



NOTES:

1. CONTRACTOR TO VERIFY SIZE REQUIREMENTS BASED ON ANTICIPATED VOLUMES OF CONCRETE WASHOUT.
2. CONCRETE WASHOUT SHOULD BE PLACED TO NOT ACCEPT SURFACE RUNOFF EXCEPT THE AREA WHERE TRUCKS SIT FOR WASHOUT.
3. IF WATER DOES NOT EVAPORATE AND IS GREATER THAN 75% FULL CONTRACTOR SHALL REMOVE LIQUIDS AS REQUIRED BY THE LOCAL AUTHORITY (SAN SEALER OF VAC TRUCK)
4. PROVIDE MINIMUM AGGREGATE OF 10 MIL PLASTIC AS LINER. SECURE LINER TO PREVENT INFILTRATION & REPLACE AS NECESSARY FOR TEARS.

3 CONCRETE WASHOUT AREA



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MIN. LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS, TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITHI 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, TACKED, OR WASHED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

6 STABILIZED CONSTRUCTION ENTRANCE
SCALE: N.T.S

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SITE DEVELOPMENT PLANS for EVERGREEN APARTMENTS / PG DRYDEN, LLC

1061 DRYDEN ROAD (NYS ROUTE 366)
TOWN OF DRYDEN
TOMPKINS COUNTY
STATE OF NEW YORK

JOB NO:	1495-22
SCALE:	1"=30'
DRAWN:	RLJ
DESIGNED:	AMF
DATE:	8/30/23

REVISIONS

DATE	BY	REVISION
9/21/23	AF	TOWN SUBMITTAL
10/11/23	AF	TOWN SUBMITTAL

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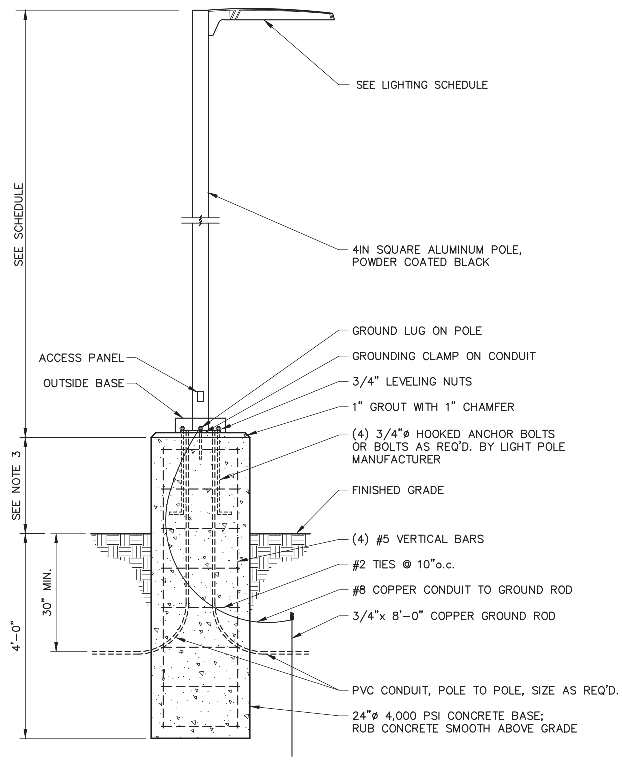
Detail Sheet (1 of 6)

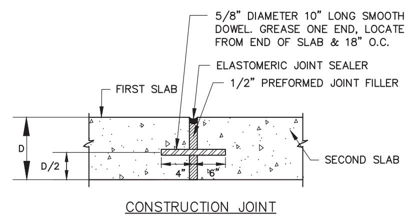
9 of 18
SHEET No:
1495-22
JOB No:
C-6.0
DRAWING No:

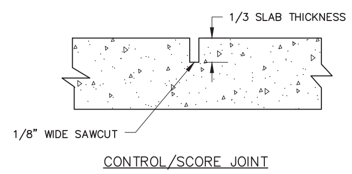


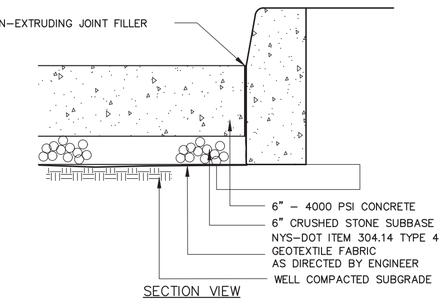
NOTES:

1. POLE BASE MAY BE PRECAST BY LAKELANDS (LB24D)
2. LIGHT POLE MANUFACTURER TO SUPPLY ANCHOR BOLTS, OUTSIDE BASE, AND BOLT PATTERN TEMPLATES.
3. IN PAVEMENT AREAS CONCRETE BASE SHALL EXTEND 24" MINIMUM ABOVE ASPHALT. IN PROTECTED LANDSCAPE AREAS (BEHIND CURB) BASES SHALL HAVE A MINIMUM OF 6" REVEAL ABOVE FINISHED GRADE.
4. BASES SHALL HAVE 2' MIN. HORIZONTAL SEPARATION FROM BACK OF CURB OR SIDEWALK UNLESS SPECIFICALLY CALLED OUT OTHERWISE ON THE PLANS.

1 LIGHT BASE



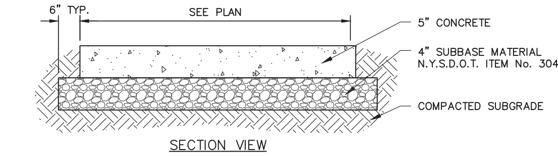


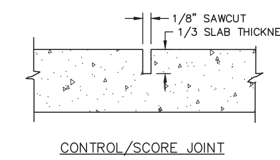


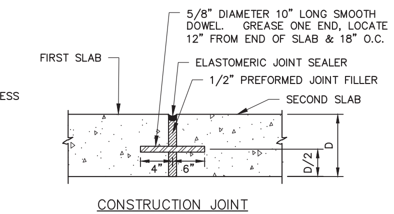
CONCRETE PAVEMENT NOTES:

1. ISOLATION JOINTS TO BE CONSTRUCTED AT BUILDING, CURBING, AND FIXED OBJECTS.
2. CONTROL JOINTS TO BE MADE EVERY 12 FEET ON CENTER.
3. THE LARGER DIMENSION OF ANY PANEL SHALL NOT EXCEED 125% OF THE SMALLER DIMENSION
4. SAW CUT CONTROL JOINTS TO 1/3 SLAB THICKNESS WITHIN 24 HOURS OF CONCRETE PLACEMENT.
5. ALL EXPOSED CONCRETE SURFACES TO RECEIVE A BROOM FINISH.
6. ALL EXPOSED CONCRETE TO RECEIVE TWO COATS OF MEMBRANE FORMING SEALER.
7. CONCRETE SHALL ACHIEVE 4000 PSI COMPRESSIVE MINIMUM STRENGTH AT 28 DAYS.
8. CONCRETE SHALL HAVE AN AIR CONTENT OF 6.0 PERCENT ± 1.5 PERCENT.
9. CONCRETE SLUMP SHALL NOT EXCEED 4 INCHES.

2 CONCRETE PAVEMENT



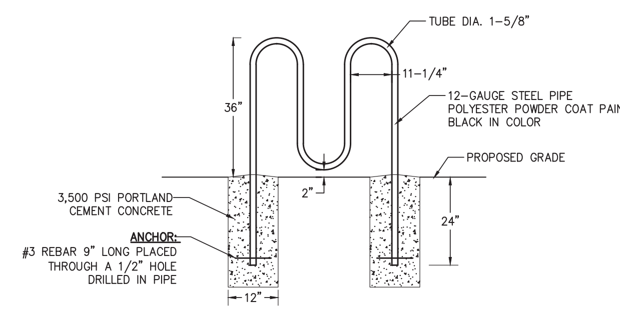




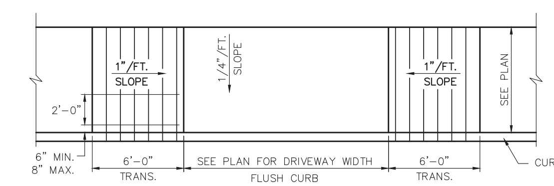
NOTES:

1. CONCRETE SHALL BE 4000 PSI AIR-ENTRAINED MIX.
2. CONCRETE SURFACE SHALL RECEIVE A BROOM FINISH (IF NOT SPECIFIED AS EXPOSED AGGREGATE CONCRETE) AND TWO COATS OF A MEMBRANE FORMING SEALER AT RATES SPECIFIED BY PRODUCT MANUFACTURER.
3. EXPANSION JOINTS SHALL BE PROVIDED AT FIXED STRUCTURES AND AT LEAST EVERY 30' ALONG THE SIDEWALK.
4. CONSTRUCTION JOINTS WITH DOWELS SHALL BE PROVIDED AT SUBSEQUENT POURS.
5. CONTROL JOINTS SHALL BE LOCATED AS SHOWN ON PLAN AND IN ACCORDANCE WITH ACI 330-R92. THESE JOINTS SHALL BE COMPLETED WITHIN 24 HOURS OF CONCRETE PLACEMENT.
6. SCORE PATTERN - SIDEWALK TO BE SCORED EVERY 5 FEET CREATING 5' X 5' SQUARES (MAY VARY IN CERTAIN AREAS). SCORING SHALL BE COORDINATED WITH OWNERS ONSITE REP PRIOR TO SCORING.
7. SIDEWALKS SHALL HAVE A MINIMUM 0.5% AND MAXIMUM 2.0% CROSS SLOPE TO PROVIDE POSITIVE DRAINAGE. CROSS SLOPE SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS AND ENTRANCES.
8. 'SNAP-CAP' OR EQUAL SHALL BE USED FOR PROTECTING TOP EDGE OF EXPANSION JOINTS.
9. SEE CURBING DETAIL FOR DOWELING WHEN ADJACENT TO CONCRETE CURBING.

3 CONCRETE SIDEWALK



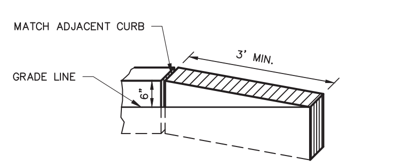
13 BIKE RACK



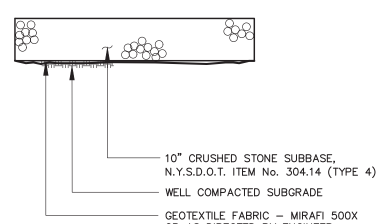
NOTES:

1. SURFACE TEXTURE OF RAMP SHALL BE COARSE BROOM FINISHED TRANSVERSE TO RAMP.
2. REFER TO TYPICAL SIDEWALK DETAIL FOR MATERIAL SPECIFICATIONS.

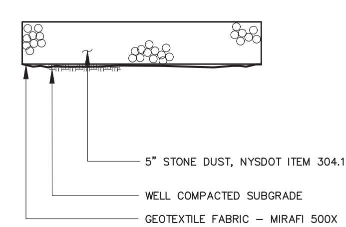
5 SIDEWALK TRANSITION AT DRIVEWAY



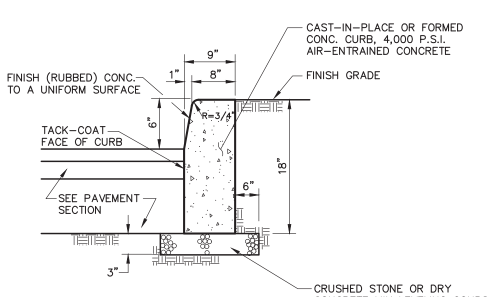
4 CURB TRANSITION



11 GRAVEL DRIVEWAY SECTION



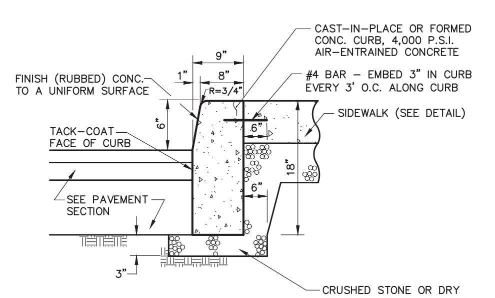
12 STONE DUST WALKING PATH



NOTES:

1. PROVIDE 7" REVEAL AT DROP INLETS
2. PROVIDE CONSTRUCTION JOINTS AT 20' INTERVALS AND EXPANSION JOINTS AT 80' MAXIMUM SPACING. EXPANSION JOINTS SHALL BE FORMED WITH PRE-MOLDED BITUMINOUS JOINT FILLER AND REBAR TO PREVENT SEPARATION.

6 CONCRETE CURB
WITH LAWN/ PLANTER BEHIND



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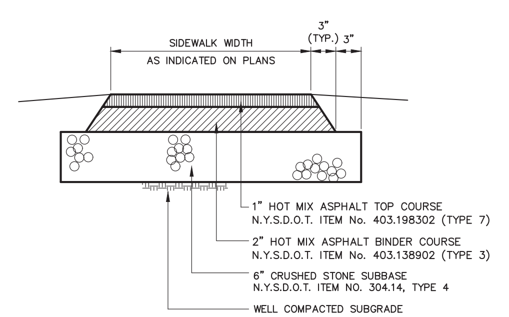
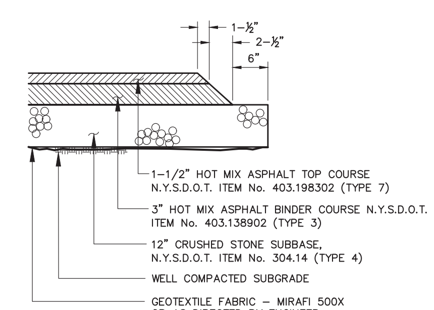
7 CONCRETE CURB
WITH SIDEWALK BEHIND



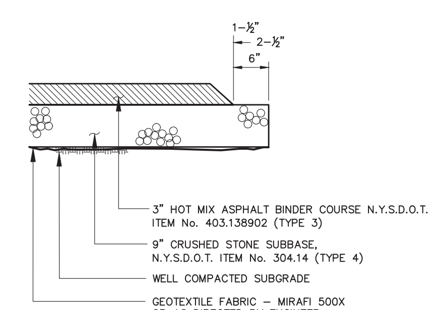
8 ASPHALT SIDEWALK

NOTE:
1. PAVEMENT SPECIFICATION NUMBERS REFERENCE THE 2008 NYSDOT STANDARD SPECIFICATION BOOK



9 PAVEMENT SECTION

NOTES:
1. CONTRACTOR TO CLEAN AND TACK COAT BEFORE PLACING TOP COAT IF BINDER IS CONTAMINATED OR GREATER THAN 30 DAYS PASSES BETWEEN PLACEMENT OF BINDER AND TOP
2. PAVEMENT SPECIFICATION NUMBERS REFERENCE THE 2008 NYSDOT STANDARD SPECIFICATION BOOK



10 PAVEMENT SECTION

NOTES:
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Detail Sheet (2 of 6)

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1495-22 JOB No:	DRAWING No:

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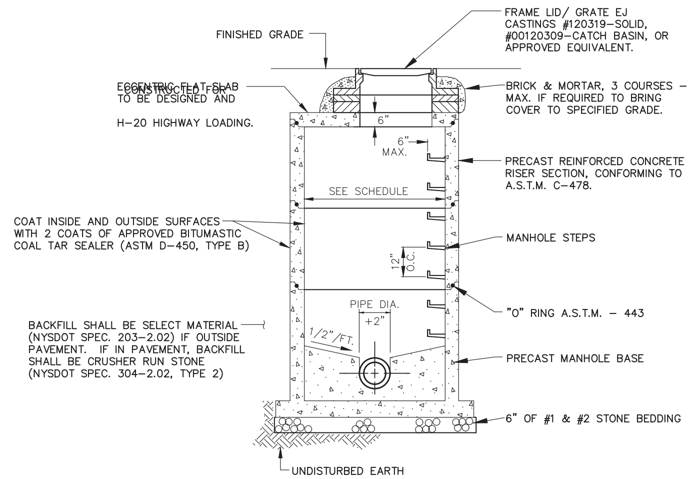
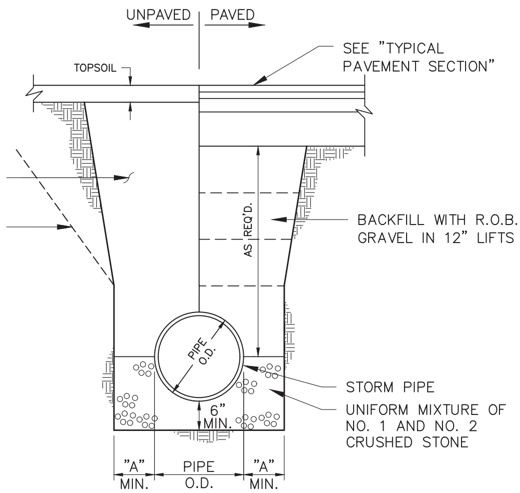
1. STORM MANHOLE



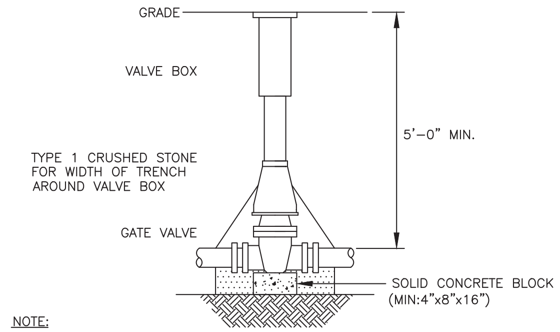
NOTES:
1.) SLOPED EXCAVATION AT CONTRACTORS OPTION– PROVIDE SHEETING AS NECESSARY TO MEET OSHA STANDARDS & REQUIREMENTS.

2. STORM TRENCH
SOLID PIPE



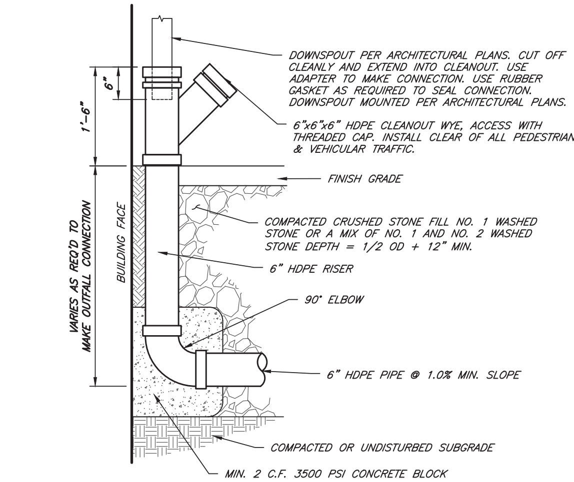
PIPE DIA.	"A"
OD ≤ 15"	8"
15"< OD ≤48"	12"
OD < 48"	15"

3. VALVE
NOT TO SCALE

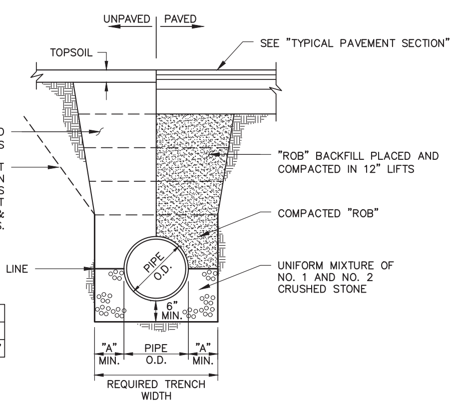


NOTE:
1. VALVE BOX SHALL BE CENTERED ON VALVE AND SET ON COMPACTED BACKFILL.
2. VALVE SHALL NOT SUPPORT VALVE BOX.
3. ALL BODY AND BONNET BOLTS SHALL BE STAINLESS STEEL.
4. ALL VALVES SHALL BE OPEN LEFT UNLESS OTHERWISE DIRECTED BY THE WATER AUTHORITY

4. DOWNSPOUT CLEANOUT

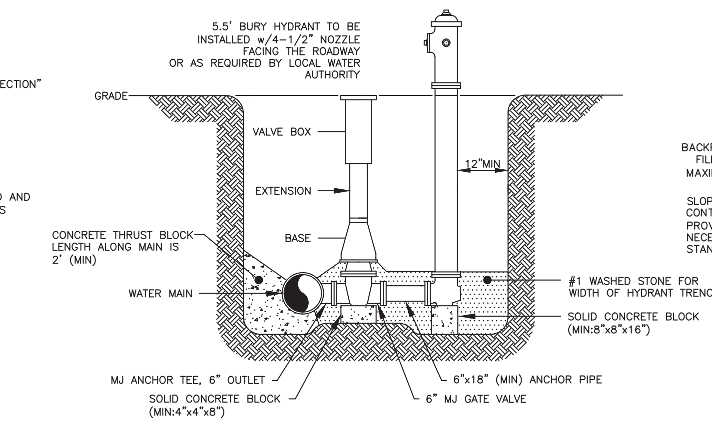


6. SANITARY TRENCH

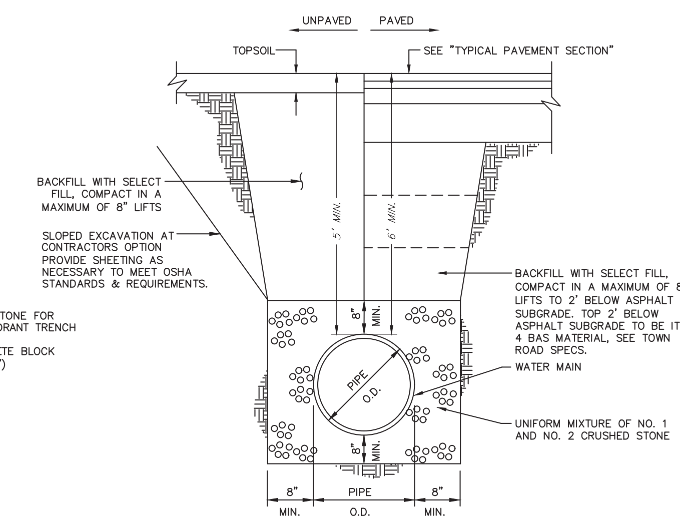


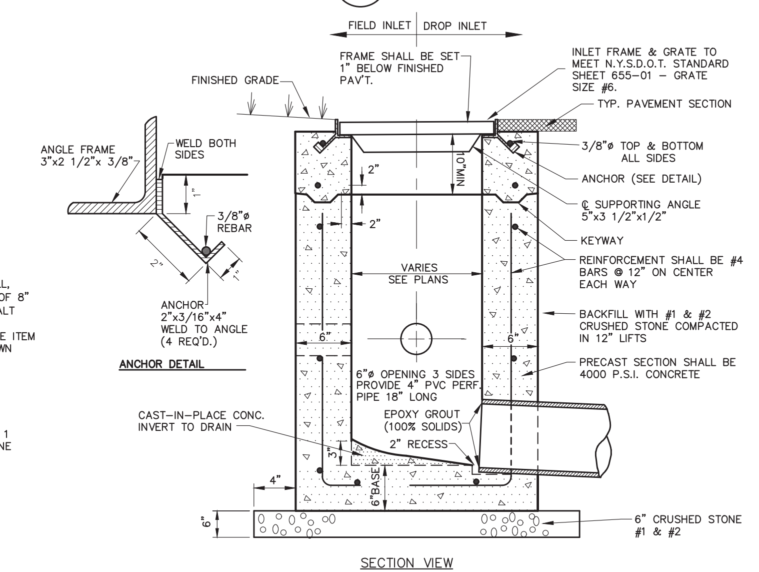
PIPE DIA.	"A"
OD ≤ 15"	8"
OD >15"	12"

7. HYDRANT ASSEMBLY
CLASS A



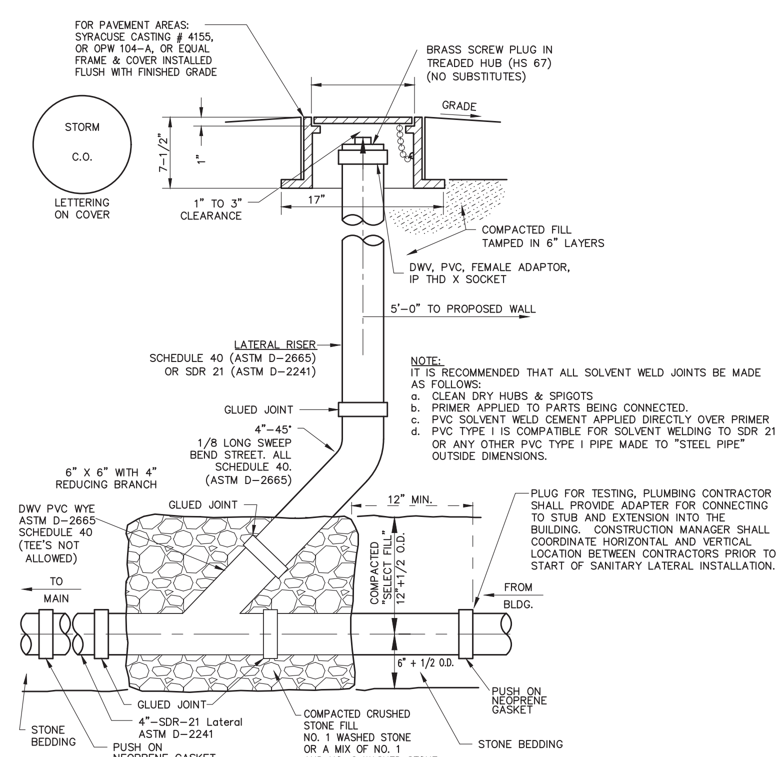
8. WATER TRENCH



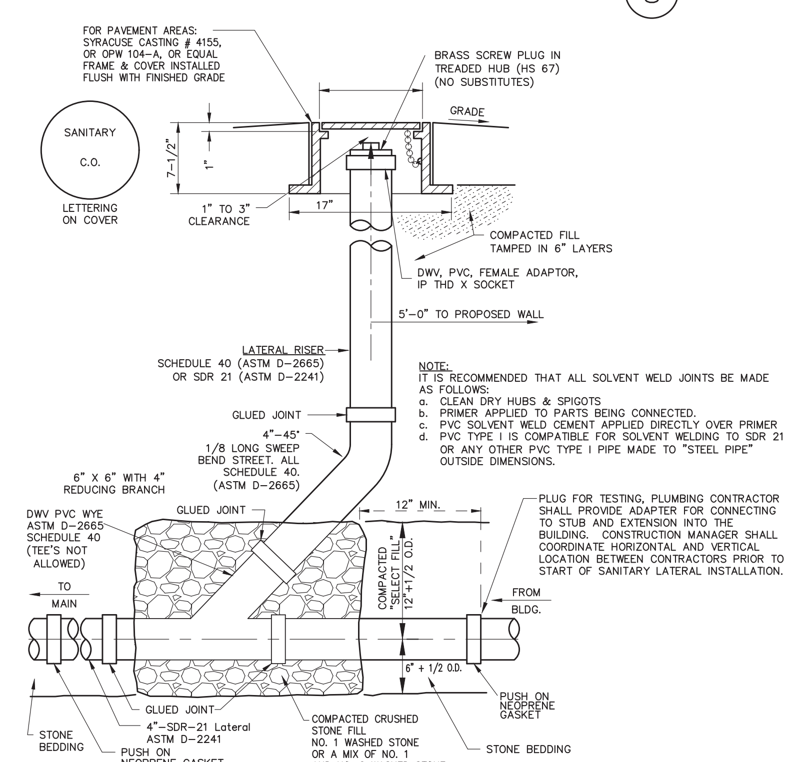


NOTES:
1.) PRE–CAST INLET SECTIONS SHALL BE MANUFACTURED BY KISTNER, MODEL No. CB–24 (WITH KEYWAY) OR APPROVED EQUIVALENT.
2.) THE INSIDE & OUTSIDE WALLS OF INLET SHALL BE COATED WITH BITUMASTIC.

9. DROP/ FIELD INLET



10. PVC STORM CLEANOUT DETAIL
SCALE: N.T.S



11. PVC SANITARY CLEANOUT DETAIL
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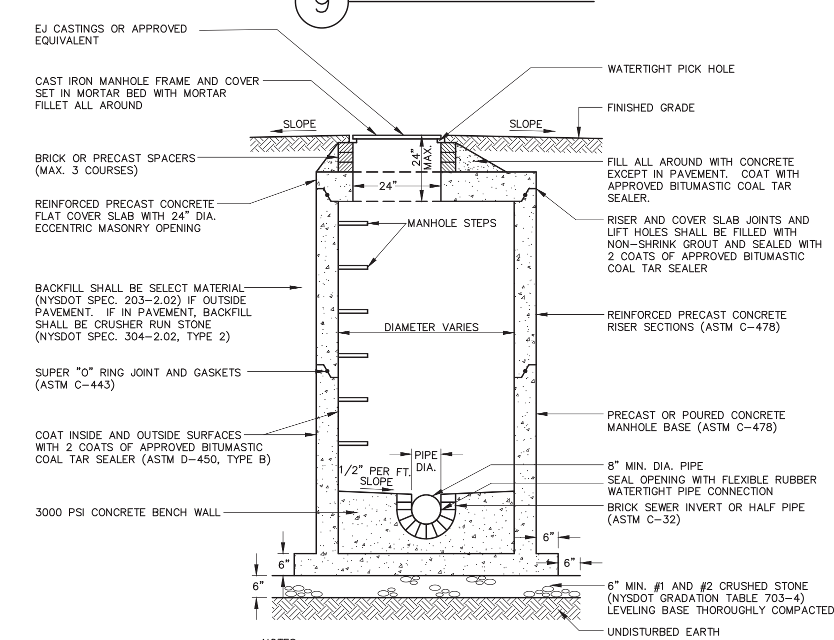

NOTES:
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12. SANITARY MANHOLE

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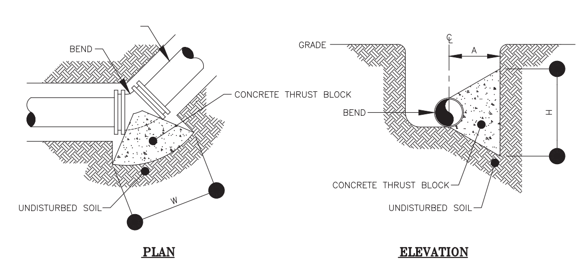
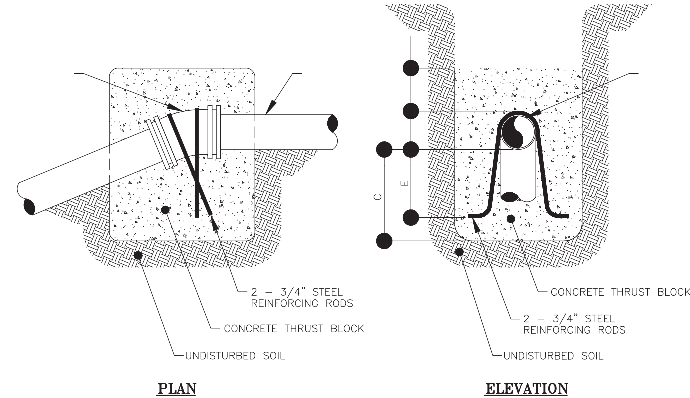
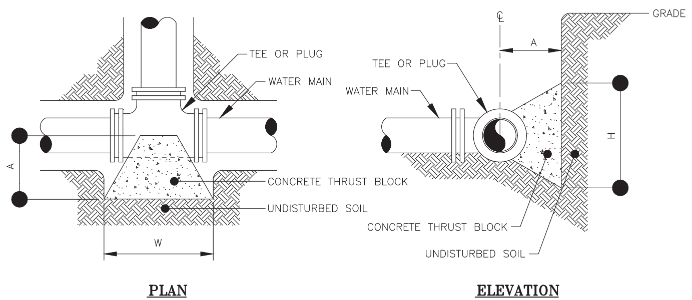


3 HORIZONTAL THRUST BLOCK FOR BENDS



BEND *	MINIMUM VOLUME OF CONCRETE	MINIMUM ALLOWABLE DIMENSIONS FOR VERTICAL THRUST BLOCKS (IN FEET)				
	DIMENSIONS	A	B	C	D	E
6" x 11-1/4°	1.00 CY	3.0	1.0	1.3	3.0	1.0
6" x 22-1/2°	1.50 CY	4.0	1.0	1.8	3.0	1.5
6" x 45°	2.50 CY	6.0	1.5	2.0	3.0	1.7

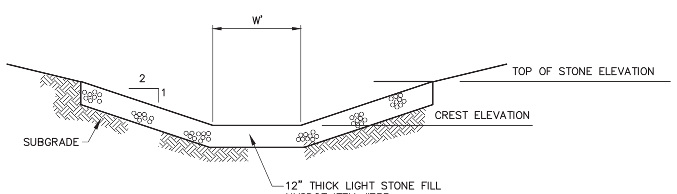
4 VERTICAL THRUST BLOCK



5 HORIZONTAL THRUST BLOCK TEES AND PLUGS

MINIMUM HORIZONTAL THRUST BLOCK DIMENSIONS, IN FEET, TO BE POURED AGAINST UNDISTURBED SOIL			
FITTING *	H	W	A
6" x 11-1/4° BEND	2.0	1.0	2.0
6" x 22-1/2° BEND	2.0	1.0	2.0
6" x 45° BEND	2.0	1.0	2.0
6" x 90° BEND	2.0	1.3	2.4
6" TEE OR PLUG	2.0	1.0	2.0

NOTE: WIDTH (W) OF BLOCK SHALL NOT EXCEED TWICE THE HEIGHT (H).

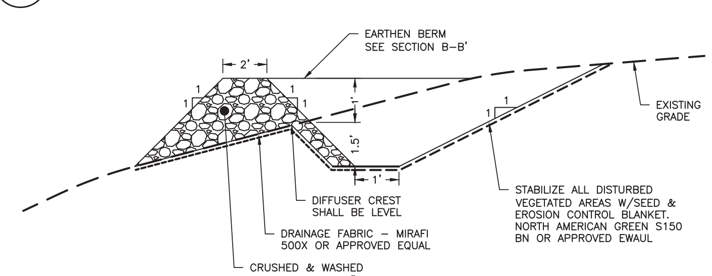


NOTES:

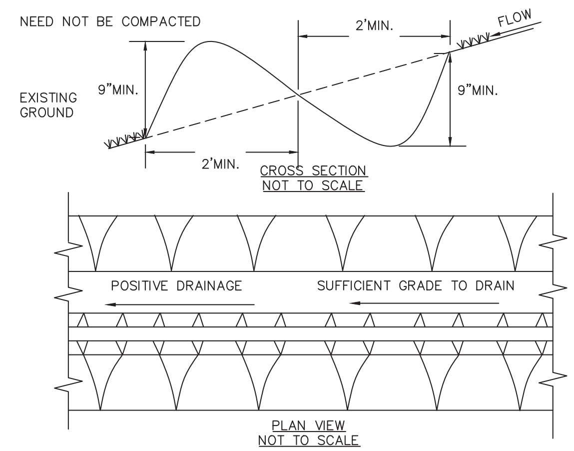
1. GRADE SUBGRADE BELOW RIP-RAP PAD SMOOTHLY BEFORE PLACING THE STONES.
2. PLACE SEPARATION FABRIC UPON SUITABLE SUBGRADE PRIOR TO PLACEMENT OF STONES.
3. ALL STONES TO BE SPACED 1"-3" APART AND PLACED BY HAND.
4. RIP-RAP SHALL BE GROUTED WITH LEAN GROUT SUCH THAT NO CAVITY OR VOID SHALL EXIST UNDER THE STONES
5. EXTEND GROUTED SPILLWAY DOWN THE INSIDE AND OUTSIDE OF THE POND.
4. CREST ELEVATION NOTED IN THIS DETAIL SHALL BE TOP OF STONE

SPILLWAY ID	WIDTH, W	CREST ELEVATION	TOP OF STONE
INFILTRATION BASIN #1	13.0 FT	±1045.5	±1016.0

6 EMERGENCY SPILLWAY OUTLET



7 FLOW DIFFUSER

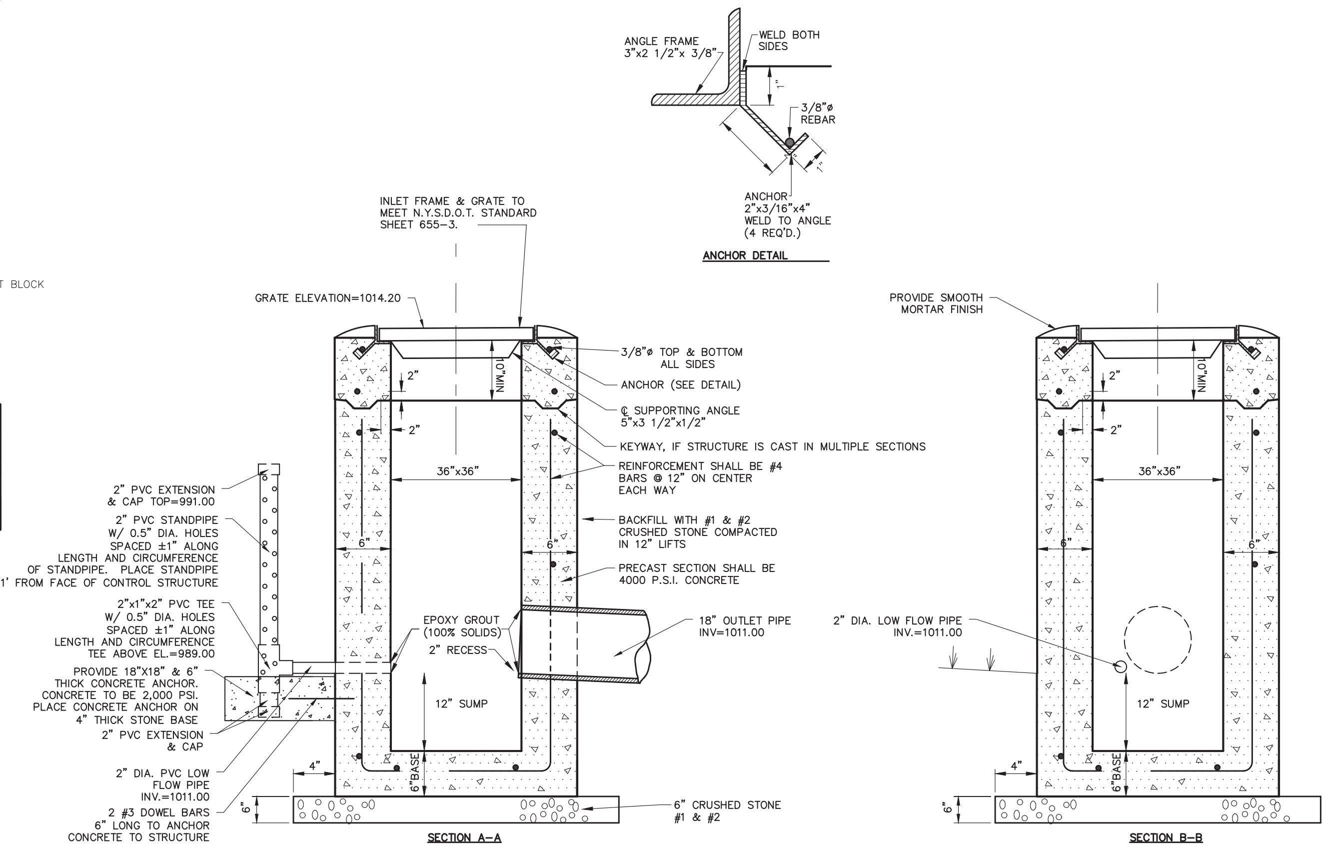


CONSTRUCTION SPECIFICATIONS

1. ALL PERIMETER DIKE/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSION VELOCITY.
4. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED IN THE STANDARD.
5. STABILIZATION OF THE AREA DISTURBED BY THE DIKE AND SWALE SHALL BE DONE IN ACCORDANCE WITH THE STANDARD AND SPECIFICATIONS FOR TEMPORARY SEEDING AND MULCHING, AND SHALL BE DONE WITHIN 10 DAYS.
6. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

MAX. DRAINAGE AREA LIMIT: 2 ACRES

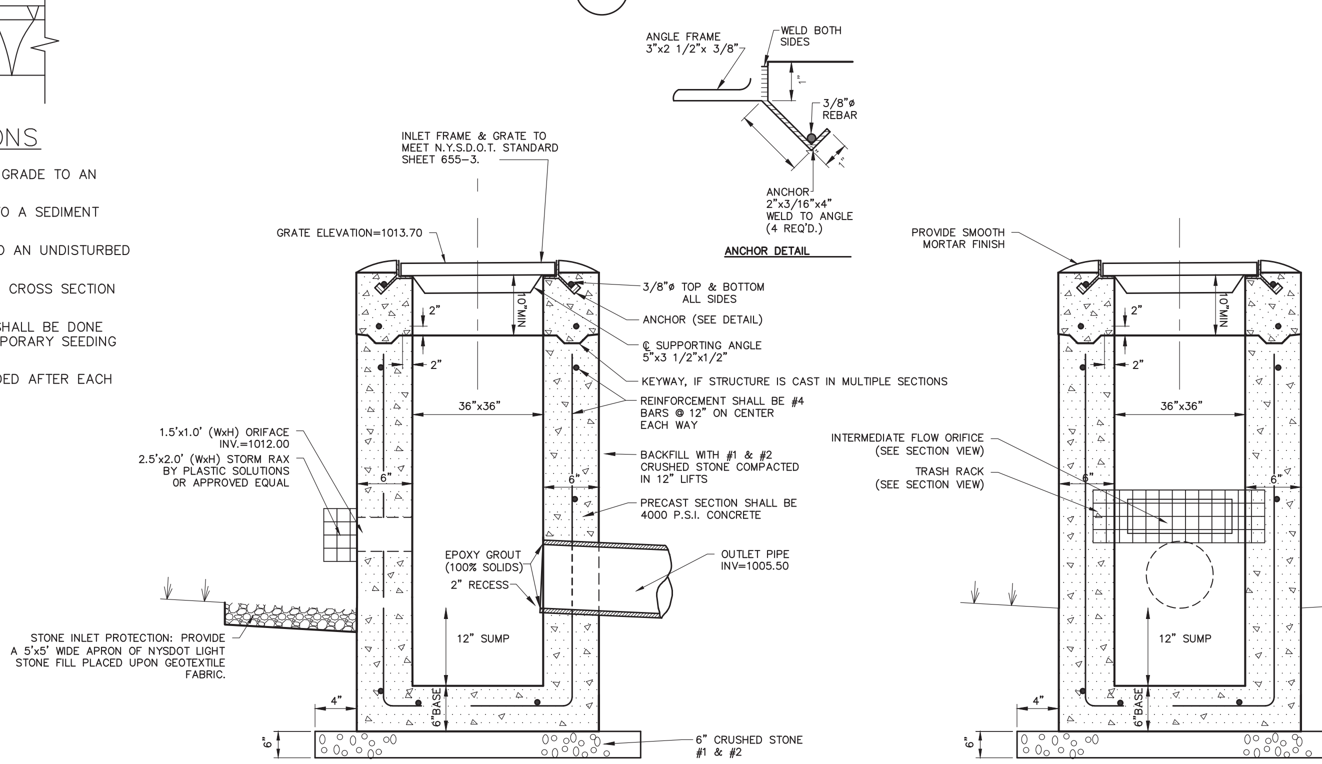
8 PERIMETER DIKE/SWALE



NOTES:

1.) PRE-CAST INLET SECTIONS SHALL BE MANUFACTURED BY KISTNER, MODEL No. CB-24 (WITH KEYWAY) OR APPROVED EQUIVALENT.
2.) THE INSIDE & OUTSIDE WALLS OF INLET SHALL BE COATED WITH BITUMASTIC.

1 CONTROL STRUCTURE #1 (OS#1)



NOTES:

1.) PRE-CAST INLET SECTIONS SHALL BE MANUFACTURED BY KISTNER, MODEL No. CB-36 (WITH KEYWAY) OR APPROVED EQUIVALENT.
2.) THE INSIDE & OUTSIDE WALLS OF INLET SHALL BE COATED WITH BITUMASTIC.

1 CONTROL STRUCTURE #2

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SITE DEVELOPMENT PLANS
for
EVERGREEN APARTMENTS / PG DRYDEN, LLC
1061 DRYDEN ROAD (NYS ROUTE 366)
TOMPKINS COUNTY
STATE OF NEW YORK
TOWN OF DRYDEN

JOB NO:	1495-22
SCALE:	1"=30'
DRAWN:	RLJ
DESIGNED:	AMF
DATE:	8/30/23

REVISIONS

DATE	BY	REVISION
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LICENSED PROFESSIONAL ENGINEER
ADAM M. FISHEL

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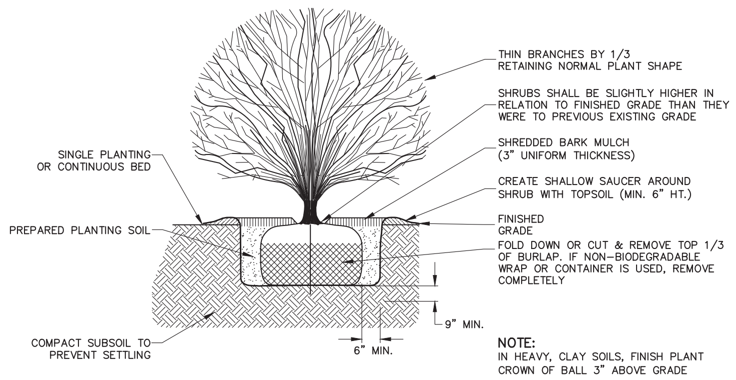
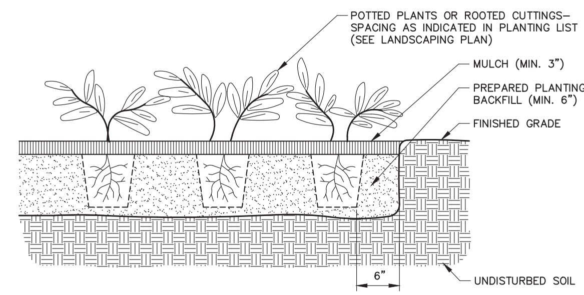
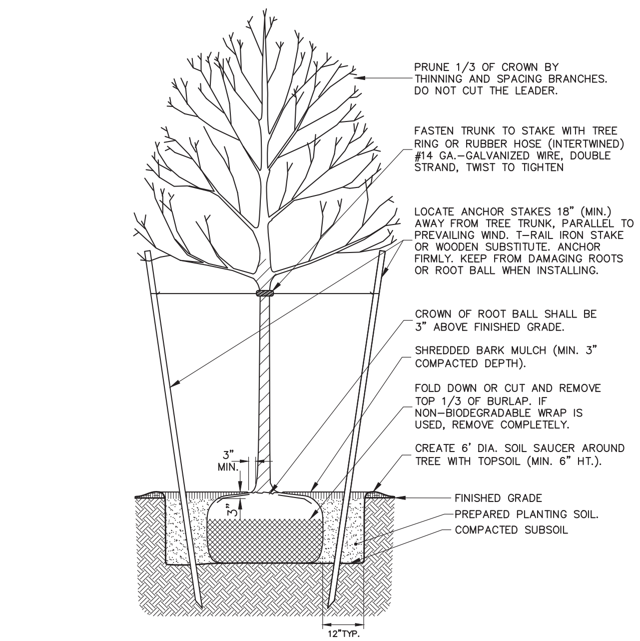


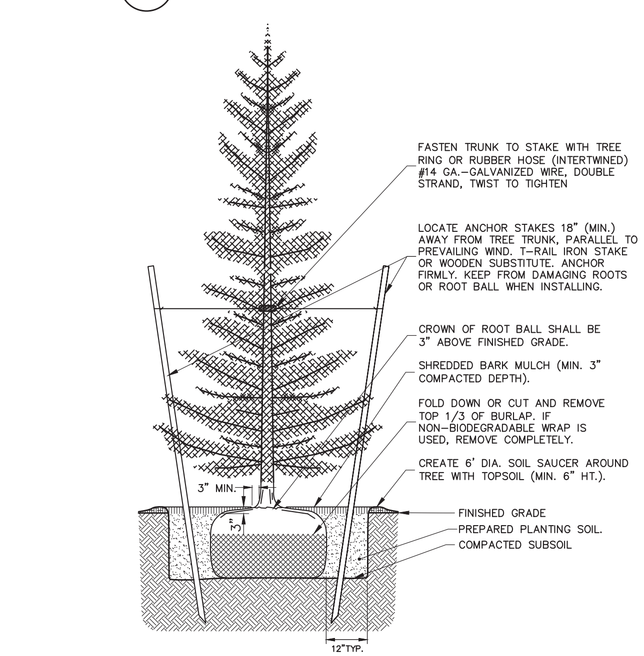
1 SHRUB PLANTINGS



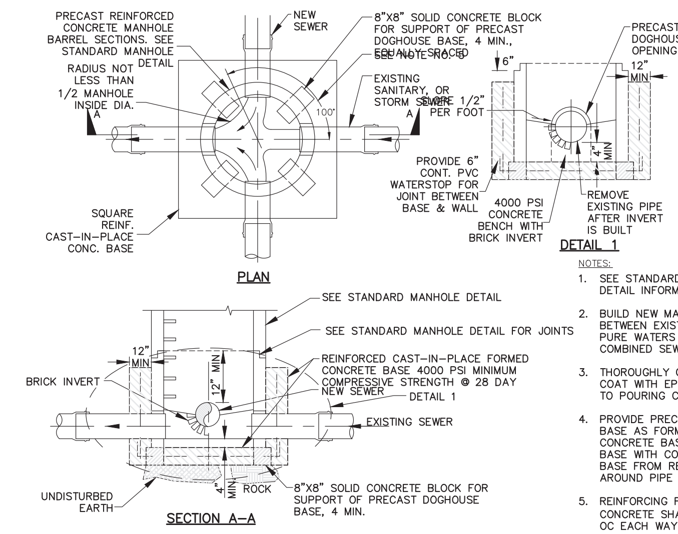
2 GROUND COVER PLANTINGS



3 DECIDUOUS PLANTINGS



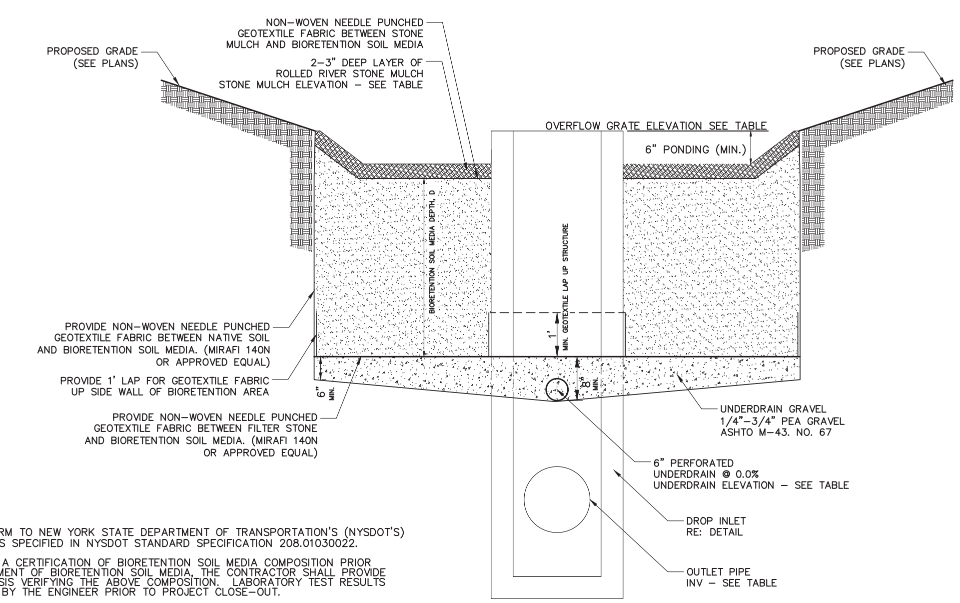
4 CONIFEROUS PLANTINGS



NOTES:

1. SEE STANDARD MANHOLE DETAIL FOR DETAIL INFORMATION ABOVE THE BASE.
2. BUILD NEW MANHOLE EQUAL DISTANCE BETWEEN EXISTING JOINTS ON EXISTING PURE WATERS SANITARY, STORM, OR COMBINED SEWER.
3. THOROUGHLY CLEAN EXISTING PIPE AND COAT WITH EPOXY BONDING AGENT PRIOR TO POURING CONCRETE BASE.
4. PROVIDE PRECAST DOGHOUSE MANHOLE BASE AS FORMWORK FOR CAST-IN-PLACE CONCRETE BASE. SUPPORT PRECAST BASE WITH CONCRETE BLOCK TO PREVENT BASE FROM RESTING ON PIPE. FILL VOID AROUND PIPE WITH CONCRETE.
5. REINFORCING FOR CAST-IN-PLACE CONCRETE SHALL BE NO. 4 BARS @ 12" OC EACH WAY MINIMUM.
6. STUB AT MANHOLE SHALL NOT EXCEED 100 DEGREES ALIGNMENT ENTERING AGAINST EXISTING SEWER MAIN FLOW.
7. SEE STANDARD MANHOLE DETAIL FOR INTERIOR AND EXTERIOR COATINGS.

6 DOGHOUSE MANHOLE BASE



BIORETENTION AREA NOTES:

1. BIORETENTION SOIL MEDIA:
   A. COMPOSITION -
      BIORETENTION SOIL MEDIA SHALL CONFORM TO NEW YORK STATE DEPARTMENT OF TRANSPORTATION'S (NYSDOT'S) "BIORETENTION AND DRY SWALE SOIL" AS SPECIFIED IN NYSDOT STANDARD SPECIFICATION 208.01030022.
   B. TESTING - CONTRACTOR SHALL PROVIDE A CERTIFICATION OF BIORETENTION SOIL MEDIA COMPOSITION PRIOR TO THE START OF WORK. UPON PLACEMENT OF BIORETENTION SOIL MEDIA, THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE LABORATORY ANALYSIS VERIFYING THE ABOVE COMPOSITION. LABORATORY TEST RESULTS SHALL BE PROVIDED TO AND ACCEPTED BY THE ENGINEER PRIOR TO PROJECT CLOSE-OUT.
   C. PLACEMENT - IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF THE BIORETENTION SOIL MEDIA DURING PLACEMENT. PLACE BIORETENTION SOIL MEDIA IN LIFTS NO LESS THAN 12" BY HAND OR LIGHT/COMPACT LOADER. DO NOT USE HEAVY EQUIPMENT WITHIN BIORETENTION AREA.
2. MULCH: ROLLED RIVER STONE, MIX OF 1-3" DIAMETER STONES.
3. CONSTRUCTION SEQUENCE: THE BIORETENTION AREA MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA(S) HAVE BEEN STABILIZED.
4. LANDSCAPING: REFER TO LANDSCAPING PLAN FOR PLANTINGS WITHIN THE BIORETENTION AREA.

BIORETENTION DESIGN SUMMARY:

AREA DESIGNATION	AREA #1
SURFACE AREA	1140 SF
SOIL MEDIA DEPTH, D	2.5'
UNDERDRAIN ELEVATION	1011.50
OVERFLOW GRATE ELEVATION	1015.50
STONE MULCH ELEVATION (TOP OF STONE)	1015.00
OUTLET PIPE INVERT	RE: UTILITY PLAN

5 BIORETENTION AREA

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TOWN OF DRYDEN
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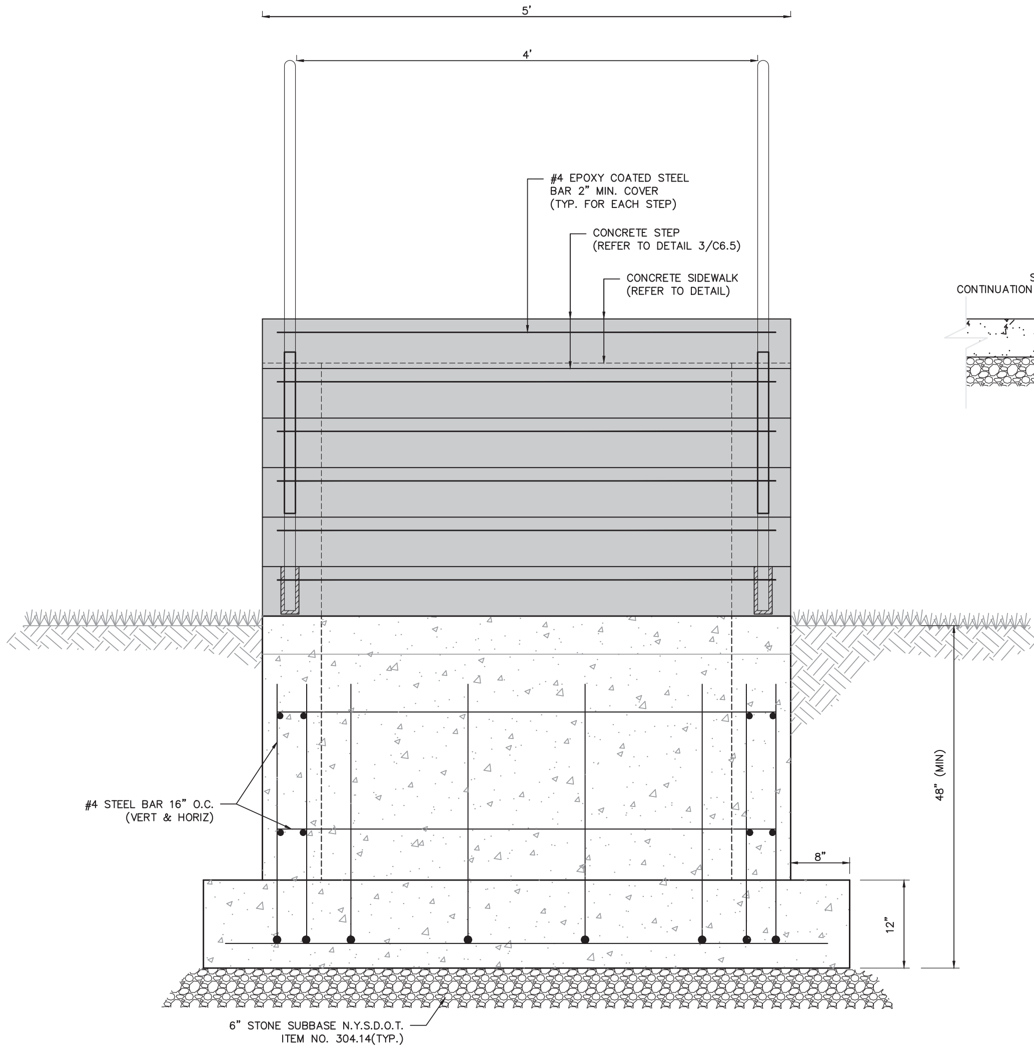
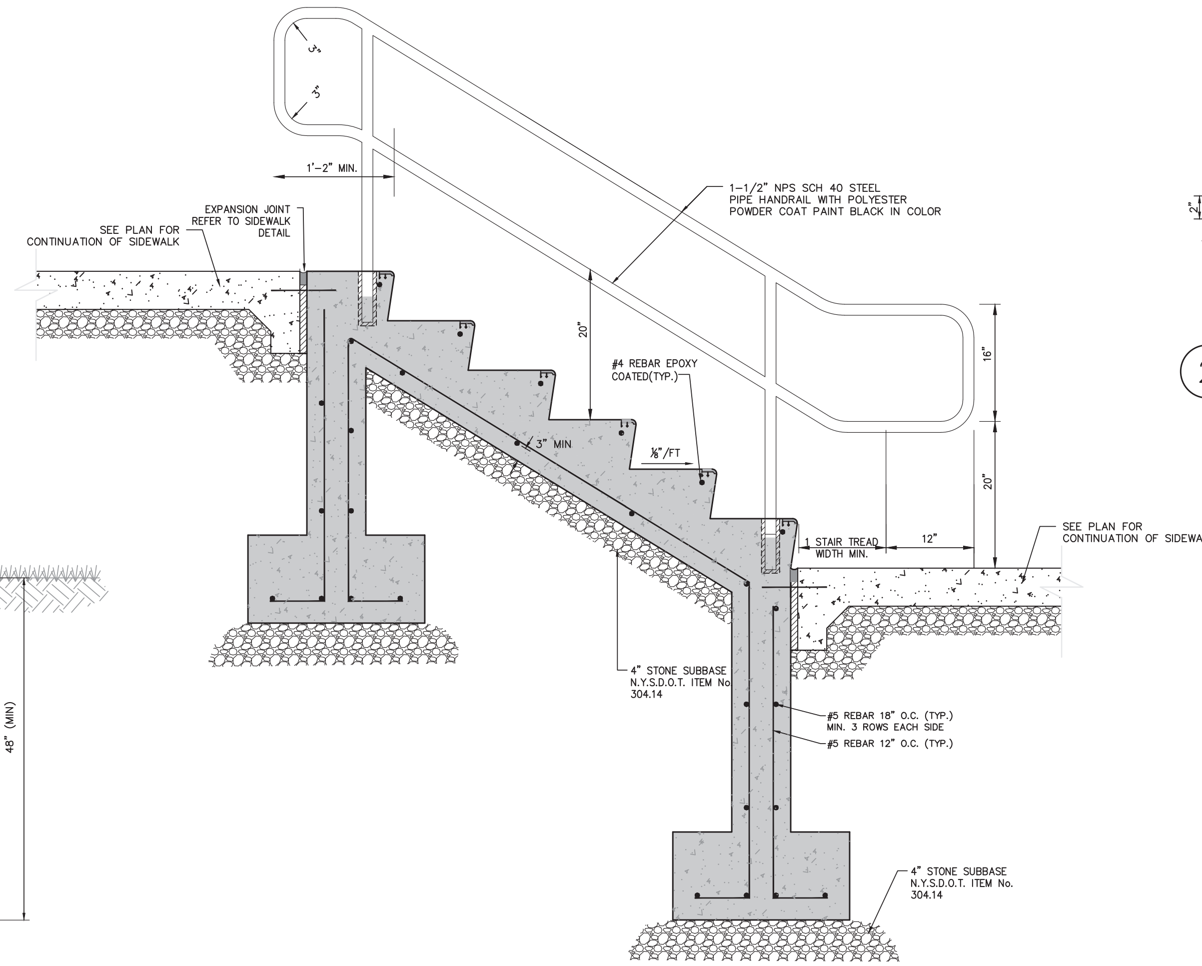
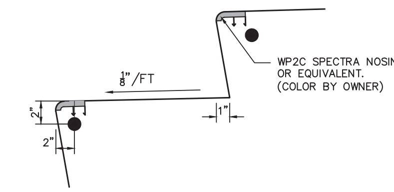
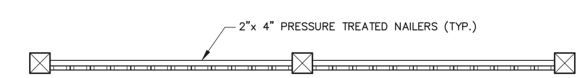




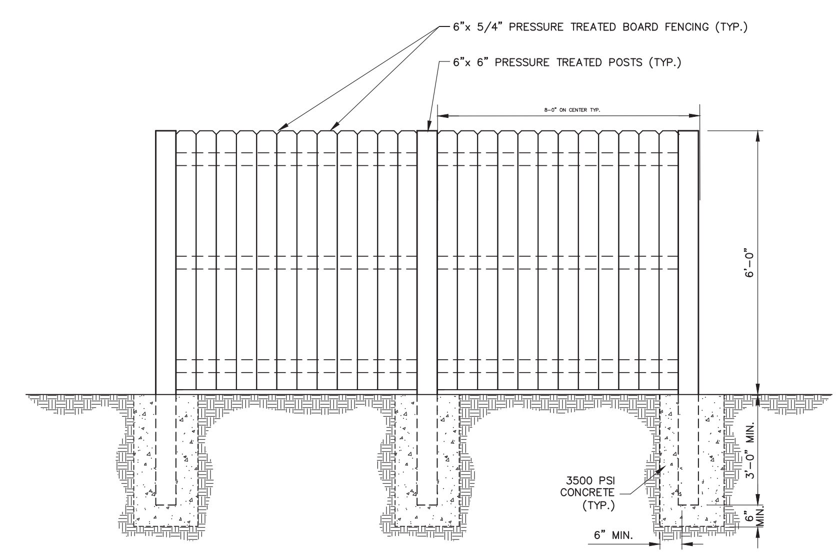
1 CONCRETE STAIRS



2 STEP DETAIL



PLAN VIEW



ELEVATION

2 BOARD ON BOARD FENCE

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SITE DEVELOPMENT PLANS for EVERGREEN APARTMENTS / PG DRYDEN, LLC

1061 DRYDEN ROAD (NYS ROUTE 366)
TOMPKINS COUNTY
TOWN OF DRYDEN
STATE OF NEW YORK

JOB NO:	1495-22
SCALE:	1"=30'
DRAWN:	RLJ
DESIGNED:	AMF
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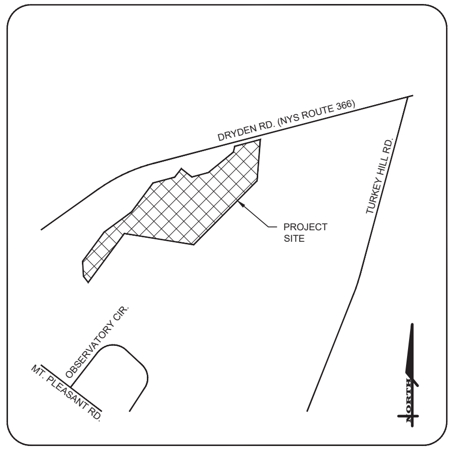


LOCATION MAP
N.T.S.

NOTES

1. REFER TO SHEET C–7.1 FOR GENERAL DRIVEWAY NOTES, MAINTENANCE AND PROTECTION OF TRAFFIC, ETC.
2. THE POSTED SPEED LIMIT OF DRYDEN ROAD (NYS ROUTE 366) ALONG THE PROPERTY FRONTAGE IS 45 MPH.
3. THE CONTRACTOR SHALL REFER TO NYSDOT STANDARD SHEETS 608–03 FOR DRIVEWAY CONSTRUCTION DETAILS WITHIN THE NYSDOT RIGHT OF WAY.
4. REFER TO THE DEMOLITION PLAN (SHEET C–1.0) FOR ADDITIONAL INFORMATION ASSOCIATED WITH THE DEMOLITION AND/OR REMOVAL OF EXISTING SITE AND UTILITY FEATURES.
5. NO EXCAVATIONS SHALL BE LEFT OPEN OVER NIGHT.
6. REFER TO THE DEMOLITION PLAN (SHEET C–1.0) FOR DEMOLITION OF SITE FEATURES WITHIN THE NYSDOT RIGHT–OF–WAY ASSOCIATED WITH THE DRIVEWAY CONSTRUCTION SHOWN ON THIS PLAN.
7. REFER TO THE SITE PLAN (SHEET C–2.0) FOR SIDEWALK WORK WITHIN THE NYSDOT RIGHT–OF–WAY.

NYSDOT EARTHWORK, TOPSOIL AND TURF SPECIFICATIONS

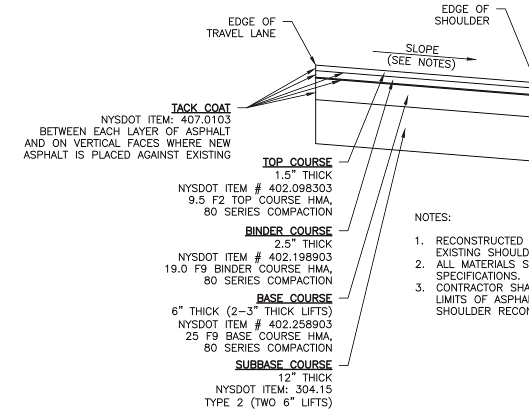
EARTHWORK: PERFORM EXCAVATION & BACKFILL WITHIN NYSDOT RIGHT–OF–WAY IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATION SECTION 200 (TYP.)

NYSDOT TOPSOIL: TOPSOIL PLACED WITHIN NYSDOT RIGHT–OF–WAY SHALL CONFORM TO NYSDOT ITEM #610.14X.

ESTABLISH TURF: GRASS TURF ESTABLISHMENT WITHIN NYSDOT RIGHT–OF–WAY SHALL CONFORM TO NYSDOT ITEM #610.16X.

SIGHT DISTANCES:

1. DRIVEWAY –
   STOPPING SIGHT DISTANCE EAST BOUND ±523'
   INTERSECTION SIGHT DISTANCE EAST BOUND ±523'
   STOPPING SIGHT DISTANCE WEST BOUND ±780'
   INTERSECTION SIGHT DISTANCE WEST BOUND ±780'
2. CROSS WALK –
   STOPPING SIGHT DISTANCE EAST BOUND >500'
   INTERSECTION SIGHT DISTANCE EAST BOUND >500'
   STOPPING SIGHT DISTANCE WEST BOUND >500'
   INTERSECTION SIGHT DISTANCE WEST BOUND >500'

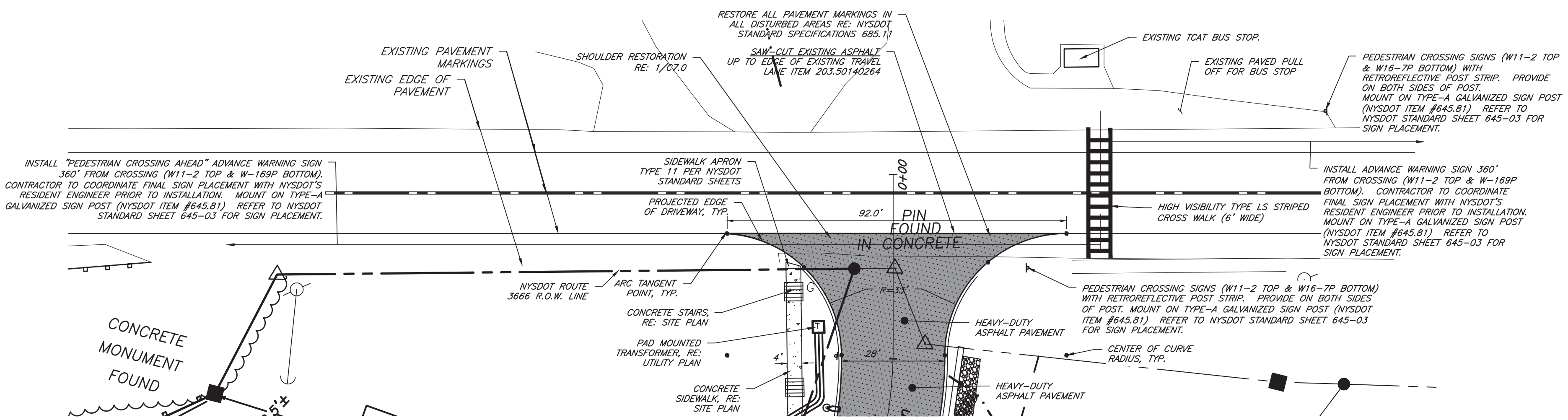


NOTES:

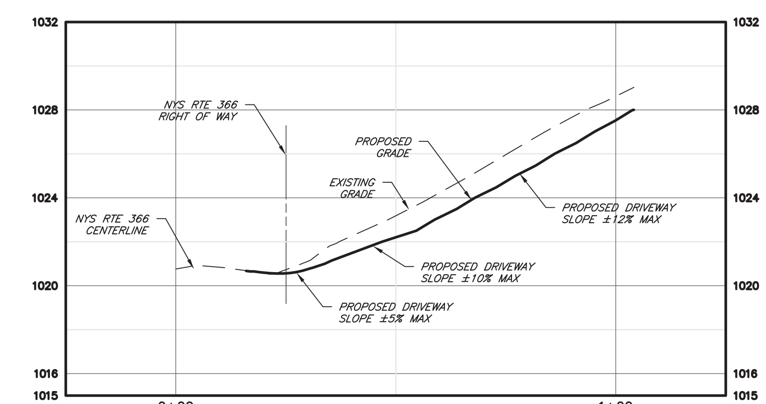
1. RECONSTRUCTED SHOULDER CROSS SLOPE TO MATCH EXISTING SHOULDER CROSS SLOPE.
2. ALL MATERIALS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATIONS.
3. CONTRACTOR SHALL SAW–CUT EXISTING ASPHALT AT LIMITS OF ASPHALT REMOVAL WITHIN AREA OF SHOULDER RECONSTRUCTION.

1 SHOULDER RESTORATION WITHIN NYSDOT RIGHT-OF-WAY
SCALE: N.T.S.

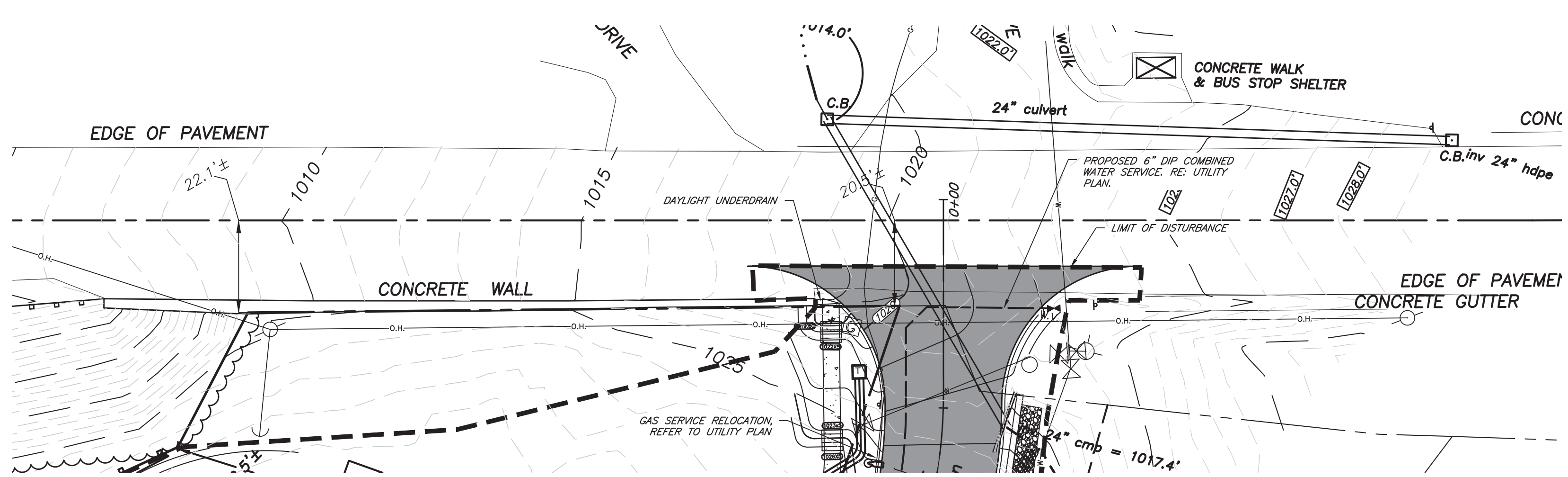
MERIDIAN OF SURVEY MAP LANDS OF WAYNE & HEIDI WOODWARD..." DATED 11/8/2013 BY MICHAEL J. REAGAN



DRIVEWAY LAYOUT PLANT



DRIVEWAY PROFILE
SCALE: 1"=4' VERTICAL
1"=20' HORIZONTAL



DRIVEWAY GRADING & UTILITY PLAN

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DRAWING TITLE:
Driveway Plan
(1 of 3)

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SHEET No:
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GENERAL NOTES

1. THE TYPICAL DETAILS DEPICTED ON THE STANDARD SHEETS AND IN THE MUTCD, REFLECT THE MINIMUM REQUIREMENTS.
2. PROPOSED REVISIONS TO THE TRAFFIC CONTROL PLAN SHALL BE PROVIDED, IN WRITING, TO THE DOT ENGINEER FOR REVIEW AND APPROVAL BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE FIVE (5) WORK DAYS PRIOR TO THE PLANNED IMPLEMENTATION OF SUCH PROPOSED REVISIONS, EXCEPT FOR CHANGES THAT ALTER THE SCOPE OF THE TRAFFIC CONTROL PLAN. SUCH CHANGES IN SCOPE MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE THIRTY (30) WORKING DAYS PRIOR TO IMPLEMENTATION OF SUCH REVISIONS.
3. THE NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF STAFF WHO ARE AUTHORIZED TO SECURE LABOR, MATERIALS, AND EQUIPMENT FOR EMERGENCY REPAIRS OUTSIDE NORMAL WORKING HOURS SHALL BE PROVIDED, IN WRITING, TO THE DOT ENGINEER. THE ENGINEER WILL PROVIDE THE SUBMITTED INFORMATION TO REGIONAL MANAGEMENT, THE NEW YORK STATE POLICE, THE RESIDENT ENGINEER, AND THE LOCAL POLICE.
4. STANDARD SHEET 619-503 MAY BE USED FOR AN OFFSITE DETOUR SETUP FOR BOTH LONG TERM AND SHORT TERM WORK DURATIONS.
5. FOLLOW REGIONAL HIGH-VOLUME RESTRICTIONS. CONSULT WITH DOT ENGINEER IF EXCEPTION NEEDED.
6. PLAN AHEAD TO AVOID CONFLICTING WORK ZONES. CHECK FOR CONSTRUCTION PROJECTS, CLOSURES, & RESTRICTIONS AT WWW.511NY.ORG, WWW.DOT.NY.GOV/PROJECTS, AND WITH DOT ENGINEER.
7. DOCUMENT AND REPORT WORK ZONE INCIDENTS USING EITHER THE DEPARTMENT'S WORK ZONE INCIDENT FORM, OR THE CONSTRUCTION INCIDENT REPORTING SYSTEM, AS APPROPRIATE.
8. CONSIDER CLOSURE WIDTH & CLEAR WIDTH FOR WIDE VEHICLES ON WIDE LOAD ROUTES.

ACTIVITY AREA

1. A 500' MINIMUM LONGITUDINAL DISTANCE SHALL BE MAINTAINED BETWEEN CONSTRUCTION OPERATIONS ON ALTERNATE SIDES OF THE ROADWAY, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. WHEN TWO OR MORE AREAS ARE ADJACENT, OVERLAP, OR ARE IN CLOSE PROXIMITY, THE CONTRACTOR SHALL ENSURE THERE ARE NO CONFLICTING SIGNS AND THAT LANE CONTINUITY IS MAINTAINED THROUGHOUT ALL WORK AREAS.

SIGNS

1. THE LOCATIONS OF THE SIGNS SHOWN ON THE WORK ZONE TRAFFIC CONTROL PLANS AND DETAILS MAY BE ADJUSTED BASED ON SIGHT DISTANCE AND OTHER CONSIDERATIONS. THE FINAL LOCATIONS OF SIGNS ARE SUBJECT TO APPROVAL OF THE ENGINEER.
2. FOR LONG TERM WORK DURATIONS, ANY EXISTING SIGNS, INCLUDING OVERHEAD SIGNS, WHICH CONFLICT WITH THE TEMPORARY TRAFFIC CONTROL SIGN LAYOUT SHALL BE COVERED, REMOVED, STORED OR RESET, AS APPROVED BY THE ENGINEER. ALL APPROPRIATE EXISTING SIGNS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND/OR LOCATION UNLESS OTHERWISE REPLACED IN THIS CONTRACT.
3. SIGNS AT OR NEAR INTERSECTIONS SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT A MOTORIST'S LINE OF SIGHT.
4. SIGNS MOUNTED ON THE MEDIAN OF DIVIDED HIGHWAYS WHERE MEDIAN BARRIER IS IN PLACE MAY BE MOUNTED ON THE BARRIER WITH A SADDLE TYPE BRACKET OR OMMITED WITH THE APPROVAL OF THE DOT ENGINEER. LAYING THE SIGN DOWN IN A HORIZONTAL POSITION IS NOT PERMITTED.
5. THE DIMENSIONS OF WORK ZONE TRAFFIC CONTROL SIGNS ARE DESCRIBED IN THE MUTCD. ANY CHANGES TO THE DIMENSIONS SHALL BE APPROVED BY THE REGIONAL DIRECTOR OR BY HIS/HER DESIGNEE.
6. NYR9-12 SHALL BE USED IN PLACE OF NYR9-11 WHEN A REDUCED REGULATORY SPEED LIMIT SIGN IS AUTHORIZED.
7. RIGID AND FLEXIBLE "ROLL-UP" SIGNS MAY BE USED FOR MOBILE, SHORT DURATION AND SHORT-TERM STATIONARY WORK. RIGID SIGNS MUST BE MOUNTED AT LEAST 5 FEET ABOVE GRADE (7 FEET WHERE THERE ARE PEDESTRIANS OR PARKED CARS). FLEXIBLE SIGNS SHALL BE MOUNTED AT LEAST ONE FOOT ABOVE GRADE. MESH SIGNS SHALL NOT BE USED. USE RETRO REFLECTORIZED RIGID SIGNS FOR NIGHTTIME WORK.

CHANNELIZING DEVICES

1. WHERE POSSIBLE ALL CHANNELIZING AND GUIDING DEVICES ARE TO BE PLACED SO AS TO PROVIDE A MINIMUM 2' LATERAL CLEARANCE TO THE TRAVELED WAY.

PUBLIC ACCESS

1. PROPERTY OWNERS WHOSE DRIVEWAYS WILL BE MADE INACCESSIBLE SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO RESTRICTING USE OF THE DRIVEWAY. FOR MULTIPLE ACCESS PROPERTIES, AT LEAST ONE DRIVEWAY SHALL BE OPEN AT ALL TIMES. ACCESS SHALL BE RESTORED TO ALL DRIVEWAYS AS SOON AS POSSIBLE.
2. SUITABLE RAMPS SHALL BE INSTALLED TO MAINTAIN SMOOTH TRANSITIONS FROM RESIDENTIAL AND COMMERCIAL DRIVEWAYS TO AND FROM THE WORK AREA.

LANE CLOSURES

1. LANE CLOSURES SHALL BE LOCATED TO PROVIDE OPTIMUM VISIBILITY, I.E. BEFORE CURVES AND CRESTS, TO THE EXTENT CONDITIONS PERMIT.
2. THE ENGINEER MAY REQUIRE THAT ALL LANES BE RE-OPENED AT ANY TIME IF THE ROUTE IS NEEDED FOR EMERGENCY PURPOSES. THIS COULD INCLUDE INCIDENTS AT LOCATIONS OUTSIDE THE CONTRACT LIMITS.
3. ARROW PANELS SHALL BE LEGIBLE CONTINUOUSLY FROM ANY POINT WITHIN THE ROADWAY (INCLUSIVE OF SHOULDERS) FROM 1,500 FEET IN ADVANCE OF THE LANE CLOSURE TAPER TO THE BEGINNING OF THE LANE CLOSURE TAPER.

LANE WIDTHS

1. UNLESS AUTHORIZED BY THE ENGINEER, THE MINIMUM LANE WIDTHS FOR WORK ZONE TRAVEL LANES SHALL BE AS FOLLOWS: FREEWAYS AND/OR EXPRESSWAYS IS 11'. THE MINIMUM LANE WIDTH FOR ALL OTHER TYPES OF ROADWAYS IS 10'.
2. A WRITTEN NOTE SHALL BE PROVIDED TO THE ENGINEER, A MINIMUM OF 21 CALENDAR DAYS IN ADVANCE OF PERFORMING ANY WORK THAT RESULTS IN THE REDUCED WIDTH OF AN EXISTING ROADWAY, SO THAT THE ENGINEER MAY NOTIFY THE REGIONAL PERMIT ENGINEER IN A TIMELY MANNER.

PROTECTIVE VEHICLES

1. A PROTECTIVE VEHICLE IS A LARGE DUMP TRUCK, A LARGE RACK TRUCK OR OTHER VEHICLE HAVING A GROSS WEIGHT OF AT LEAST 24,000 POUNDS. IF THE PROTECTIVE VEHICLE ENCROACHES INTO THE TRAVEL LANE, OR IF IT REMAINS ENTIRELY ON THE SHOULDER OF ANY HIGH SPEED ROAD (45 MPH OR HIGHER), IT SHALL BE EQUIPPED WITH A DEPLOYED TRUCK/TRAILER MOUNTED IMPACT ATTENUATOR (TMIA, SEE TABLE 011-01 ON SHEET 619-11). PROTECTIVE VEHICLES MAY BE LOADED WITH SAND, GRAVEL, OR FINE AGGREGATE AS BALLAST TO ENHANCE THE VEHICLE'S GROSS WEIGHT. ANY BALLAST ADDED TO ENHANCE THE VEHICLE'S GROSS WEIGHT SHALL BE SECURED AS NOT TO BECOME DISLODGED IF IMPACTED.
2. A PROTECTIVE VEHICLE USED IN A MOVING OPERATION IS REFERRED TO AS A SHADOW VEHICLE.
3. A PROTECTIVE VEHICLE USED IN A STATIONARY OPERATION IS REFERRED TO AS A BARRIER VEHICLE.
4. IN A MOVING OPERATION OR A STATIONARY OPERATION THAT OCCUPIES A LOCATION FOR UP TO 1 HOUR, THE OPERATOR SHALL REMAIN IN THE PROTECTIVE VEHICLE WITH THE SAFETY BELT AND HEADREST PROPERLY ADJUSTED, MAINTAIN VEHICLE SPACING, AND KEEP THE WHEELS ALIGNED WITH THE LANE STRIPING. TWO-WAY RADIOS SHOULD BE USED TO COMMUNICATE BETWEEN THE OPERATOR AND THE WORK CREW.
5. IN A STATIONARY OPERATION THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR, ONCE THE PROTECTIVE VEHICLE HAS BEEN APPROPRIATELY PLACED, IT SHOULD BE UNOCCUPIED. UNOCCUPIED VEHICLE SHALL BE POSITIONED PARALLEL TO TRAFFIC, PARKING BRAKE SET, PLACED IN 2ND GEAR (MANUAL TRANSMISSIONS /ENGINE OFF) OR PARK / NEUTRAL (AUTOMATIC TRANSMISSIONS) AND HAVE THE FRONT WHEELS ALIGNED WITH THE LANE STRIPING AND LANE TO MAINTAIN LANE DISCIPLINE AND TO STAY IN LANE IF STRUCK.
6. WHEN A PROTECTIVE VEHICLE IS USED IN ADVANCE OF EITHER MOVING OR STATIONARY OPERATIONS TO DISPLAY SIGN MESSAGES, IT IS REFERRED TO AS AN ADVANCE WARNING VEHICLE. ADVANCED WARNING VEHICLES MAY BE OCCUPIED OR UNOCCUPIED. WHEN SIGNS ARE MOUNTED ON AN ADVANCED WARNING VEHICLE, THEY SHALL NOT OBSTRUCT VISIBILITY OF ANY LIGHTS (TAILLIGHTS OR WARNING LIGHTS) OR SIDE-VIEW MIRRORS ON THE VEHICLE.
7. NO WORK ACTIVITY, EQUIPMENT, VEHICLES AND/OR MATERIALS SHALL BE LOCATED BETWEEN THE PROTECTIVE VEHICLE AND THE ACTIVE WORK AREA (ROLL AHEAD DISTANCE).
8. PROTECTIVE VEHICLES MAY BE REQUIRED IN CONJUNCTION WITH POLICE PRESENCE IN THE WORK ZONE, TO BE INCLUDED IN THE UNIT BID PRICE FOR BASIC WORK ZONE TRAFFIC CONTROL, FOR CAPITOL CONSTRUCTION PROJECTS.
9. DIRECT VERBAL COMMUNICATION BETWEEN THE PROTECTIVE VEHICLES AND THE WORK VEHICLE(S) / EQUIPMENT SHALL BE UTILIZED WHERE AVAILABLE.

WORK DURATION DEFINITIONS

1. THERE ARE MAINLY FIVE WORK DURATIONS:
   A. LONG-TERM IS STATIONARY WORK THAT OCCUPIES A LOCATION MORE THAN 3 CONSECUTIVE DAYS.
   B. INTERMEDIATE-TERM IS STATIONARY WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.
   C. SHORT-TERM IS STATIONARY DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.
   D. SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR. IT CAN BE PERFORMED DURING THE DAYTIME OR AT NIGHT IN ACCORDANCE WITH NOTES N1 TO N10 NOTES ON NIGHTTIME WORK.
   E. MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY WHERE THE WORK AT ANY SPECIFIC LOCATION COMPLETES WITHIN 15 MINUTES. IT IS USED FOR VEHICLE BASED OPERATIONS AND DOES NOT INVOLVE WORKERS ON FOOT. IT CAN BE PERFORMED DURING THE DAYTIME OR AT NIGHT IN ACCORDANCE WITH NOTES N1 TO N10 NOTES ON NIGHTTIME WORK.
2. SPECIAL OPERATIONS ARE WORK OPERATIONS THAT DO NOT FIT INTO ONE OF THE ABOVE FIVE CATEGORIES. SPECIAL OPERATIONS INCLUDE:
   A. STOP AND GO OPERATIONS - WORK THAT COMPLETES WITHIN 5 MINUTES AND ALLOWS WORKERS ON FOOT.
   B. OTHER OPERATIONS INCLUDING MOWING, MULCHING/HERBICIDE OPERATIONS, TEMPORARY ROAD/INTERSECTION CLOSURES, ETC.

ROADWAY TYPE DEFINITIONS

1. FREEWAY:
   A. INTERSTATE: INTERREGIONAL HIGH-SPEED, HIGH-VOLUME, DIVIDED FACILITIES WITH COMPLETE CONTROL OF ACCESS.
   B. PARKWAY: DIVIDED HIGHWAYS FOR NON-COMMERCIAL TRAFFIC WITH FULL CONTROL OF ACCESS, GRADE PARKWAY SEPARATIONS, INTERCHANGES, AND OCCASIONAL AT-GRADE INTERSECTIONS. PARKWAYS ARE DESIGNATED BY LAW.

ROADWAY TYPE DEFINITIONS (CONTINUED)

2. EXPRESSWAY: DIVIDED HIGHWAYS FOR THROUGH TRAFFIC WITH FULL OR PARTIAL CONTROL OF ACCESS AND GENERALLY WITH GRADE SEPARATIONS AT MAJOR CROSSROADS. ALL FREEWAY STANDARD SHEETS ARE APPLICABLE TO EXPRESSWAY.
3. NON-FREEWAY:
   A. MULTILANE DIVIDED HIGHWAY
   B. MULTILANE UNDIVIDED HIGHWAY
   C. TWO-LANE TWO-WAY ROADWAY

ALL NON-FREEWAYS CAN BE EITHER URBAN OR RURAL:

URBAN: (MEETS MORE THAN 1 OF THE FOLLOWING CRITERIA)
- HIGH DENSITY DEVELOPMENT
- ON-STREET PARKING
- VARIED BUILDING SETBACKS
- MULTI-STORY AND LOW-TO MEDIUM-RISE STRUCTURES FOR RESIDENTIAL
- COMMERCIAL, AND EDUCATIONAL USES, STRUCTURES THAT ACCOMMODATE MIXED USES: COMMERCIAL, RESIDENTIAL, AND PARKING
- LIGHT INDUSTRIAL, AND SOMETIMES HEAVY INDUSTRIAL, LAND USE
- PROMINENT DESTINATIONS WITH SPECIALIZED STRUCTURES, E.G., LARGE THEATERS, SPORTS FACILITIES OR CONFERENCE CENTERS
- HIGH LEVELS OF PEDESTRIAN AND BICYCLIST ACTIVITY, WITH NEARLY CONTINUOUS SIDEWALKS AND MARKED CROSSWALKS
- HIGHER DENSITY OF TRANSIT STOPS AND ROUTES
- DRIVEWAY DENSITIES GREATER THAN 25 DRIVEWAYS/MILE ON EACH SIDE OF THE ROAD
- MINOR COMMERCIAL DRIVEWAY DENSITIES OF 10 DRIVEWAYS/MILE OR GREATER
- MAJOR COMMERCIAL DRIVEWAYS
- HIGH DENSITY OF CROSS STREETS

RURAL: DOES NOT MEET MORE THAN ONE OF THE ABOVE CRITERIA.

NOTES FOR NIGHTTIME OPERATIONS:

N1. WORK OCCURRING AFTER SUNSET AND BEFORE SUNRISE WILL BE CONSIDERED NIGHTTIME OPERATIONS.
N2. ALL SIGNS, STOP/SLOW PADDLES AND RED FLAGS USED TO WARN/ALERT/CONTROL TRAFFIC SHALL BE RETROREFLECTIVE.
N3. ALL WORKERS INVOLVED SHALL WEAR PROTECTIVE HELMETS AND NIGHTTIME APPAREL IN ACCORDANCE WITH §107-05A. HIGH VISIBILITY APPAREL AT ALL TIMES.
N4. VEHICLES OPERATING ON THE PAVEMENT OF A CLOSED ROADWAY OR TRAVEL LANE SHALL DISPLAY ROTATING AMBER BEACONS OR FLASHING LED BEACONS AT ALL TIMES.
N5. LEVEL I ILLUMINATION SHALL BE PROVIDED NEAR THE BEGINNING OF LANE CLOSURE TAPERS AND AT ROAD CLOSURES, INCLUDING THE SETUP AND REMOVAL OF THE CLOSURE TAPERS.
N6. LEVEL II ILLUMINATION SHALL BE PROVIDED FOR FLAGGING STATIONS, ASPHALT PAVING, MILLING, AND CONCRETE PLACEMENT AND/OR REMOVAL OPERATIONS, INCLUDING BRIDGE DECKS, 50 FEET AHEAD OF AND 100 FEET BEHIND A PAVING OR MILLING MACHINE.
N7. LEVEL III ILLUMINATION SHALL BE PROVIDED FOR PAVEMENT OR STRUCTURAL CRACK FILLING, JOINT REPAIR, PAVEMENT PATCHING AND REPAIRS, INSTALLATION OF SIGNAL EQUIPMENT OR OTHER ELECTRICAL/MECHANICAL EQUIPMENT, AND OTHER TASKS INVOLVING FINE DETAILS OR INTRICATE PARTS AND EQUIPMENT.
N8. ALL LIGHTING SHALL BE DESIGNED, INSTALLED, AND OPERATED TO AVOID GLARE THAT AFFECTS TRAFFIC ON THE ROADWAY OR THAT CAUSES ANNOYANCE OR DISCOMFORT FOR RESIDENCES ADJOINING THE ROADWAY.
N9. PRIOR TO THE START OF NIGHTTIME OPERATIONS, A WRITTEN NIGHTTIME OPERATIONS AND LIGHTING PLAN IS REQUIRED FOR APPROVAL FROM THE DOT ENGINEER.
N10. SEE STANDARD SPECIFICATIONS §619 FOR ADDITIONAL REQUIREMENTS AND CONSIDERATIONS.
N11. FLAGGERS SHALL USE A FLASHLIGHT WITH RED GLOW CONE/RED LED BATON FOR FLAGGING IN NON-ILLUMINATED FLAGGER STATIONS DURING NIGHTTIME OPERATIONS.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation
U.S. CUSTOMARY STANDARD SHEET
WORK ZONE TRAFFIC CONTROL GENERAL NOTES
APPROVED APRIL 8, 2022 — ISSUED UNDER EI 22-008
Robert Limoges
ROBERT LIMOGES, P.E.
DIRECTOR, OTSM
619-010

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WORK ZONE TRAFFIC CONTROL SIGN TABLE

COLOR CODE LEGEND

CODE	DESCRIPTION
A	BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND
B	BLACK LEGEND AND BORDER ON A WHITE BACKGROUND
C	WHITE LEGEND AND BORDER ON A GREEN BACKGROUND
D	WHITE LEGEND AND BORDER ON A RED BACKGROUND
E	RED LEGEND AND BORDER ON A WHITE BACKGROUND
F	BLACK LEGEND AND BORDER ON A FLOURESCENT YELLOW GREEN BACKGROUND
G	WHITE LEGEND AND BORDER ON A BLUE AND RED BACKGROUND

NOTES:
1. DIMENSIONS ARE SHOWN AS WIDTH X HEIGHT.
2. FOR SIGNAGE NOT SHOWN ON THESE TABLES REFER TO THE M.U.T.C.D.
3. COLORS FOR DIRECTION PLAQUES, ADVANCE TURN ARROWS, AND DIRECTIONAL ARROWS SHALL MATCH THE ROUTE OR INTERSTATE SIGN THAT THEY SUPPLEMENT AS PER THE M.U.T.C.D.
4. MULTICOLORED SYMBOL IMPOSED ON SIGN WITH BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND.
5. FOR R2-1 SIGN LARGER DIMENSIONS SHALL BE USED WHEN SIGN FACES MULTIPLE LANES ON A CONVENTIONAL ROAD.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation
U.S. CUSTOMARY STANDARD SHEET
WORK ZONE TRAFFIC CONTROL SIGN TABLE (SHEET 1 OF 2)
APPROVED DECEMBER 2, 2021 — ISSUED UNDER EI 21-028
Robert Limoges
ROBERT LIMOGES, P.E.
DIRECTOR, OTSM
619-012

TABLE 011-01: PROTECTIVE VEHICLE REQUIREMENTS

CLOSURE TYPE	DURATION	MOBILE (WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY, WHERE THE WORK AT ANY SPECIFIC LOCATION COMPLETES WITHIN 15 MINUTES) INCLUDES "STOP AND GO OPERATIONS OF 5 MINUTES OR LESS				SHORT DURATION (WORK THAT OCCUPIES A LOCATION FOR UP TO 1 HOUR)				SHORT TERM (DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD)				INTERMEDIATE TERM (WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS OR NIGHT TIME WORK LASTING MORE THAN 1 HOUR)				LONG TERM (WORK THAT OCCUPIES A LOCATION FOR MORE THAN 3 CONSECUTIVE DAYS)			
	ROAD TYPE & SPEED	FREEWAY	NON-FREEWAY			FREEWAY	NON-FREEWAY			FREEWAY	NON-FREEWAY			FREEWAY	NON-FREEWAY			FREEWAY	NON-FREEWAY		
			≥ 45 MPH	35 - 40 MPH	≤ 30 MPH		≥ 45 MPH	35 - 40 MPH	≤ 30 MPH		≥ 45 MPH	35 - 40 MPH	≤ 30 MPH		≥ 45 MPH	35 - 40 MPH	≤ 30 MPH		≥ 45 MPH	35 - 40 MPH	≤ 30 MPH
	EXPOSURE CONDITIONS[1]																				
LANE CLOSURE OR ENCROACHMENT	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMIA	P, TMIA	P, TMIA	P	P, TMIA	P, TMIA	P, TMIA	P	P, TMIA	P, TMIA	P, TMIA	P	P, TMIA	P, TMIA	P, TMIA	SEE NOTE 2	P, TMIA	P, TMIA	P, TMIA	SEE NOTE 2
	OTHER HAZARDS NO WORKERS EXPOSED	NA	NA	NA	NA	P, TMIA	P, TMIA	P	P	P, TMIA	P, TMIA	P	SEE NOTE 2	P, TMIA	P, TMIA	SEE NOTE 2	SEE NOTE 2	P, TMIA	P, TMIA	SEE NOTE 2	SEE NOTE 2
SHOULDER CLOSURE OR ENCROACHMENT	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMIA	P, TMIA	P	P	P, TMIA	P, TMIA	P	P	P, TMIA	P, TMIA	P	P	P, TMIA	P, TMIA	SEE NOTE 2	SEE NOTE 2	P, TMIA	P, TMIA	SEE NOTE 2	SEE NOTE 2
	OTHER HAZARDS NO WORKERS EXPOSED	NA	NA	NA	NA	P, TMIA	P, TMIA	P	P	P, TMIA	P, TMIA	P	SEE NOTE 2	P, TMIA	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2	P, TMIA	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2

LEGEND
P: PROTECTIVE VEHICLE REQUIRED FOR EACH CLOSED LANE & EACH CLOSED PAVED SHOULDER 8' OR WIDER, IF THE WORK SPACE MOVES WITHIN THE STATIONARY CLOSURE, THE PROTECTIVE VEHICLE SHALL BE REPOSITIONED ACCORDINGLY
TMIA: TRUCK/TRAILER MOUNTED IMPACT ATTENUATOR (TMIA) REQUIRED
NA: NOT APPLICABLE

NOTES
1. THE EXPOSURE CONDITIONS ASSUMES THERE IS NO POSITIVE PROTECTION PRESENT
2. EITHER A PROTECTIVE VEHICLE OR THE STANDARD BUFFER SPACE SHALL BE PROVIDED

1 SKIP LINE — 1 SKIP LINE — 10' — 30' — 10' — 30' — 10'
NORMAL BROKEN LANE LINE
DETAIL 011A - SKIP LINES

TABLE 011-02: TAPER LENGTHS & NUMBER OF CONES CHART

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	TAPER LENGTH: L (FT.)/ * OF SKIP LINES/ * OF CHANNELIZING DEVICES — LATERAL SHIFT OF TRAFFIC FLOW PATH (FT.) 4	5	6	7	8	9	10	11	12	SHOULDER TAPER LENGTH: L/3 (FT.)/ * OF SKIP LINES/ * OF CHANNELIZING DEVICES — FOR SHOULDER WIDTH ≤ 4 FT.	5 - 7 FT.	≥ 8 FT.
25	40/1/2	80/2/3	80/2/3	80/2/3	80/2/3	120/3/4	120/3/4	120/3/4	120/3/4	40/1/2	40/1/2	40/1/2
30	80/2/3	80/2/3	80/2/3	120/3/4	120/3/4	160/4/5	160/4/5	160/4/5	200/5/6	40/1/2	40/1/2	40/1/2
35	80/2/3	120/3/4	120/3/4	160/4/5	160/4/5	200/5/6	200/5/6	240/6/7	240/6/7	40/1/2	40/1/2	80/2/3
40	120/3/4	160/4/5	160/4/5	200/5/6	240/6/7	240/6/7	280/7/8	320/8/9	320/8/9	40/1/2	80/2/3	80/2/3
45	200/5/6	240/6/7	280/7/8	320/8/9	360/9/10	400/10/11	440/11/12	520/13/14	560/14/15	80/2/3	80/2/3	120/3/4
50	200/5/6	240/6/7	320/8/9	360/9/10	400/10/11	440/11/12	520/13/14	560/14/15	600/15/16	80/2/3	120/3/4	160/4/5
55	240/6/7	280/7/8	320/8/9	400/10/11	440/11/12	520/13/14	560/14/15	600/15/16	680/17/18	80/2/3	120/3/4	160/4/5
60	240/6/7	320/8/9	360/9/10	440/11/12	480/12/13	560/14/15	600/15/16	680/17/18	720/18/19	80/2/3	120/3/4	160/4/5
65	280/7/8	320/8/9	400/10/11	480/12/13	520/13/14	600/15/16	640/16/17	720/18/19	800/19/20	80/2/3	160/4/5	200/5/6

* THIS TABLE WAS CREATED WITH REFERENCE TO MUTCD TABLE 6H-4.
** THE NUMBER OF CHANNELIZING DEVICES SHOWN IS CALCULATED BASED ON A 40FT DEVICE SPACING. THE NUMBER OF CHANNELIZING DEVICES CAN BE ADJUSTED AS NECESSARY.

TABLE 011-03
LONGITUDINAL BUFFER SPACE

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	DISTANCE (FT.)/ * OF SKIP LINES
25	155 / 4
30	200 / 5
35	250 / 6
40	305 / 8
45	360 / 9
50	425 / 11
55	495 / 13
65	645 / 16

* THIS TABLE IS THE SAME AS MUTCD TABLE 6C-2.

TABLE 011-04: ROLL AHEAD DISTANCE FOR PROTECTIVE VEHICLES

ROLL AHEAD DISTANCE (FT.)/* OF SKIP LINES FOR VEHICLES

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	MOVING OPERATION (BASED ON PROTECTIVE VEHICLE SPEED OF 15 MPH) MIN	MAX	STATIONARY OPERATION MIN	MAX
≥ 55	200/5	280/7	120/3	200/5
45 - 50	160/4	240/6	80/2	160/4
≤ 40	120/3	200/5	40/1	120/3

* THIS TABLE WAS CREATED WITH REFERENCE TO MUTCD TABLES NY-2 AND NY2-B.

TABLE 011-05
FLARE RATES FOR POSITIVE BARRIER

TYPE OF POSITIVE BARRIER	POSTED SPEED LIMIT 30 MPH	40 MPH	50 MPH	55 MPH	65 MPH
TEMPORARY POSITIVE BARRIER	8:1	11:1	14:1	16:1	20:1
BOX BEAM OR HEAVY POST CORRUGATED BEAM	7:1	9:1	11:1	12:1	15:1

TABLE 011-06
ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS A (FT.)	B (FT.)	C (FT.)	SIGN LEGEND XX	YY
URBAN (≤ 30 MPH*)	100	100	100	AHEAD	AHEAD
URBAN (35-40 MPH*)	200	200	200	AHEAD	AHEAD
URBAN (≥ 45 MPH*)	350	350	350	1000 FT.	AHEAD
RURAL	500	500	500	1500 FT.	1000 FT.
FREEWAY	1000	1500	2640	1 MILE	½ MILE

* PRECONSTRUCTION POSTED SPEED LIMIT.
** THIS TABLE IS THE SAME AS MUTCD TABLE NY6H-3.

TABLE 011-07
TAPER LENGTH FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH (L)
MERGING TAPER	L
SHIFTING TAPER	L/2
SHOULDER TAPER	L/3
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FT. MIN -100 FT. MAX
DOWNSTREAM TAPER	50 FT. MIN -100 FT. MAX

* THIS TABLE IS THE SAME AS MUTCD TABLE 6C-3.

WORK ZONE TRAFFIC CONTROL LEGEND

SYMBOL	DESCRIPTION
	ARROW PANEL
	ARROW PANEL, CAUTION MODE
	ARROW PANEL TRAILER OR SUPPORT
	CHANGEABLE MESSAGE SIGN (PVMS)
	CHANNELIZING DEVICE
	CONE
	CRASH CUSHION/TEMPORARY IMPACT ATTENUATOR
	DIRECTION OF TEMPORARY TRAFFIC DETOUR
	DIRECTION OF TRAFFIC
	AUTOMATED FLAGGER ASSISTAMCE DEVICE WITH OPERATOR
	FLAGGER
	FLAG TREE
	LUMINAIRE
	MOWER
	PARKWAY GRASS SHOULDER
	PAVEMENT MARKINGS THAT SHALL BE REMOVED FOR A LONG TERM PROJECT
PVMS	PORTABLE VARIABLE MESSAGE SIGN
	ADVANCE WARNING SIGN WITH ORANGE FLAGS
	TRAILER FOR ARROW PANEL OR PORTABLE VARIABLE MESSAGE SIGN (PVMS)

WORK ZONE TRAFFIC CONTROL LEGEND

SYMBOL	DESCRIPTION
	SIGN, TEMPORARY
	SPOTTER
	TEMPORARY POSITIVE BARRIER
	TEMPORARY POSITIVE BARRIER WITH WARNING LIGHTS
	TEMPORARY TRAFFIC SIGNAL HEAD
	TYPE III BARRICADE
	WARNING LIGHTS
	WORK AREA
	WORK VEHICLE
	WORK VEHICLE (MULCHING/HERBICIDE OPERATION)
	WORK VEHICLE (PAVEMENT MARKING)
	WORK VEHICLE (SIGNAL WORK)
	24,000LB PROTECTIVE VEHICLE WITH TRUCK/TRAILER MOUNTED ATTENUATOR (TMIA)
	24,000LB PROTECTIVE VEHICLE WITHOUT TRUCK/TRAILER MOUNTED ATTENUATOR

NEW YORK STATE OF OPPORTUNITY. Department of Transportation
U.S. CUSTOMARY STANDARD SHEET
WORK ZONE TRAFFIC CONTROL GENERAL TABLES AND LEGEND
APPROVED DECEMBER 2, 2021 — ISSUED UNDER EI 21-028
Robert Limoges
ROBERT LIMOGES, P.E.
DIRECTOR, OTSM
619-011

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WORK ZONE TRAFFIC CONTROL SIGN TABLE

COLOR CODE LEGEND

NOTES:
1. DIMENSIONS ARE SHOWN AS WIDTH X HEIGHT.
2. FOR SIGNAGE NOT SHOWN ON THESE TABLES REFER TO THE M.U.T.C.D.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation
U.S. CUSTOMARY STANDARD SHEET
WORK ZONE TRAFFIC CONTROL SIGN TABLE (SHEET 2 OF 2)
APPROVED DECEMBER 2, 2021 — ISSUED UNDER EI 21-028
619-012

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for
EVERGREEN APARTMENTS / PG DRYDEN, LLC
1061 DRYDEN ROAD (NYS ROUTE 366)
TOWN OF DRYDEN — TOMPKINS COUNTY — STATE OF NEW YORK

JOB NO:	1495-22
SCALE:	NA
DRAWN:	RLJ
DESIGNED:	AMF
DATE:	8/30/23

REVISIONS

DATE	BY	REVISION
9/21/23	AF	TOWN SUBMITTAL
10/11/23	AF	TOWN SUBMITTAL

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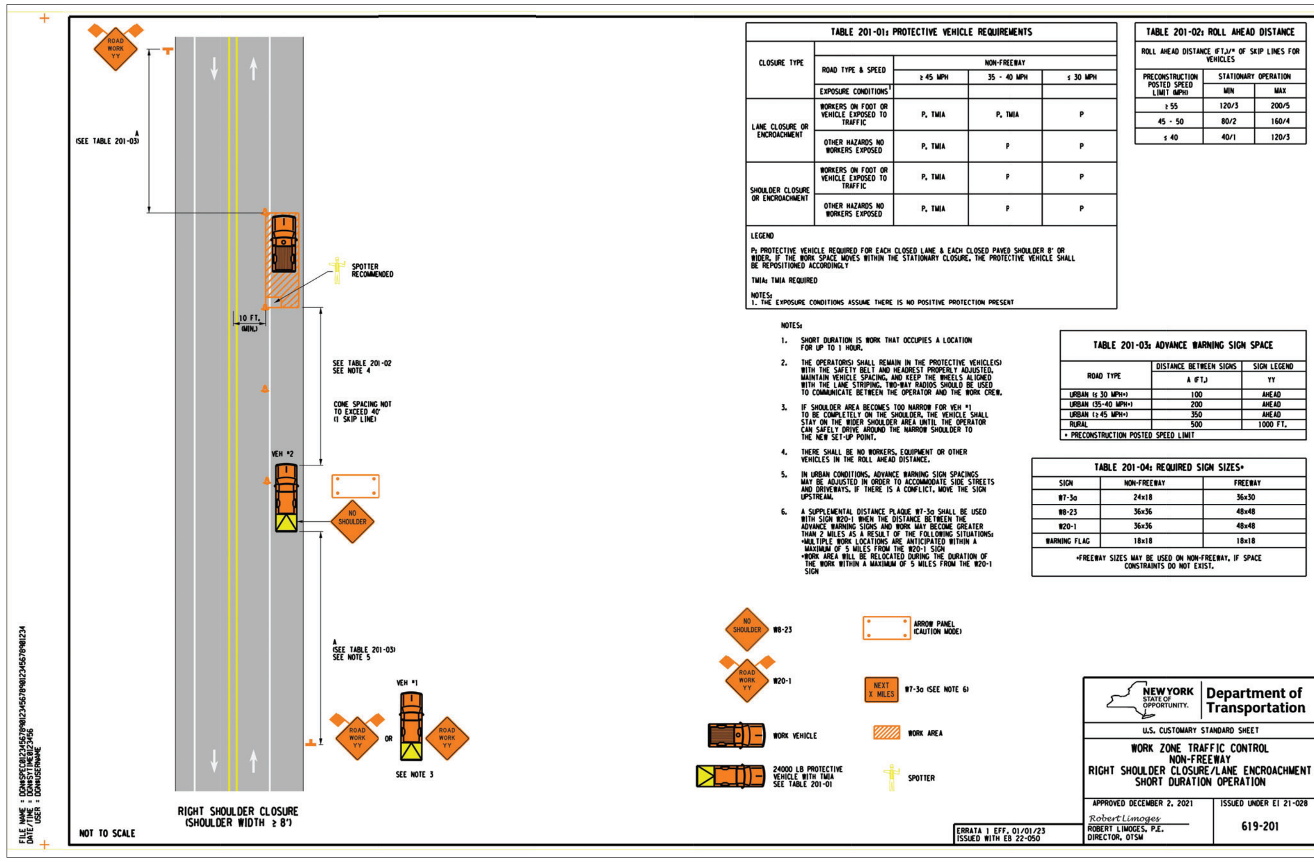
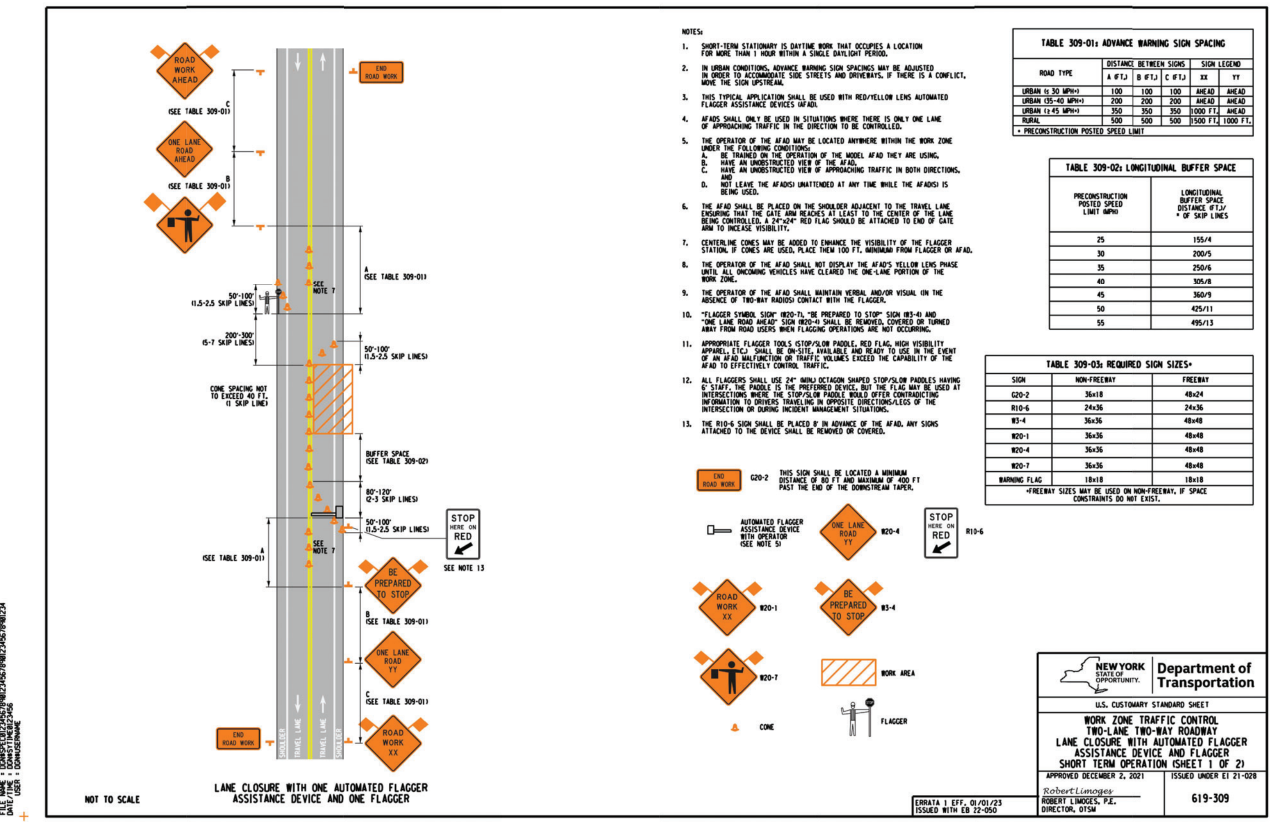
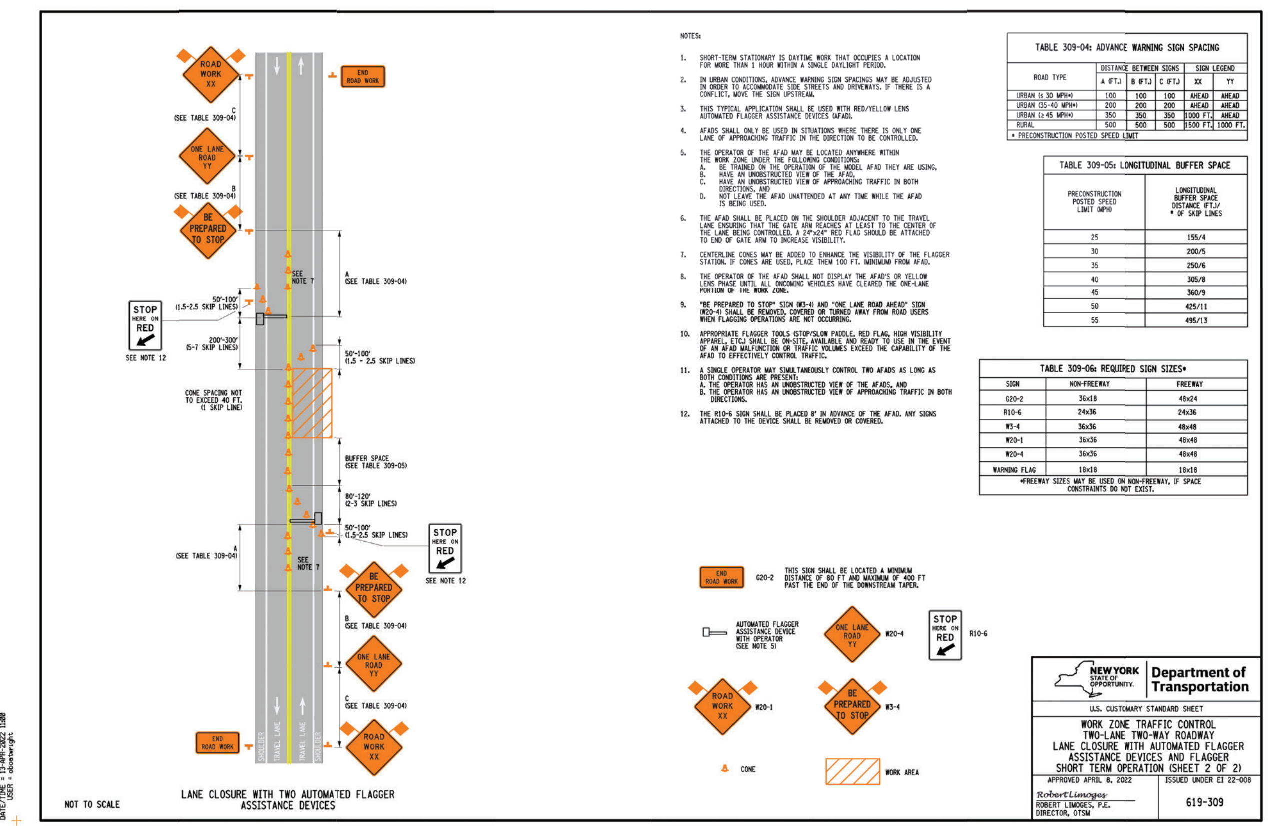
STATE OF NEW YORK — ADAM MCKINLEY FISHEL — LICENSED PROFESSIONAL ENGINEER — NO. 086648
NOT FOR CONSTRUCTION
ADAM M. FISHEL

DRAWING TITLE:
Driveway Plan (2 of 3)

16 of 18
SHEET No:
1495-22
JOB No:
C-7.1
DRAWING No:







1. WORK ZONE TRAFFIC CONTROL REVISIONS

PROPOSED REVISIONS TO THE WORK ZONE TRAFFIC CONTROL (WZTC) PLAN OR MODIFICATIONS TO THE 619 STANDARD SHEETS SHALL BE SUBMITTED TO THE ENGINEER FOR THE REVIEW AND APPROVAL BY THE REGIONAL TRAFFIC ENGINEER PRIOR TO THE PLANNED IMPLEMENTATION OF SUCH REVISIONS OR MODIFICATIONS. THE CONTRACTOR SHALL NOT IMPLEMENT THE PROPOSED REVISIONS WITHOUT APPROVAL FROM THE REGIONAL TRAFFIC ENGINEER. WHEN APPLICABLE, NYSDOT WORK ZONE TRAFFIC CONTROL (WZTC) TYPICAL APPLICATIONS SHALL BE USED. TYPICALS CAN BE FOUND AT [redacted]

2. TRAVEL LANE WIDTHS IN WORK ZONES

WHERE NOT SHOWN IN THE WZTC PLANS OR OTHERWISE AUTHORIZED BY NYS DOT (OR THE ENGINEER), TRAVEL LANE WIDTHS IN WORK ZONES SHALL BE A MINIMUM OF 11 FT ON FREEWAYS, RAMPS, EXPRESSWAYS AND MULTI-LANE* CONVENTIONAL ROADWAYS AND 10 FT ON ALL OTHER CONVENTIONAL ROADWAYS.
*(MULTI-LANE ROADWAYS ARE THOSE WITH TWO OR MORE THRU LANES IN ONE OR BOTH DIRECTIONS.)

3. DAILY LANE, RAMP AND SHOULDER CLOSURE RESTRICTIONS

WORK ZONES SHALL BE RESTRICTED TO ONE SIDE OF THE ROADWAY AT A TIME IN EACH DIRECTION ON DIVIDED ROADWAYS, UNLESS APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL SCHEDULE WORK SO THAT ALL TRAVEL LANES AND RAMPS IN EACH DIRECTION ARE OPEN WHEN THE CONTRACTOR'S OPERATIONS ARE CLOSED DOWN OR SUBSTANTIALLY CLOSED DOWN.

DAILY CLOSURES MAY OCCUR OFF OF LONG-TERM CLOSURES AND SHALL BE SUBJECT TO DAILY CLOSURE RESTRICTIONS.
WORK ZONES SHALL BE RESTRICTED TO ONE SIDE OF THE ROADWAY AT A TIME ON UNDIVIDED HIGHWAYS.

4. FLAGGING OPERATIONS

WHEN A PEDESTRIAN APPROACHES A FLAGGER STATION, THE FLAGGER SHALL STOP TRAFFIC AND DIRECT THE PEDESTRIAN TO A SAFE ROUTE THROUGH THE WORK AREA. FLAGGERS SHALL COORDINATE THE FLAGGING OF THE WORK ZONE TO ENSURE PEDESTRIANS CAN SAFELY PROCEED THROUGH THE AREA. IF THERE IS MORE THAN THE OCCASIONAL PEDESTRIAN WITHIN THE PROJECT LIMITS, REFER TO THE SITE SPECIFIC PEDESTRIAN WZTC PLAN.

5. HOLIDAY CLOSURE RESTRICTIONS

DAILY LANE, RAMP AND SHOULDER CLOSURES SHALL NOT BE PERMITTED ON DATES LISTED BELOW DURING THE FOLLOWING HOLIDAY PERIODS.

2022

6:00 AM FRIDAY, MAY 27, 2022 THRU 6:00 AM TUESDAY, MAY 31, 2022 – (MEMORIAL DAY HOLIDAY)

6:00 AM FRIDAY, JULY 1, 2022 THRU 6:00 AM TUESDAY, JULY 5, 2022 – (JULY 4TH HOLIDAY)

6:00 AM FRIDAY, SEPTEMBER 2, 2022 THRU 6:00 AM TUESDAY, SEPTEMBER 6, 2022 – (LABOR DAY HOLIDAY)

6:00 AM WEDNESDAY, NOVEMBER 23, 2022 THRU 6:00 AM MONDAY, NOVEMBER 28, 2022 – (THANKSGIVING HOLIDAY)

6:00 AM FRIDAY, DECEMBER 23, 2022 THRU 6:00 AM TUESDAY, DECEMBER 27, 2022 – (CHRISTMAS HOLIDAY)

6:00 AM FRIDAY, DECEMBER 30, 2022 THRU 6:00 AM TUESDAY, JANUARY 3, 2023 – (NEW YEAR'S HOLIDAY)

6. NOTIFICATION REQUIREMENTS

REGION 3 HAS A WORK ZONE TRAFFIC CONTROL (WZTC) NOTIFICATION POLICY WHICH REQUIRES ENGINEERS TO NOTIFY THE REGIONAL TRANSPORTATION MANAGEMENT CENTER (RTMC) PRIOR TO ALLOWING A CONTRACTOR TO IMPLEMENT WORK ZONE TRAFFIC CONTROL ACTIVITIES WITHIN THE HIGHWAY RIGHT OF WAY. WORK ZONE NOTIFICATION IS REQUIRED FOR THE FOLLOWING:

FREEWAYS AND EXPRESSWAYS: ALL LANE, SHOULDER, ROAD, RAMP OR BRIDGE CLOSURES.
(THIS INCLUDES MOBILE OPERATIONS WHICH OCCUPY THE LANES OR SHOULDERS)

ALL OTHER STATE HIGHWAYS: ALL LANE CLOSURES WHOSE DURATION WILL BE GREATER THAN 2 HOURS AND ALL ROAD/BRIDGE CLOSURES.

THE CONTRACTOR SHALL REPORT PROPOSED WZTC ACTIVITIES NOTED ABOVE TO THE ENGINEER BY 8:00 AM OF THE BUSINESS WEEK DAY (I.E. MONDAY THROUGH FRIDAY EXCLUDING HOLIDAYS) PRECEDING THE PROPOSED WZTC ACTIVITY. FAILURE TO DO SO WILL RESULT IN DISAPPROVAL TO PERFORM THE UNREPORTED WZTC ACTIVITY UNTIL THE ABOVE NOTIFICATIONS REQUIREMENTS ARE SATISFIED.

NO PLANNED WZTC ACTIVITY SHALL BE IMPLEMENTED WITHOUT FIRST RECEIVING CLEARANCE FROM THE RTMC.

7. VEHICLE RESTRICTIONS

THE CONTRACTOR SHALL REPORT ANY RESTRICTION (AS DEFINED BELOW) ON HIGHWAYS, RAMPS, OR BRIDGES AT LEAST SIX (6) BUSINESS WEEKDAYS IN ADVANCE OF THE RESTRICTION. SIX (6) DAYS LEAD TIME IS NECESSARY TO PROVIDE THE RTMC ADEQUATE TIME TO PREVENT ISSUANCE OF SPECIAL HAULING PERMITS THAT WOULD ROUTE OVERSIZE VEHICLES OVER THE RESTRICTED SECTION OF THIS CONTRACT.

RESTRICTIONS SHALL BE DEFINED AS ONE OR MORE OF THE FOLLOWING:
1: COMPLETE CLOSURE OF A HIGHWAY, RAMP OR BRIDGE.
2: INSTALLATION OF BARRIER OR CHANNELIZING DEVICES THAT RESULT IN AN UNOBSTRUCTED WIDTH LESS THAN 18 FEET ALONG A HIGHWAY, RAMP OR BRIDGE.
3: SUITABLE DRIVING SURFACES OF LESS THAN 18 FEET IN WIDTH.
4: AVAILABLE VERTICAL CLEARANCE ABOVE THE HIGHWAY IS LESS THAN 14 FEET IN HEIGHT.
5: WORK WOULD LIMIT VEHICLE LENGTH (I.E. TURNING ABILITY)
6: CHANGING THE LOAD CAPACITY OF A HIGHWAY, RAMP OR BRIDGE.

THE CONTRACTOR SHALL ALSO GIVE VERBAL NOTIFICATION AT LEAST SEVEN (7) BUSINESS DAYS (I.E. MONDAY THROUGH FRIDAY EXCLUDING HOLIDAYS) PRIOR TO AND AT THE END OF A RESTRICTION ON ANY ROADWAY TO THE:

TOMPKINS COUNTY: EMERGENCY CONTROL CENTER (607) 273-7288

8. ACCESS

THE CONTRACTOR SHALL ENSURE THAT ACTIVE LANES OF TRAFFIC ON FREEWAYS ARE NOT CROSSED BY PEDESTRIAN WORKERS. FOR ALL OTHER HIGHWAYS, THE CONTRACTOR SHALL ENSURE THAT PEDESTRIAN WORKERS CROSS ACTIVE LANES OF TRAFFIC ONLY AT PROPERLY MARKED OR UNMARKED CROSSWALKS AND/OR DEDICATED PEDESTRIAN WALKWAYS. IT IS REQUIRED THAT THE PROJECT SAFETY AND HEALTH PLAN ADDRESS ACCESS TO EACH WORK AND STAGING AREA.

CHANNELIZING DEVICE SPACING (CENTER TO CENTER) SHALL BE 40' MAXIMUM FOR POSTED SPEED LIMITS 40 MPH OR GREATER AND 20' MAXIMUM FOR POSTED SPEED LIMITS 35 MPH OR LESS.

STANDARD CONES AND TUBULAR MARKERS SHALL NOT BE USED FOR CHANNELIZATION AND DELINEATION DURING THE HOURS OF DARKNESS, WHICH IS DEFINED AS THE PERIOD BETWEEN SUNSET AND SUNRISE.

9. SIGNS

ALL CONSTRUCTION SIGNS SHALL BE MOUNTED AT A HEIGHT OF 7 FEET ABOVE THE EDGE OF THE TRAVEL LANE.

SIGNS SHALL NOT ENCROACH MORE THAN 4" INTO SHOULDERS USED BY PEDESTRIANS OR BICYCLES.

WHERE SHOULDER WIDTHS ARE LIMITED AND SIGNS CANNOT BE ERECTED BEYOND THE SHOULDER, CONSTRUCTION SIGNS MAY NEED TO BE MOUNTED ON CONCRETE MEDIAN BARRIERS, BRIDGE PARAPETS, ETC. PRIOR TO ERECTING THOSE SIGNS THE CONTRACTOR SHALL PROVIDE MOUNTING DETAILS TO THE ENGINEER FOR APPROVAL SEVEN (7) DAYS PRIOR TO ERECTING THE CONSTRUCTION SIGNS.

10. DELINEATORS

SINGLE LARGE DELINEATORS WITH RETROREFLECTIVE ASTM TYPE IX SHEETING 6" X 12", SHALL BE INSTALLED AT 20 FOOT INTERVALS FOR ALL LOCATIONS WHERE TEMPORARY CONCRETE BARRIER IS USED AND FOR ALL LOCATIONS WHERE PERMANENT CONCRETE BARRIER, GUIDE RAILING, AND/OR BRIDGE RAILING IS ADJACENT TO A LANE AND/OR SHOULDER WHERE THE WIDTH IS LESS THAN EXISTING. THE COLOR OF THE RETROREFLECTIVE DELINEATOR SURFACE SHALL MATCH THE COLOR OF THE EDGE OF PAVEMENT MARKINGS AS VIEWED BY APPROACHING TRAFFIC. DELINEATORS SHALL BE CLEARLY VISIBLE UNDER NORMAL CONDITIONS FROM A DISTANCE OF 1000 FEET WHEN ILLUMINATED BY THE HIGHBEAMS OF STANDARD AUTOMOBILE HEADLIGHTS. THE COST (INCLUDING REMOVAL) SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 619.01, BASIC WORK ZONE TRAFFIC CONTROL.

11. NON-PAYMENT

THE CONTRACTOR'S FAILURE TO COMPLY WITH THE REQUIREMENTS AS STATED ABOVE WILL BE CONSIDERED UNSATISFACTORY TEMPORARY WORK ZONE TRAFFIC CONTROL. PAYMENT WILL BE WITHHELD FOR THE VARIOUS CONTRACT ITEMS WHICH CONTAIN WORK ZONE TRAFFIC CONTROL PROVISIONS IN ACCORDANCE WITH TABLE 619-7 FOR EACH DAY THAT FAILURE TO COMPLY OCCURS. FAILURE TO COMPLY WILL ALSO RESULT IN THE ASSESSMENT OF LIQUIDATED DAMAGES FOR EACH VIOLATION.

MARATHON ENGINEERING
ROCHESTER LOCATION
39 CASCADE DRIVE
ROCHESTER, NY 14614
585-458-7770
ITHACA LOCATION
840 HANSHAW RD, STE 6
ITHACA, NY 14850
607-241-2917
www.marathoneng.com

SITE DEVELOPMENT PLANS for EVERGREEN APARTMENTS / PG DRYDEN, LLC
1061 DRYDEN ROAD (NYS ROUTE 366)
TOWN OF DRYDEN · TOMPKINS COUNTY · STATE OF NEW YORK

JOB NO:	1495-22
SCALE:	NA
DRAWN:	RLJ
DESIGNED:	AMF
DATE:	8/30/23

REVISIONS

DATE	BY	REVISION
9/21/23	AF	TOWN SUBMITTAL
10/11/23	AF	TOWN SUBMITTAL

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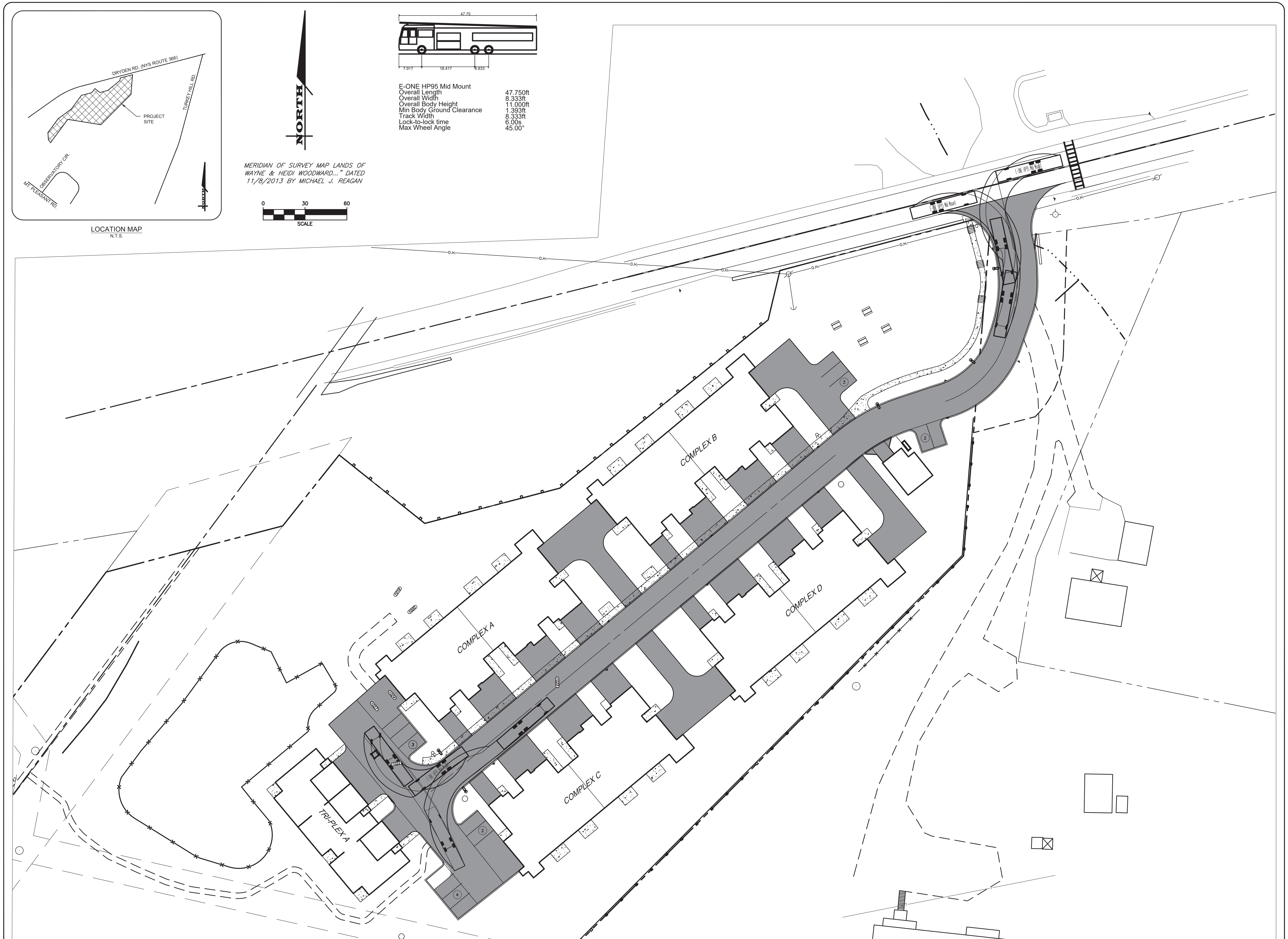
NOT FOR CONSTRUCTION
ADAM M. FISHEL

DRAWING TITLE:
DRIVEWAY PLAN (3 OF 3)

17 of 18 SHEET No:
C-7.2 DRAWING No:
1495-22 JOB No:

File: I:\Engineering\Job Files\1495-22\Drawings\Sheets\C-7.2 Driveway Plan (3 of 3).dwg, Last saved: 10/10/2023, Plot Date: 10/11/2023, By: AFISHEL, Plot Style: MARATHON STANDARD.CTB



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SITE DEVELOPMENT PLANS
for
EVERGREEN APARTMENTS / PG DRYDEN, LLC

1061 DRYDEN ROAD (NYS ROUTE 366)
TOWN OF DRYDEN
TOMPKINS COUNTY
STATE OF NEW YORK

JOB NO:	1495-22
SCALE:	1"=30'
DRAWN:	RLJ
DESIGNED:	AMF
DATE:	8/30/23

REVISIONS

DATE	BY	REVISION
9/21/23	AF	TOWN SUBMITTAL
10/11/23	AF	TOWN SUBMITTAL

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STATE OF NEW YORK
ADAM MCKINLEY FISHEL
NO. 086648
LICENSED PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION
ADAM M. FISHEL

DRAWING TITLE:
Truck Turn Plan

18 of 18
SHEET No:
1495-22
JOB No:
C-8.0
DRAWING No:

File: I:\Engineering\Job Files\1495-22\Drawings\Sheets\C-8.0 Truck Turn Plan.dwg, Last saved: 10/10/2023, Plot Date: 10/11/2023, By: AFISHEL, Plot Style: MARATHON STANDARD.CTB

Appendix C

NOI, NOI Acknowledgement Letter, & NOT

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.37

(Submission #: HPS-A8WD-GM4C7, version 1)

Details

Originally Started By	ADAM FISHEL
Alternate Identifier	Evergreen Apartments - 1061 Dryden Road
Submission ID	HPS-A8WD-GM4C7
Submission Reason	New
Status	Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
PG Dryden, LLC

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

Owner/Operator Contact Person First Name
Tim

Owner/Operator Mailing Address
46 Prince Street

City
Rochester

State
New York

Zip
14607

Phone
(585) 732-4086

Email
tcrilly@parkgrovellc.com

Federal Tax ID
NONE PROVIDED

If the owner/operator is an organization, provide the Federal Tax ID number, or Employer Identification Number (EIN), in the format xx-xxxxxxx. If the owner/operator is an individual and not an organization, enter "Not Applicable" or "N/A" and do not provide the individual’s social security number.

Project Location

Project/Site Name
Evergreen Apartments - 1061 Dryden Road

Street Address (Not P.O. Box)
1061 Dryden Road

Side of Street
South

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

State
NY

Zip
14850

DEC Region
3

The DEC Region must be provided. Please use the NYSDEC Stormwater Interactive Map (https://gisservices.dec.ny.gov/gis/stormwater/) to confirm which DEC Region this site is located in. To view the DEC Regions, click on “Other Useful Reference Layers” on the left side of the map, then click on “DEC Administrative Boundary.” Zoom out as needed to see the Region boundaries.

For projects that span multiple Regions, please select a primary Region and then provide the additional Regions as a note in Question 39.

County
TOMPKINS

Name of Nearest Cross Street
Turkey Hill Road

Distance to Nearest Cross Street (Feet)
940

Project In Relation to Cross Street
West

Tax Map Numbers Section-Block-Parcel
55.-1-16

Tax Map Numbers
NONE PROVIDED

If the project does not have tax map numbers (e.g. linear projects), enter “Not Applicable” or "N/A".

1. Coordinates

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

Navigate to your location and click on the map to get the X,Y coordinates
42.45842773288241,-76.4309192783438

Project Details

2. What is the nature of this project?
Redevelopment with increase in impervious area

For the purposes of this eNOI, “New Construction” refers to any project that does not involve the disturbance of existing impervious area (i.e. 0 acres). If existing impervious area will be disturbed on the project site, it is considered redevelopment with either increase in impervious area or no increase in impervious area.

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

Pre-Development Existing Landuse
Pasture/Open Land

Post-Development Future Land Use
Town Home Residential

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

---

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

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

Total Site Area (acres)
6.5

Total Area to be Disturbed (acres)
4.2

Existing Impervious Area to be Disturbed (acres)
0.0

Future Impervious Area Within Disturbed Area (acres)
1.8

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

---

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

A (%)
2.2

B (%)
0

C (%)
12.9

D (%)
84.9

7. Is this a phased project?
No

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

Start Date
11/01/2023

End Date
11/01/2025

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

Drainage ditches and storm sewer systems are not considered surface waterbodies. Please identify the surface waterbody that they discharge to. If the nearest surface waterbody is unnamed, provide a description of the waterbody, such as, “Unnamed tributary to Niagara River.”

9a. Type of waterbody identified in question 9?
Stream/Creek Off Site

Other Waterbody Type Off Site Description
NONE PROVIDED

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

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

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

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

Please use the DEC Stormwater Interactive Map (https://gisservices.dec.ny.gov/gis/stormwater/) to confirm if this site is located in one of the watersheds of an AA or AA-S classified water. To view the watershed areas, click on “Permit Related Layers” on the left side of the map, then click on “Class AA AAS Watersheds.”

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as D (provided the map unit name is inclusive of slopes greater than 25%), E or F on the USDA Soil Survey?
NONE PROVIDED

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

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

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?
Town of Dryden

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

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

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
Adam Fishel, PE

Contact Name (Last, First)
Fishel Adam

Mailing Address
840 Hanshaw Road, Suite 6

City
Ithaca

State
New York

Zip
14850

Phone
(607) 241-2917

Email
Afishel@marathoneng.com

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

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Scan the signed form
4) Upload the scanned document

Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification

> PDG, LLC SWPPP Preparer - SIGNED.pdf - 10/10/2023 08:36 PM
> **Comment**
> NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

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

Temporary Structural
Construction Road Stabilization
Dust Control
Silt Fence
Stabilized Construction Entrance

Biotechnical
None

Vegetative Measures
Mulching
Seeding

Permanent Structural
Land Grading
Riprap Slope Protection
Rock Outlet Protection

Other
Bioretention pond, infiltration basin, detention basin.

Post-Construction Criteria

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

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Buffers
Driveway Reduction
Building Footprint Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

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

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

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

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

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.17

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

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

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

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

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

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

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

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

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

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

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

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

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

If Yes, go to question 36.

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

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

CPv Required (acre-feet)
0.069

CPv Provided (acre-feet)
0.069

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

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

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
14.64

Post-Development (CFS)
6.9

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
33.78

Post-Development (CFS)
22.47

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

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance
PG Dryden, LLC

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
100% of the WQv is reduced.

Post-Construction SMP Identification

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

RR Techniques (Area Reduction)

Round to the nearest tenth

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

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

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

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

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

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

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

RR Techniques (Volume Reduction)

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

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

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

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

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

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

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

Standard SMPs with RRv Capacity

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

Total Contributing Impervious Acres for Infiltration Basin (I-2)
1.66

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

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

Total Contributing Impervious Acres for Bioretention (F-5)
0.34

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

Standard SMPs

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

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

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

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

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

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

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

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

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

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
Yes - Please attach the MS4 Acceptance form below

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
Yes

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

MS4 Acceptance Form Upload

> NONE PROVIDED
> **Comment**
> NONE PROVIDED

Owner/Operator Certification

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

Upload Owner/Operator Certification Form

> PDG, LLC SWPPP Owner Cert - SIGNED.pdf - 10/11/2023 10:32 PM
> **Comment**
> NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
10/11/2023 10:32 PM	PDG, LLC SWPPP Owner Cert - SIGNED.pdf	Attachment	ADAM FISHEL
10/10/2023 8:36 PM	PDG, LLC SWPPP Preparer - SIGNED.pdf	Attachment	ADAM FISHEL

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

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

Project/Site Name: Evergreen Apartments 1061 Dryden Road, Dryden NY

eNOI Submission Number: HPS-A8WD-GM4C7

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

Certification Statement - Owner/Operator

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

Owner/Operator First Name	M.I.	Last Name
Tim	J	Crilly

Signature

10/11/23

Date

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

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

Project Site Information

Project/Site Name

Evergreen Apartments - 1061 Dryden Road, Dryden, NY

Owner/Operator Information

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

PDG, LLC

Certification Statement – SWPPP Preparer

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

First name	MI	Last Name
Adam	M	Fishel

Signature

Date: 10/10/23

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

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

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

I. Project Owner/Operator Information	
1. Owner/Operator Name:	PG Dryden, LLC
2. Contact Person:	Tim Crilly
3. Street Address:	46 Prince Street, Suite 2003
4. City/State/Zip:	Rochester, NY 14607
II. Project Site Information	
5. Project/Site Name:	Evergreen Apartments (PG Dryden, LLC)
6. Street Address:	1061 Dryden Road
7. City/State/Zip:	Dryden, NY 14850
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:	Town of Dryden
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

MS4 SWPPP Acceptance Form - continued

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

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

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Appendix D

Contractor/Subcontractors; Name, Responsibilities, and Certification Statements & Training Cards and Numbers

Appendix E

Soils Report, Soil Map, Drainage Info/Maps

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for

Tompkins County, New York

March 23, 2023

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.

Soil Map

Map Scale: 1:2,090 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 30, 60, 120, 180

Feet: 0, 100, 200, 400, 600

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tompkins County, New York
Survey Area Data: Version 18, Sep 10, 2022

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

Date(s) aerial images were photographed: Apr 1, 2020—Oct 1, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BtF	Bath, Valois, and Lansing soils, 35 to 60 percent slopes	0.8	12.9%
CnB	Chenango gravelly loam, fan, 0 to 8 percent slopes	0.1	2.2%
DgB	Darien gravelly silt loam, 2 to 8 percent slopes	5.4	84.9%
Totals for Area of Interest		**6.4**	**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.

Tompkins County, New York

BtF—Bath, Valois, and Lansing soils, 35 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2v32j
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Bath and similar soils: 30 percent
Valois and similar soils: 25 percent
Lansing and similar soils: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bath

Setting

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

Typical profile

A - 0 to 4 inches: channery silt loam
Bw1 - 4 to 15 inches: channery silt loam
Bw2 - 15 to 25 inches: channery loam
E - 25 to 29 inches: channery loam
Bx - 29 to 52 inches: very channery silt loam
C - 52 to 72 inches: very channery silt loam

Properties and qualities

Slope: 35 to 60 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 26 to 38 inches to fragipan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C

Ecological site: F140XY030NY - Well Drained Dense Till
Hydric soil rating: No

Description of Valois

Setting

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

Typical profile

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

Properties and qualities

Slope: 35 to 60 percent
Depth to restrictive feature: 24 to 36 inches to fragipan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 35 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F140XY027NY - Well Drained Till Uplands
Hydric soil rating: No

Description of Lansing

Setting

Landform: Hills, drumlinoid ridges
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

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

Properties and qualities

Slope: 35 to 60 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F101XY012NY - Till Upland, F140XY027NY - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Honeoye

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

Lordstown, very stony

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

Mardin

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

Cayuga

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

Darien

Percent of map unit: 5 percent
Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

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

Map Unit Setting

National map unit symbol: 9xlc
Elevation: 160 to 1,970 feet
Mean annual precipitation: 32 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Chenango, Fan

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 26 inches: gravelly silt loam
H3 - 26 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 36 to 60 inches

Frequency of flooding: RareNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F140XY021NY - Dry Outwash
Hydric soil rating: No

Minor Components

Genesee (hamlin)
Percent of map unit: 5 percent
Hydric soil rating: No

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

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

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

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

DgB—Darien gravelly silt loam, 2 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9xld
Elevation: 330 to 2,460 feet
Mean annual precipitation: 32 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Prime farmland if drained

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

Description of Darien

Setting
Landform: Till plains, hills, drumlinoid ridges

Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived predominantly from calcareous gray shale

Typical profile

H1 - 0 to 9 inches: gravelly silt loam
H2 - 9 to 13 inches: gravelly silt loam
H3 - 13 to 30 inches: gravelly silty clay loam
H4 - 30 to 60 inches: gravelly silty clay loam

Properties and qualities

Slope: 2 to 8 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 0.20 in/hr)
Depth to water table: About 6 to 15 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F140XY028NY - Moist Till Upland
Hydric soil rating: No

Minor Components

Rhinebeck

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

Lyons

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

Ovid

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

Erie

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

Ilion

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

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Transmittal

May 16, 2016

M&R Entities, LLC
117 Horizon Drive
Ithaca, New York 14850

Attn: Mr. Gary Sloan, Owner

Re: Evergreen Townhomes Project at 1061 Dryden Road
Ithaca, New York
CME Project No.: 27131-05

Gentlepeople:

Enclosed you will find….

Number of Copies	Report Number/Description
3	27131B-01-0516/Geotechnical Services Report

This report was emailed to Mr. Gary Sloan at squeakygs@gmail.com on 05/16/16.

Respectfully submitted,
CME Associates, Inc.

Matt Hurst, Ph.D., EIT
Staff Engineer

MH.bms

A New York State Certified Woman-Owned Business Enterprise (WBE)

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May 16, 2016

M&R Entities, LLC
117 Horizon Drive
Ithaca, New York 14850

Attn: Mr. Gary Sloan, Owner

Re: Infiltration Testing and Test Pit Services for the
Evergreen Townhomes Project at 1061 Dryden Road
Ithaca, New York
CME Report No.: 27131B-01-0516

Gentlepeople:

1.0 INTRODUCTION

CME Associates, Inc. (CME) was retained by M&R Entities, LLC (Client) to provide Infiltration Testing and Test Pit services for the Evergreen Townhomes Project at 1061 Dryden Road in Ithaca, New York. CME staff witnessed the excavation of 8 Test Pits, and then conducted 6 Infiltration Tests. Test Pits were excavated by a subcontractor to CME. This report has been provided pursuant to CME's Proposal/Agreement number 05.4852, executed by Mr. Gary Sloan, Owner with Client on 05/06/16. A summary of CME's work, commencing on 05/12/16 is presented herein. The Infiltration Test Reports, Test Pit Logs, an Exploration Location Sketch, and Test Pit Photographs are attached.

2.0 METHODS

The Test Pit locations were staked in the field by CME, at locations selected by others. CME contacted Dig Safely New York (DSNY) at least three business days in advance of the exploration program. Elevation at grade was estimated to the nearest ½ foot utilizing existing contour lines on a Concept Grading Map, labeled L001, provided by HOLT Architects, P.C.

The Test Pits were excavated and backfilled by CME's Subcontractor, Sherman Vincent on 05/12/16 using a Case CX80 backhoe, equipped with a 24" wide general purpose bucket, in the presence of the undersigned Engineer. The Test Pits were backfilled with the excavated material, and the surface was repaired to nearly match existing grade. Please refer to the Test Pit Logs, labeled TP-1 through TP-8, for further details.

Adjacent to Test Pits TP-1 through TP-6, an Infiltration Test casing was installed by excavating to approximately 6 feet below grade and then installing a 4" O.D. PVC casing. Infiltration Tests were performed at depths selected by others, in general conformance with New York State Stormwater Management Design Manual, Appendix D: Infiltration Testing Requirements. The test details and results are given in the attached Infiltration Test Reports, labeled IT-1 through IT-6.

A New York State Certified Woman-Owned Business Enterprise (WBE)

CME Associates, Inc.

3.0 CLOSING

CME's services are provided according to the requirements of the referenced CME Proposal/Agreement. No other representations, expressed or implied, are intended or made with respect to the information provided herein, and including but not limited to, its suitability for use by others.

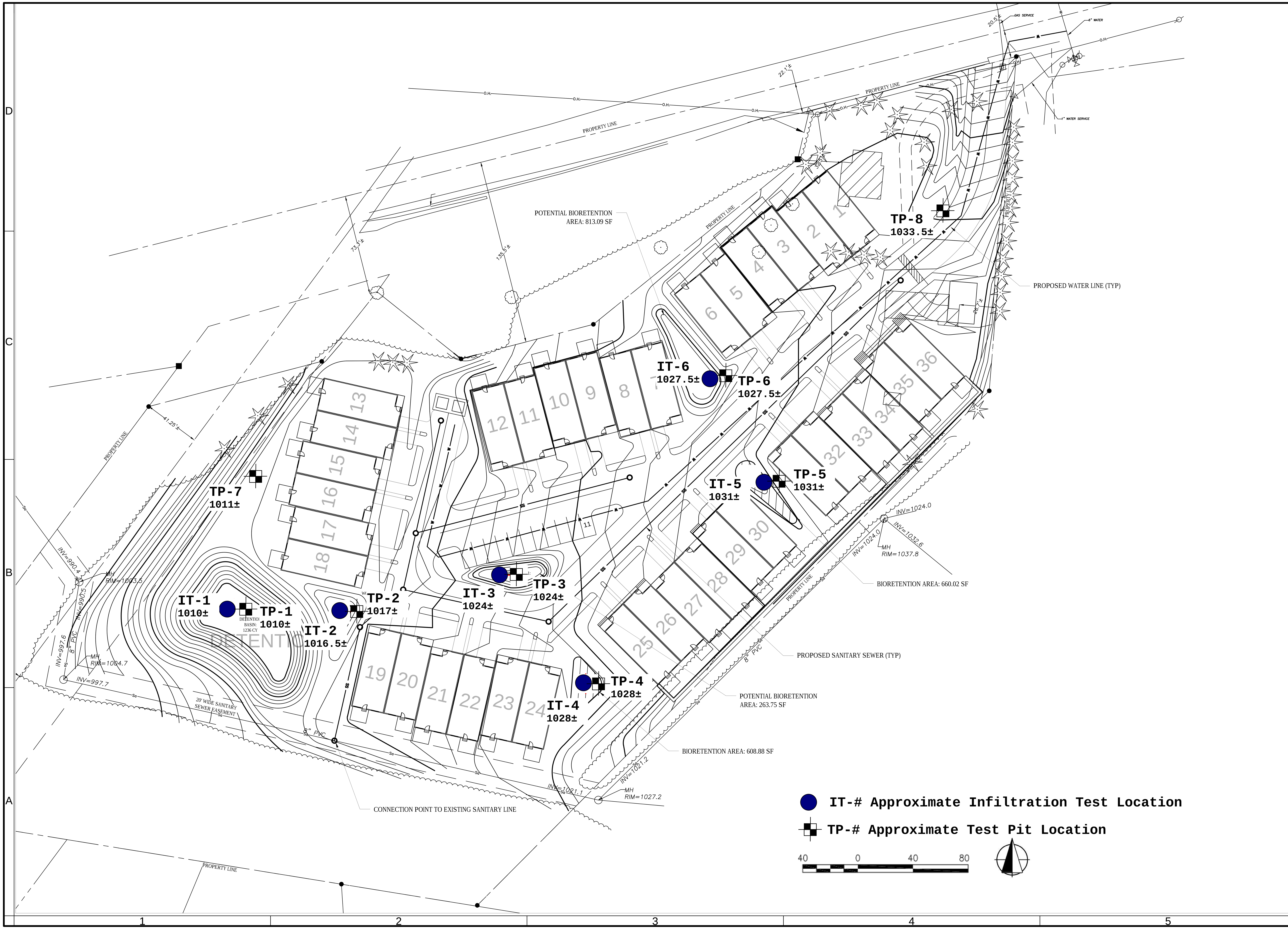
Please do not hesitate to contact our office if you have any questions regarding this report, its conclusions and recommendations.

Respectfully Submitted,
CME Associates, Inc.

Matt Hurst, Ph.D., EIT
Staff Engineer

Attachment Listing:

Exploration Location Sketch, ELS-1 (1 of 1)
Infiltration Test Reports, IT-1 through IT-6 (6 of 6)
CME Subsurface Exploration-Test Pit Logs, TP-1 through TP-8 (8 of 8)
Test Pit Photographs (8 of 8)
General Information & Key to Test Boring Logs (4 of 4)



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Client
1061 DRYDEN ROAD TOWNHOUSES
Town of Dryden, New York

DATE:	05/03/2016
PROJECT:	2016012
DRAWN BY:	MAA
CHECKED:	MGS

Exploration Location Sketch

ELS-1

CME Associates, Inc.

INFILTRATION TEST REPORT

Test ID: IT-1

Project:	Evergreen Townhomes at 1061 Dryden Road, Ithaca, New York	CME Report No.:	27131B-01-0516
		Test Date:	05/13/16
Client:	M&R Entities, LLC	Test Location:	See Exploration Location Sketch
		Technician:	A. Boronczyk

Test Preparation and Dimensions

Casing installed in : ☑ Test Pit ☐ Borehole

Casing diameter and type: 4 inch I.D. PVC

A Existing grade elevation (ft): .... 1010.0 ±

B Casing stickup length above grade (ft): 1.1

C Top of casing elevation (ft): .... (A+B)= 1011.1 ±

D Depth to bottom of test hole, below top of casing (ft): 7.2

E Bottom of test hole elevation: .... (C-D)= 1003.9 ±

Burmister classification of soil at bottom of hole: Brown mottled SILT, some cmf SAND, little CLAY, trace cmf GRAVEL

Thickness and type of scour/sediment protection layer installed: 3" of Pea Gravel

Date and time pre-soaked: .... 05/12/16 Time: 12:50

Depth to water level, below top of casing

Just after pre-soak filling (in): 62.5

Just prior to first test filling (in): 70.0 Date: 5/13/16 Time: 13:07

Test Observations

Run 1			Run 2			Run 3			Run 4		
Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)
13:29	0:00	62.0	14:29	0:00	61.8	15:29	0:00	62.0	16:29	0:00	61.5
13:30	0:01	62.0	14:34	0:05	61.8	15:34	0:05	62.3	16:34	0:05	61.5
13:31	0:02	62.0	14:39	0:10	62.0	15:39	0:10	62.3	16:39	0:10	62.0
13:33	0:04	62.0	14:44	0:15	62.3	15:44	0:15	62.8	16:44	0:15	62.3
13:34	0:05	62.3	14:59	0:30	63.0	15:59	0:30	63.0	16:59	0:30	63.0
13:39	0:10	62.5	15:14	0:45	63.5	16:14	0:45	64.0	17:14	0:45	63.5
13:49	0:20	62.8	15:29	1:00	64.8	16:29	1:00	64.8	17:29	1:00	64.3
13:59	0:30	63.3									
14:14	0:45	64.0									
14:29	1:00	64.8									

Test Results

Run:	Run 1	Run 2	Run 3	Run 4
Infiltration Rate (inch/hour):	2.8	3.0	2.8	2.8

Final Infiltration Rate (inch/hour): 2.8

☐ Based on average of all four runs

☑ Based on result of last run

Note(s)

1. Test performed in general conformance with NYS Stormwater Management Design Manual, Appendix D: Infiltration Testing Requirements.
2. Test location and elevation selected by Others.

6035 Corporate Drive, East Syracuse, New York (315) 701.0522, (315) 701.0526 fax

CME Associates, Inc.

INFILTRATION TEST REPORT

Test ID: IT-2

Project:	Evergreen Townhomes at 1061 Dryden Road, Ithaca, New York	CME Report No.:	27131B-01-0516
		Test Date:	05/13/16
Client:	M&R Entities, LLC	Test Location:	See Exploration Location Sketch
		Technician:	A. Boronczyk

Test Preparation and Dimensions

Casing installed in : ☑ Test Pit ☐ Borehole

Casing diameter and type: 4 inch I.D. PVC

A Existing grade elevation (ft): .... 1016.5 ±

B Casing stickup length above grade (ft): 1.8

C Top of casing elevation (ft): .... (A+B)= 1018.3 ±

D Depth to bottom of test hole, below top of casing (ft): 7.9

E Bottom of test hole elevation: .... (C-D)= 1010.4 ±

Burmister classification of soil at bottom of hole: Brown SILT and cmf SAND, little cmf GRAVEL, trace COBBLES

Thickness and type of scour/sediment protection layer installed: 3" of Pea Gravel

Date and time pre-soaked: .... 05/12/16 Time: 12:45

Depth to water level, below top of casing

Just after pre-soak filling (in): 71.0

Just prior to first test filling (in): None Note Date: 5/13/16 Time: 13:09

Test Observations

Run 1			Run 2			Run 3			Run 4		
Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)
13:22	0:00	70.0	14:22	0:00	71.0	15:22	0:00	70.0	16:22	0:00	70.8
13:23	0:01	70.3	14:23	0:01	71.5	15:23	0:01	70.5	16:23	0:01	71.0
13:24	0:03	71.0	14:24	0:02	71.8	15:24	0:02	71.0	16:24	0:02	71.5
13:25	0:03	72.0	14:26	0:04	73.0	15:26	0:04	71.8	16:26	0:04	72.5
13:28	0:06	74.0	14:28	0:06	74.3	15:29	0:07	73.3	16:28	0:06	73.8
13:32	0:10	77.3	14:32	0:10	76.8	15:32	0:10	76.3	16:32	0:10	77.0
13:37	0:15	82.0	14:37	0:15	77.8	15:37	0:15	79.5	16:37	0:15	80.0
13:52	0:30	85.0	14:52	0:30	83.5	15:52	0:30	83.8	16:52	0:30	83.3
14:07	0:45	87.5	15:07	0:45	85.8	16:07	0:45	86.3	17:07	0:45	85.8
14:22	1:00	88.8	15:22	1:00	87.5	16:22	1:00	87.5	17:22	1:00	87.3

Test Results

Run:	Run 1	Run 2	Run 3	Run 4
Infiltration Rate (inch/hour):	18.8	16.5	17.5	16.5

Final Infiltration Rate (inch/hour): 16.5

☐ Based on average of all four runs

☑ Based on result of last run

Note(s)

1. Test performed in general conformance with NYS Stormwater Management Design Manual, Appendix D: Infiltration Testing Requirements.
2. Test location and elevation selected by Others.

CME Associates, Inc.

INFILTRATION TEST REPORT

Test ID: IT-3

Project:	Evergreen Townhomes at 1061 Dryden Road, Ithaca, New York	CME Report No.:	27131B-01-0516
		Test Date:	05/13/16
Client:	M&R Entities, LLC	Test Location:	See Exploration Location Sketch
		Technician:	A. Boronczyk

Test Preparation and Dimensions

Casing installed in : ☑ Test Pit ☐ Borehole

Casing diameter and type: 4 inch I.D. PVC

A	Existing grade elevation (ft):		1024.0	±
B	Casing stickup length above grade (ft):		0.7	
C	Top of casing elevation (ft):	(A+B)=	1024.7	±
D	Depth to bottom of test hole, below top of casing (ft):		6.6	
E	Bottom of test hole elevation:	(C-D)=	1018.1	±

Burmister classification of soil at bottom of hole: Brown mottled SILT, little cmf SAND, little CLAY

Thickness and type of scour/sediment protection layer installed: 3" of Pea Gravel

Date and time pre-soaked: 05/12/16 Time: 13:00

Depth to water level, below top of casing

Just after pre-soak filling (in): 55.0

Just prior to first test filling (in): 69.3 Date: 5/13/16 Time: 13:09

Test Observations

Run 1			Run 2			Run 3			Run 4		
Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)
13:10	0:00	55.0	14:10	0:00	54.3	15:10	0:00	54.8	16:10	0:00	55.0
13:12	0:02	55.0	14:15	0:05	54.3	15:15	0:05	54.8	16:15	0:05	55.0
13:13	0:03	55.0	14:20	0:10	54.5	15:20	0:10	54.8	16:20	0:10	55.0
13:15	0:05	55.0	14:25	0:15	54.5	15:25	0:15	55.0	16:25	0:15	55.3
13:20	0:10	55.3	14:40	0:30	54.8	15:40	0:30	55.3	16:40	0:30	55.5
13:25	0:15	55.3	14:55	0:45	55.0	15:55	0:45	55.5	16:55	0:45	55.8
13:40	0:30	55.5	15:10	1:00	55.3	16:10	1:00	55.8	17:10	1:00	56.0
13:55	0:45	55.8									
14:10	1:00	56.3									

Test Results

Run:	Run 1	Run 2	Run 3	Run 4
Infiltration Rate (inch/hour):	1.3	1.0	1.0	1.0

Final Infiltration Rate (inch/hour): 1.0

☐ Based on average of all four runs

☑ Based on result of last run

Note(s)

1. Test performed in general conformance with NYS Stormwater Management Design Manual, Appendix D: Infiltration Testing Requirements.
2. Test location and elevation selected by Others.

INFILTRATION TEST REPORT

Test ID: IT-4

Project:	Evergreen Townhomes at 1061 Dryden Road, Ithaca, New York	CME Report No.:	27131B-01-0516
		Test Date:	05/13/16
Client:	M&R Entities, LLC	Test Location:	See Exploration Location Sketch
		Technician:	A. Boronczyk

Test Preparation and Dimensions

Casing installed in : ☑ Test Pit ☐ Borehole

Casing diameter and type: 4 inch I.D. PVC

A Existing grade elevation (ft): .... 1028.0 ±

B Casing stickup length above grade (ft): 1.6

C Top of casing elevation (ft): .... (A+B)= 1029.6 ±

D Depth to bottom of test hole, below top of casing (ft): 7.4

E Bottom of test hole elevation: .... (C-D)= 1022.2 ±

Burmister classification of soil at bottom of hole: Brown SILT, some mf SAND, some CLAY

Thickness and type of scour/sediment protection layer installed: 3" of Pea Gravel

Date and time pre-soaked: .... 05/12/16 Time: 12:45

Depth to water level, below top of casing

Just after pre-soak filling (in): 65.0

Just prior to first test filling (in): 66.0 Date: 5/13/16 Time: 8:45

Test Observations

Run 1			Run 2			Run 3			Run 4		
Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)
8:47	0:00	64.0	9:47	0:00	64.0	10:47	0:00	64.0	11:47	0:00	64.0
8:48	0:01	64.0	10:02	0:15	64.0	11:02	0:15	64.0	12:02	0:15	64.3
8:49	0:02	64.0	10:17	0:30	64.0	11:17	0:30	64.0	12:17	0:30	64.3
8:52	0:05	64.0	10:32	0:45	64.0	11:32	0:45	64.0	12:32	0:45	64.3
9:01	0:14	64.0	10:47	1:00	64.0	11:47	1:00	64.0	12:47	1:00	64.3
9:17	0:30	64.0									
9:32	0:45	64.0									
9:47	1:00	64.0									

Test Results

Run:	Run 1	Run 2	Run 3	Run 4
Infiltration Rate (inch/hour):	0.0	0.0	0.0	0.3

Final Infiltration Rate (inch/hour): 0.1

☑ Based on average of all four runs

☐ Based on result of last run

Note(s)

1. Test performed in general conformance with NYS Stormwater Management Design Manual, Appendix D: Infiltration Testing Requirements.
2. Test location and elevation selected by Others.

INFILTRATION TEST REPORT

Test ID: IT-5

Project:	Evergreen Townhomes at 1061 Dryden Road, Ithaca, New York	CME Report No.:	27131B-01-0516
		Test Date:	05/13/16
Client:	M&R Entities, LLC	Test Location:	See Exploration Location Sketch
		Technician:	A. Boronczyk

Test Preparation and Dimensions

Casing installed in : ☑ Test Pit ☐ Borehole

Casing diameter and type: 4 inch I.D. PVC

A	Existing grade elevation (ft):		1031.0 ±
B	Casing stickup length above grade (ft):		1.5
C	Top of casing elevation (ft):	(A+B)=	1032.5 ±
D	Depth to bottom of test hole, below top of casing (ft):		7.4
E	Bottom of test hole elevation:	(C-D)=	1025.1 ±

Burmister classification of soil at bottom of hole: Light Brown mottled SILT, some mf SAND, little CLAY

Thickness and type of scour/sediment protection layer installed: 3" of Pea Gravel

Date and time pre-soaked: 05/12/16 Time: 12:45

Depth to water level, below top of casing

Just after pre-soak filling (in): 65.0

Just prior to first test filling (in): 81.0 Date: 5/13/16 Time: 8:45

Test Observations

Run 1			Run 2			Run 3			Run 4		
Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)
9:05	0:00	65.0	10:05	0:00	65.3	11:05	0:00	65.5	12:05	0:00	65.8
9:06	0:01	65.0	10:20	0:15	65.3	11:20	0:15	65.5	12:20	0:15	65.8
9:07	0:02	65.0	10:35	0:30	65.3	11:35	0:30	65.5	12:35	0:30	65.8
9:08	0:03	65.0	10:50	0:45	65.5	11:50	0:45	65.5	12:50	0:45	65.8
9:10	0:05	65.0	11:05	1:00	65.5	12:05	1:00	65.8	13:05	1:00	66.0
9:15	0:10	65.0									
9:20	0:15	65.0									
9:35	0:30	65.0									
9:50	0:45	65.3									
10:05	1:00	65.3									

Test Results

Run:	Run 1	Run 2	Run 3	Run 4
Infiltration Rate (inch/hour):	0.3	0.2	0.3	0.2

Final Infiltration Rate (inch/hour): 0.3

☑ Based on average of all four runs

☐ Based on result of last run

Note(s)

1. Test performed in general conformance with NYS Stormwater Management Design Manual, Appendix D: Infiltration Testing Requirements.
2. Test location and elevation selected by Others.

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INFILTRATION TEST REPORT

Test ID: IT-6

Project:	Evergreen Townhomes at 1061 Dryden Road, Ithaca, New York	CME Report No.:	27131B-01-0516
		Test Date:	05/13/16
Client:	M&R Entities, LLC	Test Location:	See Exploration Location Sketch
		Technician:	A. Boronczyk

Test Preparation and Dimensions

Casing installed in : ☑ Test Pit ☐ Borehole

Casing diameter and type: 4 inch I.D. PVC

A Existing grade elevation (ft): .... 1027.5 ±

B Casing stickup length above grade (ft): 1.9

C Top of casing elevation (ft): .... (A+B)= 1029.4 ±

D Depth to bottom of test hole, below top of casing (ft): 8

E Bottom of test hole elevation: .... (C-D)= 1021.4 ±

Burmister classification of soil at bottom of hole: Brown SILT, some CLAY, some cmf SAND, trace cmf GRAVEL

Thickness and type of scour/sediment protection layer installed: 3" of Pea Gravel

Date and time pre-soaked: .... 05/12/16 Time: 13:05

Depth to water level, below top of casing

Just after pre-soak filling (in): 72.0

Just prior to first test filling (in): 75.0 Date: 5/13/16 Time: 8:55

Test Observations

Run 1			Run 2			Run 3			Run 4		
Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)	Real Time (hh:mm)	Elapsed Time (h:mm)	Depth to water level, below top of casing (in)
8:58	0:00	71.0	9:58	0:00	71.0	10:58	0:00	71.3	11:58	0:00	71.3
9:03	0:05	71.0	10:13	0:15	71.0	11:13	0:15	71.3	12:13	0:15	71.5
9:10	0:12	71.0	10:28	0:30	71.0	11:28	0:30	71.3	12:28	0:30	71.5
9:13	0:15	71.0	10:43	0:45	71.0	11:43	0:45	71.3	12:43	0:45	71.5
9:28	0:30	71.0	10:58	1:00	71.3	11:58	1:00	71.3	13:00	1:02	71.5
9:43	0:45	71.0									
9:58	1:00	71.0									

Test Results

Run:	Run 1	Run 2	Run 3	Run 4
Infiltration Rate (inch/hour):	0.0	0.3	0.0	0.2

Final Infiltration Rate (inch/hour): 0.1

☑ Based on average of all four runs

☐ Based on result of last run

Note(s)

1. Test performed in general conformance with NYS Stormwater Management Design Manual, Appendix D: Infiltration Testing Requirements.
2. Test location and elevation selected by Others.

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TEST PIT LOG

Project: Evergreen Townhomes at 1061 Dryden Road	**Report No.:**	27131B-01-0516
Ithaca, New York	**Location of Test Pit:**	See Exploration Location Sketch
Client: M&R Entities, LLC	**Ground Elevation:**	1010 ± *(See Remark 2)*
	Date	**Start:** 05-12-16 **Finish:** 05-12-16
Test Pit No. TP-1 — Sheet 1 of 1	**Representative:**	M. Hurst

Ground Water Observations

Date	Time	Depth
05-12-16	9:55 AM	None Noted *(See Remark 3)*

DEPTH (Feet)	SAMPLE NUMBER	DEPTH OF SAMPLE FROM (FEET)	DEPTH OF SAMPLE TO (FEET)	DEPTH OF CHANGE (FEET)	NOTES OR PIT PROFILE	CLASSIFICATION OF MATERIAL (f - FINE, m - MEDIUM, c - COARSE; and 35-50%, some 20-35%, little 10-20%, trace 0-10%)
0				0.7		Dark Brown Topsoil and Organic Matter, little ROOTS (moist, easy digging)
				2.0		Brown cmf SAND and SILT, some cmf GRAVEL, trace COBBLES (moist, medium hard digging)
5				6.6		Brown Mottled SILT, some cmf SAND, little CLAY, trace cmf GRAVEL (moist, medium hard digging) *See Remark 4*
						Brown SILT and fine SAND, trace CLAY (wet, medium hard digging)
10						Bottom of Test Pit @ 8.1'

REMARKS:

1. This test pit was excavated by Sherman Vincent utilizing a Case CX80 backhoe equipped with a 24" wide all-purpose bucket.
2. Elevation at grade was estimated to the nearest 0.5 feet utilizing existing contour lines on a Concept Grading Map, labeled L001, provided by HOLT Architects, P.C.
3. A small amount of perched water began to seep in very slowly at about 7.5'.
4. Clay lenses were noted throughout.

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TEST PIT LOG

Project: Evergreen Townhomes at 1061 Dryden Road		**Report No.:**	27131B-01-0516
Ithaca, New York		**Location of Test Pit:**	See Exploration Location Sketch
Client: M&R Entities, LLC		**Ground Elevation:**	1017 ± (*See Remark 2*)
		Date	**Start:** 05-12-16 **Finish:** 05-12-16
Test Pit No. TP-2	Sheet 1 of 1	**Representative:**	M. Hurst

Ground Water Observations

Date	Time	Depth
05-12-16	9:25 AM	None Noted

DEPTH (Feet)	SAMPLE NUMBER	DEPTH OF SAMPLE FROM (FEET)	DEPTH OF SAMPLE TO (FEET)	DEPTH OF CHANGE (FEET)	NOTES OR PIT PROFILE	CLASSIFICATION OF MATERIAL: f - FINE, m - MEDIUM, c - COARSE; and 35-50%, some 20-35%, little 10-20%, trace 0-10%
0				0.5		Dark Brown Topsoil and Organic Matter, trace ROOTS (moist, easy digging)
				2.9		Brown cmf SAND, some SILT, some cmf GRAVEL, trace COBBLES, trace ROOT HAIRS (moist to wet, medium hard digging)
				3.7		Brown CLAY, some SILT, little mf SAND (moist, medium hard digging)
5				5.8		Brown SILT and cmf SAND, little cmf GRAVEL, trace COBBLES (moist to wet, medium hard digging)
						Brown SILT and fine SAND, trace CLAY (wet, medium hard digging) *See Remark 3*
						Bottom of Test Pit @ 8.1'
10						

REMARKS:

1. This test pit was excavated by Sherman Vincent utilizing a Case CX80 backhoe equipped with a 24" wide all-purpose bucket.
2. Elevation at grade was estimated to the nearest 0.5 feet utilizing existing contour lines on a Concept Grading Map, labeled L001, provided by HOLT Architects, P.C.
3. Small Silty Clay lenses were present.

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TEST PIT LOG

Project: Evergreen Townhomes at 1061 Dryden Road		**Report No.:**	27131B-01-0516
Ithaca, New York		**Location of Test Pit:**	See Exploration Location Sketch
Client: M&R Entities, LLC		**Ground Elevation:**	1024 ± (*See Remark 2*)
		Date	**Start:** 05-12-16 **Finish:** 05-12-16
Test Pit No. TP-3	Sheet 1 of 1	**Representative:**	M. Hurst

Ground Water Observations

Date	**Time**	**Depth**
05-12-16	9:00 AM	None Noted

DEPTH (Feet)	SAMPLE NUMBER	DEPTH OF SAMPLE FROM (FEET)	DEPTH OF SAMPLE TO (FEET)	DEPTH OF CHANGE (FEET)	NOTES OR PIT PROFILE	CLASSIFICATION OF MATERIAL f - FINE and 35-50% m - MEDIUM some 20-35% c - COARSE little 10-20% trace 0-10%
0				0.5		Dark Brown Topsoil and Organic Matter, little ROOTS (moist, easy digging)
				1.9		Light Brown cmf SAND, some SILT, some cmf GRAVEL, trace COBBLES, trace ROOT HAIRS (moist, medium hard digging)
5				6.5		Brown Mottled SILT, little cmf SAND, little CLAY (moist, medium hard digging) *See Remark 3*
						Brown Similar Soil (moist to wet, hard digging) *See Remark 4*
10						Bottom of Test Pit @ 8.8'

REMARKS:

1. This test pit was excavated by Sherman Vincent utilizing a Case CX80 backhoe equipped with a 24" wide all-purpose bucket.
2. Elevation at grade was estimated to the nearest 0.5 feet utilizing existing contour lines on a Concept Grading Map, labeled L001, provided by HOLT Architects, P.C.
3. Small Silty Clay lenses were present.
4. Lenses of Silty fine Sand were observed within these depths that were saturated.

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TEST PIT LOG

Project: Evergreen Townhomes at 1061 Dryden Road	**Report No.:** 27131B-01-0516
Ithaca, New York	**Location of Test Pit:** See Exploration Location Sketch
Client: M&R Entities, LLC	**Ground Elevation:** 1028 ± *(See Remark 2)*
	Date **Start:** 05-12-16 **Finish:** 05-12-16
Test Pit No. TP-4 / Sheet 1 of 1	**Representative:** M. Hurst

Ground Water Observations

Date	Time	Depth
05-12-16	8:30 AM	None Noted *(See Remark 3)*

DEPTH (Feet)	SAMPLE NUMBER	DEPTH OF SAMPLE FROM (FEET)	DEPTH OF SAMPLE TO (FEET)	DEPTH OF CHANGE (FEET)	NOTES OR PIT PROFILE	CLASSIFICATION OF MATERIAL (f - FINE, m - MEDIUM, c - COARSE; and 35-50%, some 20-35%, little 10-20%, trace 0-10%)
0				0.8		Dark Brown Topsoil and Organic Matter, trace ROOTS (moist, easy digging)
				2.7		Brown cmf SAND, some SILT, little mf GRAVEL (moist, medium hard digging)
5				7.8		Brown SILT, some mf SAND, some CLAY (moist, medium hard digging) *See Remark 4*
						Brown fine SAND, little SILT (wet to saturated, hard digging)
10						Bottom of Test Pit @ 8.4'

REMARKS:

1. This test pit was excavated by Sherman Vincent utilizing a Case CX80 backhoe equipped with a 24" wide all-purpose bucket.
2. Elevation at grade was estimated to the nearest 0.5 feet utilizing existing contour lines on a Concept Grading Map, labeled L001, provided by HOLT Architects, P.C.
3. Insufficient time to determine level of groundwater due to low porosity of soils.
4. Silty Clay lenses were noted throughout.

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TEST PIT LOG

Project: Evergreen Townhomes at 1061 Dryden Road		**Report No.:**	27131B-01-0516
Ithaca, New York		**Location of Test Pit**:	See Exploration Location Sketch
Client: M&R Entities, LLC		**Ground Elevation:**	1031 ± (*See Remark 2*)
		Date	**Start:** 05-12-16 **Finish:** 05-12-16
Test Pit No. TP-5	Sheet 1 of 1	**Representative:**	M. Hurst

Ground Water Observations

Date	Time	Depth
05-12-16	8:00 AM	None Noted

DEPTH (Feet)	SAMPLE NUMBER	DEPTH OF SAMPLE FROM (FEET)	DEPTH OF SAMPLE TO (FEET)	DEPTH OF CHANGE (FEET)	NOTES OR PIT PROFILE	CLASSIFICATION OF MATERIAL f - FINE and 35-50% m - MEDIUM some 20-35% c - COARSE little 10-20% trace 0-10%
0				0.8		Dark Brown Topsoil and Organic Matter, trace ROOT HAIRS (moist, easy digging)
				2.9		Brown cmf SAND, some SILT, little cmf GRAVEL (moist, medium hard digging)
5				5.0		Light Brown Mottled SILT, some mf SAND, little CLAY (moist, medium hard digging) *See Remark 3*
						Brown SILT, some CLAY, little mf SAND (moist, medium hard digging)
10						Bottom of Test Pit @ 8.0'

REMARKS:

1. This test pit was excavated by Sherman Vincent utilizing a Case CX80 backhoe equipped with a 24" wide all-purpose bucket.
2. Elevation at grade was estimated to the nearest 0.5 feet utilizing existing contour lines on a Concept Grading Map, labeled L001, provided by HOLT Architects, P.C.
3. Clay lenses were noted throughout.

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TEST PIT LOG

Project: Evergreen Townhomes at 1061 Dryden Road		**Report No.:**	27131B-01-0516
Ithaca, New York		**Location of Test Pit:**	See Exploration Location Sketch
Client: M&R Entities, LLC		**Ground Elevation:**	1027.5 ± (*See Remark 2*)
		Date	**Start:** 05-12-16 **Finish:** 05-12-16
Test Pit No. TP-6	Sheet 1 of 1	**Representative:**	M. Hurst

Ground Water Observations

Date	Time	Depth
05-12-16	9:50 AM	None Noted

DEPTH (Feet)	SAMPLE NUMBER	DEPTH OF SAMPLE FROM (FEET)	DEPTH OF SAMPLE TO (FEET)	DEPTH OF CHANGE (FEET)	NOTES OR PIT PROFILE	CLASSIFICATION OF MATERIAL f - FINE, m - MEDIUM, c - COARSE and 35-50%, some 20-35%, little 10-20%, trace 0-10%
0				0.7		Dark Brown Topsoil and Organic Matter, trace ROOTS (moist, easy digging)
				2.2		Brown cmf SAND, some SILT, some cmf GRAVEL (moist, medium hard digging)
				4.2		Brown SILT, little CLAY, little mf SAND (moist, medium hard digging) *See Remark 3*
5				6.8		Brown SILT, some CLAY, some cmf SAND, trace cmf GRAVEL (moist, medium hard digging)
						Brown Similar Soil (wet, medium hard digging)
						Bottom of Test Pit @ 8.4’
10						

REMARKS:

1. This test pit was excavated by Sherman Vincent utilizing a Case CX80 backhoe equipped with a 24” wide all-purpose bucket.
2. Elevation at grade was estimated to the nearest 0.5 feet utilizing existing contour lines on a Concept Grading Map, labeled L001, provided by HOLT Architects, P.C.
3. Lenses of Clay noted throughout.

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TEST PIT LOG

Project: Evergreen Townhomes at 1061 Dryden Road		**Report No.:**	27131B-01-0516
Ithaca, New York		**Location of Test Pit:**	See Exploration Location Sketch
Client: M&R Entities, LLC		**Ground Elevation:**	1011 ± (*See Remark 2*)
		Date	**Start:** 05-12-16 **Finish:** 05-12-16
Test Pit No. TP-7	Sheet 1 of 1	**Representative:**	M. Hurst

Ground Water Observations

Date	**Time**	**Depth**
05-12-16	10:30 AM	9.9’ (*See Remark 3*)

DEPTH (Feet)	SAMPLE NUMBER	DEPTH OF SAMPLE FROM (FEET)	DEPTH OF SAMPLE TO (FEET)	DEPTH OF CHANGE (FEET)	NOTES OR PIT PROFILE	CLASSIFICATION OF MATERIAL (f - FINE, m - MEDIUM, c - COARSE; and 35-50%, some 20-35%, little 10-20%, trace 0-10%)
0				0.6		Dark Brown Topsoil and Organic Matter, trace ROOTS (moist, easy digging)
				2.6		Brown cmf SAND, some cmf GRAVEL, some SILT (moist, medium hard digging)
				4.0		Brown SILT, some CLAY, some cmf SAND, trace mf GRAVEL, trace COBBLES (moist, medium hard digging)
5				7.8		Brown SILT, some fine SAND, little cmf GRAVEL, little CLAY (moist to wet, medium hard digging)
						Grey Similar Soil (wet, medium hard digging) *See Remark 4*
10						Bottom of Test Pit @ 10.0’

REMARKS:

1. This test pit was excavated by Sherman Vincent utilizing a Case CX80 backhoe equipped with a 24” wide all-purpose bucket.
2. Elevation at grade was estimated to the nearest 0.5 feet utilizing existing contour lines on a Concept Grading Map, labeled L001, provided by HOLT Architects, P.C.
3. Perched water began seeping in from sides between 2.6’ – 7.8’.
4. Small amount of water began to seep into bottom of Test Pit at a very slow rate.

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TEST PIT LOG

Project: Evergreen Townhomes at 1061 Dryden Road		**Report No.:**	27131B-01-0516
Ithaca, New York		**Location of Test Pit:**	See Exploration Location Sketch
Client: M&R Entities, LLC		**Ground Elevation:**	1033.5 ± (*See Remark 2*)
		Date	**Start:** 05-12-16 **Finish:** 05-12-16
Test Pit No. TP-8	Sheet 1 of 1	**Representative:**	M. Hurst

Ground Water Observations

Date	Time	Depth
05-12-16	11:45 AM	None Noted

DEPTH (Feet)	SAMPLE NUMBER	DEPTH OF SAMPLE FROM (FEET)	DEPTH OF SAMPLE TO (FEET)	DEPTH OF CHANGE (FEET)	NOTES OR PIT PROFILE	CLASSIFICATION OF MATERIAL (f - FINE, m - MEDIUM, c - COARSE; and 35-50%, some 20-35%, little 10-20%, trace 0-10%)
0				0.5		Dark Brown Topsoil and Organic Matter (moist, easy digging)
				2.0		Brown cmf SAND, some SILT, little cmf GRAVEL, trace COBBLES (moist, medium hard digging)
5				6.1		Brown SILT and CLAY, some cmf SAND, little mf GRAVEL, trace COBBLES (moist, medium hard digging) *See Remark 3*
						Brown Similar Soil (moist to wet, medium hard digging)
10						Bottom of Test Pit @ 10.0’

REMARKS:

1. This test pit was excavated by Sherman Vincent utilizing a Case CX80 backhoe equipped with a 24” wide all-purpose bucket.
2. Elevation at grade was estimated to the nearest 0.5 feet utilizing existing contour lines on a Concept Grading Map, labeled L001, provided by HOLT Architects, P.C.
3. Clay lenses were noted throughout this layer.

Photographs 1 and 2 (Top): Profiles of Test Pit TP-1. Photograph 3 (Bottom Left): Side Profile of Test Pit TP-1. Photograph 4 (Bottom Right): Spoil Pile from Test Pit TP-1.

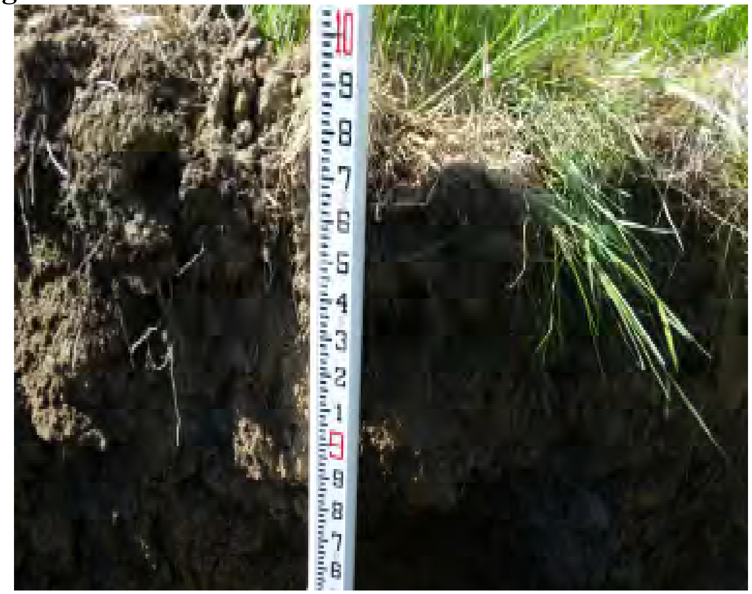
Photographs 5 and 6 (Top): Profiles of Test Pit TP-2. Photograph 7 (Bottom Left): Side Profile of Test Pit TP-2. Photograph 8 (Bottom Right): Spoil Pile from Test Pit TP-2.

Photographs 9 and 10 (Top): Profiles of Test Pit TP-3. Photograph 11 (Bottom Left): Side Profile of Test Pit TP-3. Photograph 12 (Bottom Right): Spoil Pile from Test Pit TP-3.

Photographs 13 and 14 (Top): Profiles of Test Pit TP-4. Photograph 15 (Bottom Left): Side Profile of Test Pit TP-4. Photograph 16 (Bottom Right): Spoil Pile from Test Pit TP-4.

Photographs 17 and 18 (Top): Profiles of Test Pit TP-5. Photograph 19 (Bottom Left): Side Profile of Test Pit TP-5. Photograph 20 (Bottom Right): Spoil Pile from Test Pit TP-5.

Photographs 21 and 22 (Top): Profiles of Test Pit TP-6. Photograph 23 (Bottom Left): Side Profile of Test Pit TP-6. Photograph 24 (Bottom Right): Spoil Pile from Test Pit TP-6.



Photographs 25 and 26 (Top): Profiles of Test Pit TP-7. Photographs 27 (Bottom Left): Profile of Test Pit TP-7. At 10:30 AM water began to slowly seep in from sides and bottom of Test Pit. Photograph 28 (Bottom Right): Spoil Pile from Test Pit TP-7.

Photographs 29 and 30 (Top): Profiles of Test Pit TP-8. Photographs 31 (Bottom Left): Profile of Test Pit TP-8. Photograph 32 (Bottom Right): Spoil Pile from Test Pit TP-8.

GENERAL INFORMATION & KEY TO TEST BORING LOGS

The Subsurface Exploration - Test Boring Logs produced by CME Associates, Inc. present the observations and mechanical data collected by the driller while at the site, supplemented, at times, by classification of the materials removed from the borings as determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a fraction of the total volume of the deposits at the site and may not necessarily be representative of the subsurface conditions between adjacent borings or between the sampled intervals. The data presented on the Exploration Logs together with the recovered samples will provide a basis for evaluating the character of the subsurface conditions relative to the proposed construction. The evaluation must consider all the recorded details and their significance relative to each other. Often, analyses of standard boring data indicate the need for additional testing and sampling procedures to more accurately evaluate the subsurface conditions. Any evaluations of the contents of CME's report and the recovered samples must be performed by Licensed Professionals having experience in Soil Mechanics and Foundation Engineering. The information presented in this Key defines some of the procedures and terms used on the CME Exploration Logs to describe the conditions encountered. Refer to the Log on page 3 for key number.

Key No. **Description**

1. The figures in the **DEPTH SCALE** column define the vertical scale of the Boring Log.

2. **CASING BLOWS/FOOT** - shows the number of blows required to advance the casing a distance of 12 inches. The casing size, the hammer weight and the length of drop are noted under the **Methods of Investigation**. If the casing is advanced by means other than driving, the method of advancement will be indicated under **Methods of Investigation** at the top of the Log. If Hollow Stem Augers or Coring is used, it will be so noted in this column.

3. The **SAMPLE I.D.** is used for identification on the sample containers and in the Laboratory Test Report or Summary.

4. The **DEPTH OF SAMPLE** column gives the exact depth range from which a sample was recovered.

5. The **SAMPLE TYPE/RECOVERY** column is used to signify the various type of sample attempt. "SS" is Split Spoon, "P" is piston tube, "U" is Undisturbed tube. For soil samples, the recovered length of the sample is also indicated, in inches. If a rock core sample is taken, the core bit size designation is given here.

6. **BLOWS ON SAMPLER** - shows the results of the "Standard Penetration Test (SPT) ASTM D1586", recording the number of blows required to drive a split spoon sampler into the soil beneath the casing. The number of blows required for each six inches of penetration is recorded. The total number of blows required for the 6 inch to 18 inch interval is summarized in the **SPT "N"** column and represents the "Standard Penetration Number". The outside diameter of the sampler, the hammer weight and the length of drop are noted in the **Methods of Investigation** portion of the log. A "WH" or "WR" in this column indicates that the sample spoon advanced the 6 inch interval under Weight of Hammer or Weight of Rods, respectively.

7. The **DEPTH OF CHANGE** column designates the depth (in feet) that the driller noted a compactness or stratum change. In soft materials or soil strata exhibiting a consistent relative density, it is difficult for the driller to determine the exact change from one stratum to the next. In addition, a grading or gradual change may exist. In such cases the depth noted is approximate or estimated only and may be represented by a dashed line.

8. **CLASSIFICATION OF MATERIAL - Soil materials** encountered and sampled are described by the driller on the original log. Notes of driller observations are also placed in this column. Recovered samples may also be visually classified by a Soil Technician upon receipt in the Laboratory. Visual sample classification is by Burmister System and strata may be classified additionally by the Unified System. The Burmister System is a type of visual-manual textural classification estimated by the Driller or Technician on the basis of weight-fraction of the recovered soil. See Table 1 **"Classification of Materials"**. The description of the relative soil compactness or consistency is based upon the standard penetration number as defined in Table 2. The description of the soil moisture condition is described as dry, moist, wet, or saturated. Water used to advance the boring may have affected the in-situ moisture content of the sample. Special terms are used as required to describe materials in greater detail, such terms are listed in ASTM D653. When sampling gravelly soils with a standard two-inch O.D. Split Spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter. The presence of boulders, cobbles, and large gravel is sometimes, but not necessarily, detected by an evaluation of the casing and sampler blows or through the "action" of the drill rig as reported by the driller.

8. **CLASSIFICATION OF MATERIAL** (continued)
The Description of **Rock** is based upon the recovered rock core. Terms frequently used in the description are included in Table 3. The length of core run is defined as length of penetration between retreivals of the corebarrel from the bore hole, expressed in inches. The core recovery expresses the length of core recovered from the core barrel per core run, in percent. The size core barrel used is noted in **Column 5**. The more commonly used sizes of core barrels are denoted "AX" and "NX". An "NX" core, being larger in diameter than "AX" core, often produces better recovery, and is frequently utilized where accurate information regarding the geologic conditions and engineering properties is needed. A better estimate of in-situ rock quality is provided by a *modified core recovery ratio* known as the **"Rock Quality Designation" (RQD)**. This ratio is determined by considering only pieces of core that are at least 4 inches long and are hard and sound. Breaks obviously caused by drilling are ignored. The diameter of the core should preferably be not less than 2 inches (NX). The percentage ratio between the total length of such core recovered and the length of core drilled on a given run is the RQD. Table 4 gives the rock quality description as related to the **RQD**.

9. The **SPT "N"** or **RQD** is given in this column as applicable to the specific sample taken. In Very Compact coarse grained soils the N-value may be indicated as 50+, and in Hard fine-grained soils the N-value may be indicated as 30+. This typically means that the blow count was achieved prior to driving the sampler the entire 6 inch interval or the sampler refused further penetration. For "NX" rock cores, the RQD is reported here, expressed in percent.

10. **GROUND WATER OBSERVATIONS** and timing noted by the driller are shown in this section. It is important to realize that the reliability of the water level observations depend upon the soil type (water does not readily stabilize in a hole through fine grained soils), and that drill water used to advance the borings may have influenced the observations. Ground water levels typically fluctuate seasonally so those noted on the log are only representative of that exhibited during the period of time noted on the log. One or more perched or trapped water levels may exist in the ground seasonally. All the available readings should be evaluated. If definite conclusions cannot be made, it is often prudent to examine the conditions more thoroughly through test pit excavations or ground water observation well installations.

TABLE 1 - VISUAL CLASSIFICATION OF MATERIALS (BURMISTER)	
GROUP	**TEXTURAL CLASSIFICATION SIZES**
BOULDERS	larger than 12" diameter
COBBLES	12" diameter to 3" sieve
GRAVEL	3" - coarse - 1" - medium - 1/2" - fine - #4 sieve
SAND	#4 - coarse - #10 - medium - #40 - fine - #200 sieve
SILT	#200 sieve (0.074mm) to 0.005mm size (see below *)
CLAY	0.005mm size to 0.001mm size (see below *)

ABBREVIATIONS	**PERCENT OF TOTAL SAMPLE BY WEIGHT**	
f - fine	and	35 to 50%
m - medium	some	20 to 35%
c - coarse	little	10 to 20%
	trace	0 to 10%

***PLASTICITY DESCRIPTIONS**			
TERM	**PLASTICITY INDEX**	**DRY STRENGTH**	**FIELD TEST**
Non-plastic	0 - 3	Very low	falls apart easily
Slightly plastic	4 - 15	Slight	easily crushed by fingers
Plastic	15 - 30	Medium	difficult to crush
Highly plastic	31 or more	High	impossible to crush with fingers

*TABLE 2 - DESCRIPTION OF SOIL COMPACTNESS OR CONSISTENCY based on SPT "N"**		
Primary Soil Type	**Descriptive Term of Compactness**	**Range of Standard Penetration Resistance (N)**
COARSE GRAINED SOILS	Very loose	less than 4 blows per foot
(More than half of Material is larger than No. 200 sieve size.)	Loose	4 to 10
	Medium compact	10 to 30
	Compact	30 to 50
	Very compact	Greater than 50
FINE GRAINED SOILS	**Descriptive Term of Consistency**	**Rangc of Standard Penetration Resistance (N)**
(More than half of material is smaller than No. 200 sieve size.)	Very soft	less than 2 blows per foot
	Soft	2 to 4
	Medium stiff	4 to 8
	Stiff	8 to 15
	Very stiff	15 to 30
	Hard	Greater than 30
*The number of blows of 140 pound weight falling 30 inches to drive 2 inch O.D., 1-3/8 inch I.D. sampler 12 inches is defined as the Standard Penetration Resistance designated "N".		

TABLE 3 - ROCK CLASSIFICATION TERMS		
Rock Classification Terms		**Field Test or Meaning of Term**
Hardness	Soft	Scratched by fingernail
	Medium Hard	Scratched easily by penknife
	Hard	Scratched with difficulty by penknife
	Very Hard	Cannot be scratched by penknife
Weathering	Very Weathered Weathered Sound	Judged from the relative amounts of disintegration, iron staining, core recovery, clay seams, etc.
Bedding (Natural Breaks in Rock Layers)	Laminated Thinly bedded Bedded Thickly bedded Massive	less than 1 inch 1 inch to 4 inches 4 inches to 12 inches 12 inches to 36 inches greater than 36 inches

TABLE 4 **Relation of Rock Quality Designation (RQD) and in-situ Rock Quality**	
RQD (%)	**Rock Quality Term Used**
90 to 100	Excellent
75 to 90	Good
50 to 75	Fair
25 to 50	Poor
0 to 25	Very Poor

BORING NO.: B-1 Page 1 of 1

SUBSURFACE EXPLORATION - TEST BORING LOG

Project: **Report No.:**
Client: **Date Started:** **Finished:**
Location of Boring: **Elevation of Surface of Boring:**

METHODS OF INVESTIGATION

Casing: 3-1/4" I.D. Hollow Stem Auger **Hammer:**
Other:
Soil Sampler: 2" O.D. Split Barrel **Rod Size:**
Sampler Hammer: **Wt.** 140 lbs. **Fall:** 30 in.
Make & Model of Drill Rig:

GROUND WATER OBSERVATIONS

Date	Time	Depth	Casing At
	While drilling		
	Before casing removed		
	After casing removed		

LOG OF BORING SAMPLES							**CLASSIFICATION OF MATERIAL**		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (inches)	Blows on Sampler Per 6 inches	Depth of Change (feet)	f - fine m - medium c - coarse **and** - 35 to 50% **some** - 20 to 35% **little** - 10 to 20% **trace** - 0 to 10%	STP "N" or RQD
1	2	3	4	4	5	6	7	8	9

Denotes Key Number (see page 1)

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New York
Location	
Longitude	76.431 degrees West
Latitude	42.459 degrees North
Elevation	0 feet
Date/Time	Mon, 30 Jan 2023 14:47:33 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.70	0.87	1.07	**1yr**	0.75	0.95	1.21	1.45	1.71	2.01	2.27	**1yr**	1.78	2.18	2.58	3.12	3.58	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.26	**2yr**	0.88	1.12	1.43	1.70	2.01	2.34	2.61	**2yr**	2.08	2.51	2.94	3.50	4.00	**2yr**
5yr	0.38	0.59	0.74	0.99	1.26	1.57	**5yr**	1.09	1.39	1.78	2.13	2.50	2.91	3.25	**5yr**	2.58	3.13	3.63	4.22	4.83	**5yr**
10yr	0.42	0.66	0.84	1.14	1.48	1.85	**10yr**	1.28	1.63	2.11	2.52	2.96	3.44	3.83	**10yr**	3.04	3.68	4.26	4.86	5.57	**10yr**
25yr	0.50	0.79	1.00	1.38	1.84	2.31	**25yr**	1.58	2.02	2.64	3.15	3.70	4.27	4.77	**25yr**	3.78	4.58	5.27	5.86	6.72	**25yr**
50yr	0.56	0.90	1.15	1.60	2.16	2.73	**50yr**	1.86	2.38	3.12	3.73	4.38	5.04	5.62	**50yr**	4.46	5.41	6.19	6.76	7.76	**50yr**
100yr	0.63	1.01	1.31	1.86	2.53	3.23	**100yr**	2.19	2.80	3.70	4.43	5.18	5.95	6.64	**100yr**	5.26	6.38	7.27	7.79	8.95	**100yr**
200yr	0.72	1.17	1.51	2.16	2.98	3.82	**200yr**	2.58	3.30	4.39	5.25	6.12	7.02	7.84	**200yr**	6.21	7.54	8.54	8.98	10.33	**200yr**
500yr	0.85	1.39	1.82	2.64	3.70	4.77	**500yr**	3.19	4.11	5.49	6.57	7.65	8.75	9.77	**500yr**	7.74	9.39	10.58	10.85	12.50	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.39	0.48	0.64	0.79	0.83	1yr	0.68	0.81	0.96	1.07	1.51	1.84	2.12	1yr	1.62	2.04	2.42	2.96	3.27	1yr
2yr	0.32	0.49	0.61	0.82	1.01	1.12	2yr	0.87	1.09	1.24	1.53	1.86	2.29	2.55	2yr	2.02	2.45	2.87	3.43	3.93	2yr
5yr	0.36	0.56	0.69	0.95	1.20	1.32	5yr	1.04	1.29	1.44	1.78	2.17	2.72	3.04	5yr	2.41	2.92	3.41	4.00	4.60	5yr
10yr	0.40	0.61	0.76	1.06	1.37	1.50	10yr	1.19	1.47	1.63	1.99	2.46	3.12	3.46	10yr	2.77	3.33	3.87	4.49	5.18	10yr
25yr	0.46	0.70	0.87	1.24	1.63	1.79	25yr	1.41	1.75	1.92	2.29	2.85	3.70	4.11	25yr	3.28	3.95	4.57	5.22	6.06	25yr
50yr	0.50	0.77	0.96	1.38	1.85	2.04	50yr	1.60	1.99	2.17	2.56	3.21	4.24	4.66	50yr	3.75	4.48	5.17	5.86	6.83	50yr
100yr	0.56	0.85	1.06	1.53	2.10	2.33	100yr	1.81	2.28	2.45	2.85	3.61	4.83	5.29	100yr	4.28	5.09	5.85	6.58	7.69	100yr
200yr	0.62	0.94	1.19	1.72	2.40	2.67	200yr	2.07	2.61	2.79	3.17	4.06	5.51	6.01	200yr	4.88	5.78	6.61	7.36	8.66	200yr
500yr	0.74	1.10	1.41	2.05	2.92	3.21	500yr	2.52	3.13	3.30	3.67	4.74	6.56	7.09	500yr	5.81	6.82	7.75	8.56	10.15	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.30	0.47	0.57	0.77	0.94	1.03	1yr	0.81	1.01	1.16	1.44	1.77	2.16	2.39	1yr	1.91	2.30	2.73	3.27	3.77	1yr
2yr	0.34	0.52	0.64	0.87	1.07	1.18	2yr	0.93	1.16	1.31	1.63	1.99	2.41	2.70	2yr	2.14	2.60	3.03	3.59	4.10	2yr
5yr	0.40	0.62	0.76	1.05	1.34	1.53	5yr	1.15	1.49	1.68	2.06	2.53	3.11	3.46	5yr	2.75	3.33	3.85	4.45	5.08	5yr
10yr	0.46	0.71	0.88	1.23	1.59	1.86	10yr	1.37	1.81	2.04	2.47	3.07	3.77	4.19	10yr	3.34	4.03	4.64	5.25	6.00	10yr
25yr	0.56	0.86	1.07	1.52	2.01	2.41	25yr	1.73	2.36	2.63	3.15	3.95	4.87	5.40	25yr	4.31	5.20	5.93	6.53	7.46	25yr
50yr	0.66	1.00	1.25	1.79	2.41	2.93	50yr	2.08	2.86	3.19	3.80	4.80	5.92	6.55	50yr	5.24	6.30	7.16	7.71	8.81	50yr
100yr	0.77	1.16	1.45	2.10	2.87	3.56	100yr	2.48	3.48	3.86	4.59	5.80	7.19	7.94	100yr	6.36	7.64	8.65	9.13	10.40	100yr
200yr	0.89	1.34	1.70	2.46	3.43	4.34	200yr	2.96	4.24	4.69	5.53	7.03	8.74	9.64	200yr	7.74	9.27	10.47	10.78	12.28	200yr
500yr	1.09	1.63	2.09	3.04	4.32	5.61	500yr	3.73	5.49	6.04	7.06	9.09	11.33	12.48	500yr	10.03	12.00	13.50	13.46	15.30	500yr

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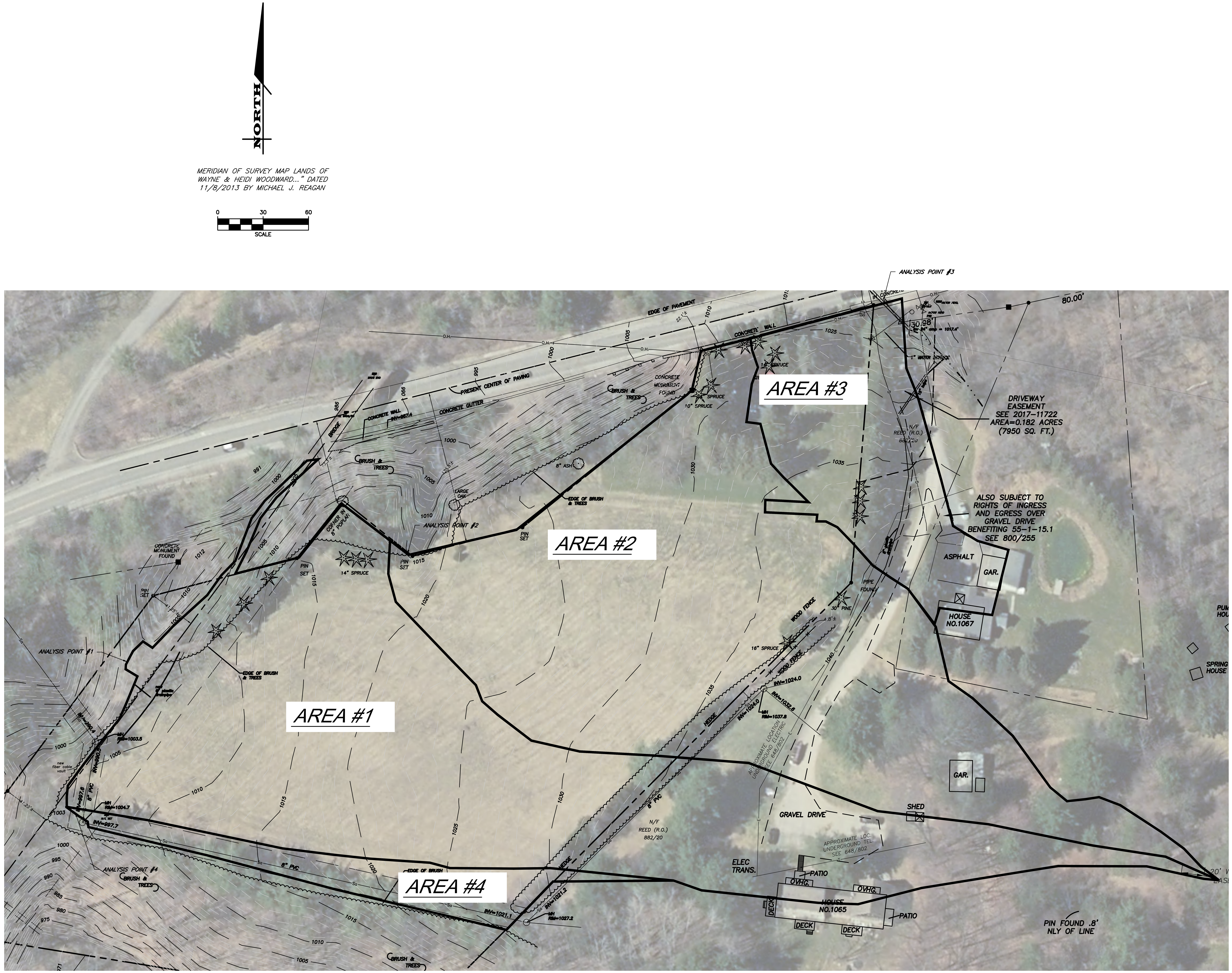

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SITE DEVELOPMENT PLANS for EVERGREEN APARTMENTS / PG DRYDEN, LLC

1061 DRYDEN ROAD (NYS ROUTE 366)
TOWN OF DRYDEN
TOMPKINS COUNTY
STATE OF NEW YORK

JOB NO:	1495-22
DRAWN:	RLJ
DESIGNED:	AMF
DATE:	8/30/23

REVISIONS

DATE	BY	REVISION
9/21/23	AF	TOWN SUBMITTAL
10/11/23	AF	TOWN SUBMITTAL

IT IS A VIOLATION OF NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209 FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER IN ANY WAY AN ITEM BEARING THE SEAL OF A PROFESSIONAL ENGINEER OR LAND SURVEYOR.

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DRAWING TITLE:
Existing Drainage Conditions Map

1 of 2
SHEET No:
1495-22
JOB No:
DR-1
DRAWING No:

File: I:\Engineering\Job Files\1495-22\Drawings\1495 Drainage.dwg, Last saved: 10/11/2023, Plot Date: 10/12/2023, By: AFISHEL, Plot Style: ----


7S
Existing Area #1 (AP #1)
8S
Existing Area #2 (AP #2)
9S
Existing Area #3 (AP #3)
17S
Existing Area #4 (AP #4)
Subcat
Reach
Pond
Link
Routing Diagram for 1495 Drainage Existing 2023.10.09
Prepared by Marathon Engineering, Printed 10/11/2023
HydroCAD® 10.20-2g s/n 10755 © 2022 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	2.01	2
2	2-Year	Type II 24-hr		Default	24.00	1	2.34	2
3	10-Year	Type II 24-hr		Default	24.00	1	3.44	2
4	100-Year	Type II 24-hr		Default	24.00	1	5.95	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.455	80	>75% Grass cover, Good, HSG D (7S, 8S, 9S)
3.165	78	Meadow, non-grazed, HSG D (7S, 8S, 17S)
0.546	98	Paved parking, HSG D (7S, 8S, 9S)
1.812	79	Woods, Fair, HSG D (7S, 8S, 17S)
6.979	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
6.979	HSG D	7S, 8S, 9S, 17S
0.000	Other	
6.979		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	1.455	0.000	1.455	>75% Grass cover, Good	7S, 8S, 9S
0.000	0.000	0.000	3.165	0.000	3.165	Meadow, non-grazed	7S, 8S, 17S
0.000	0.000	0.000	0.546	0.000	0.546	Paved parking	7S, 8S, 9S
0.000	0.000	0.000	1.812	0.000	1.812	Woods, Fair	7S, 8S, 17S
0.000	**0.000**	**0.000**	**6.979**	**0.000**	**6.979**	**TOTAL AREA**	

Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: Existing Area #1 (AP #1) Runoff Area=3.141 ac 5.41% Impervious Runoff Depth=0.57"
Flow Length=780' Tc=14.7 min CN=80 Runoff=2.19 cfs 0.149 af

Subcatchment 8S: Existing Area #2 (AP #2) Runoff Area=121,182 sf 4.48% Impervious Runoff Depth=0.53"
Flow Length=780' Tc=14.7 min CN=79 Runoff=1.77 cfs 0.122 af

Subcatchment 9S: Existing Area #3 (AP #3) Runoff Area=33,140 sf 33.04% Impervious Runoff Depth=0.86"
Tc=6.0 min CN=86 Runoff=1.17 cfs 0.054 af

Subcatchment 17S: Existing Area #4 (AP #4) Runoff Area=12,845 sf 0.00% Impervious Runoff Depth=0.53"
Flow Length=486' Slope=0.0730 '/' Tc=22.0 min CN=79 Runoff=0.15 cfs 0.013 af

Total Runoff Area = 6.979 ac Runoff Volume = 0.339 af Average Runoff Depth = 0.58"
92.18% Pervious = 6.433 ac 7.82% Impervious = 0.546 ac

Summary for Subcatchment 7S: Existing Area #1 (AP #1)

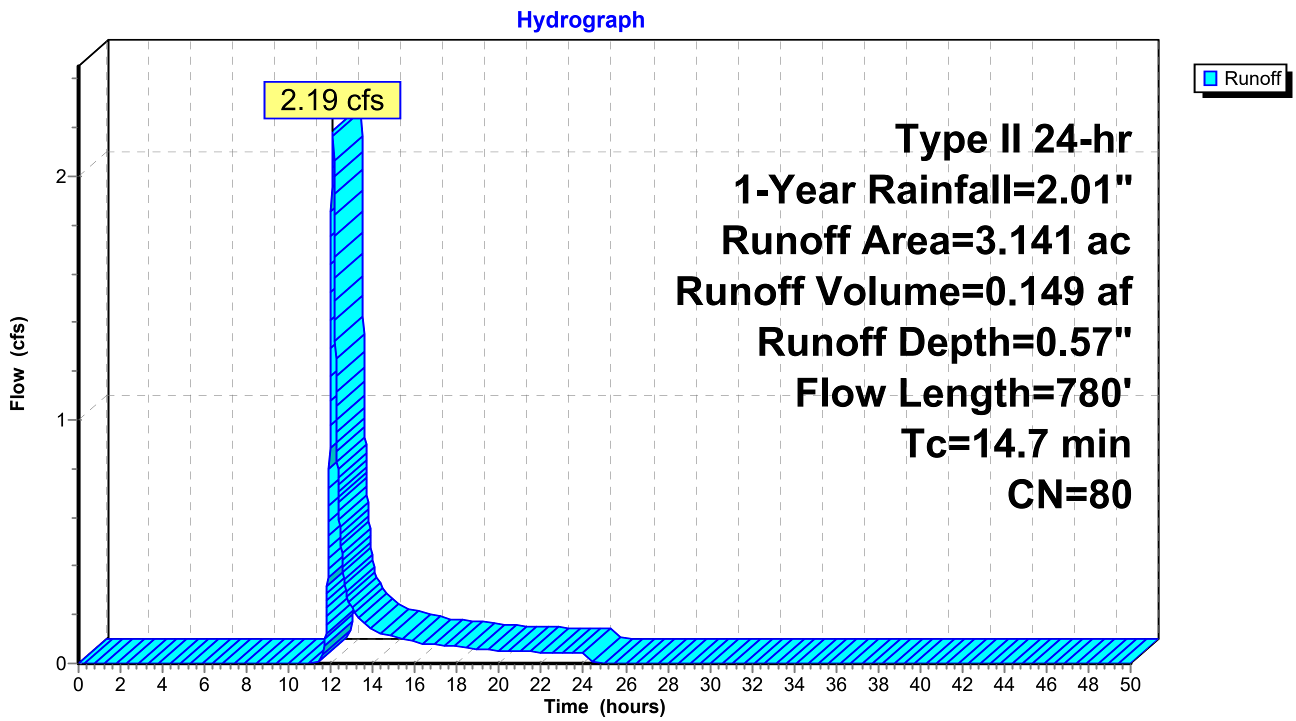
Runoff = 2.19 cfs @ 12.08 hrs, Volume= 0.149 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (ac)	CN	Description
0.815	79	Woods, Fair, HSG D
0.717	80	>75% Grass cover, Good, HSG D
1.439	78	Meadow, non-grazed, HSG D
0.170	98	Paved parking, HSG D
3.141	80	Weighted Average
2.971		94.59% Pervious Area
0.170		5.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.2500	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
2.1	630	0.0950	4.96		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
14.7	780	Total			

Subcatchment 7S: Existing Area #1 (AP #1)



Summary for Subcatchment 8S: Existing Area #2 (AP #2)

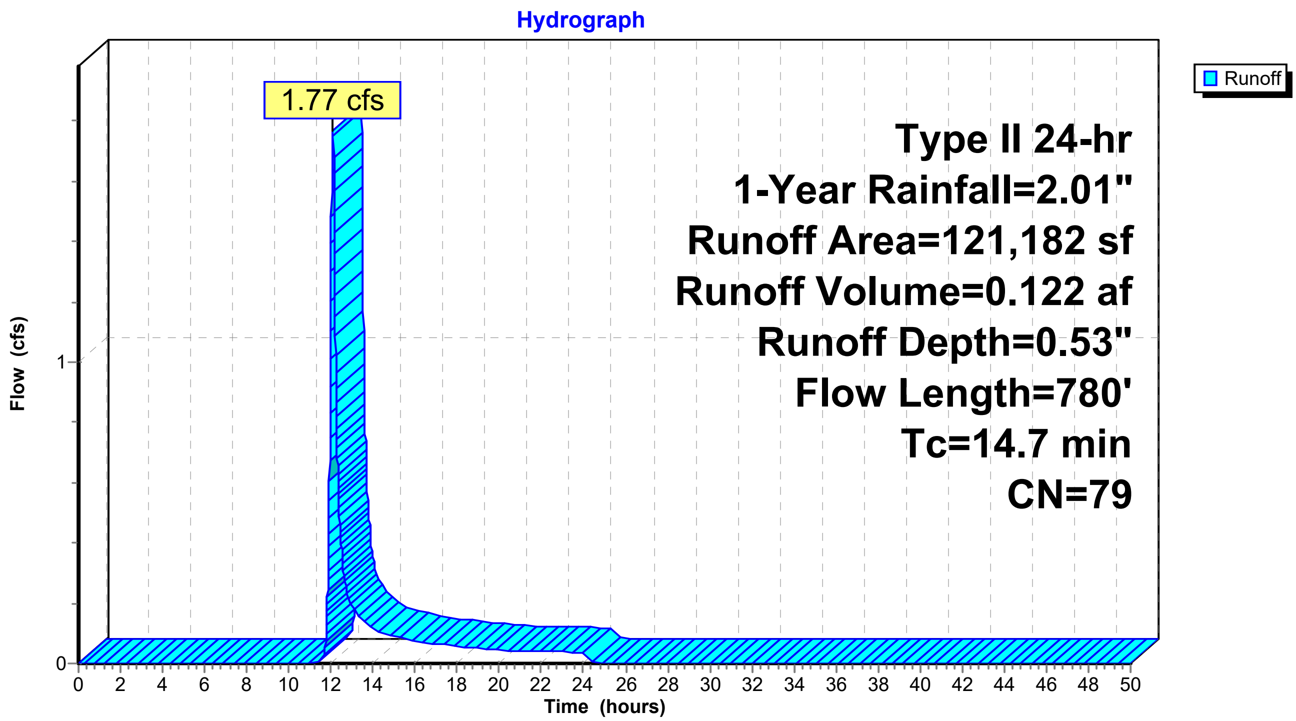
Runoff = 1.77 cfs @ 12.08 hrs, Volume= 0.122 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
36,315	79	Woods, Fair, HSG D
9,941	80	>75% Grass cover, Good, HSG D
69,496	78	Meadow, non-grazed, HSG D
5,430	98	Paved parking, HSG D
121,182	79	Weighted Average
115,752		95.52% Pervious Area
5,430		4.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.2500	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
2.1	630	0.0950	4.96		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
14.7	780	Total			

Subcatchment 8S: Existing Area #2 (AP #2)



Summary for Subcatchment 9S: Existing Area #3 (AP #3)

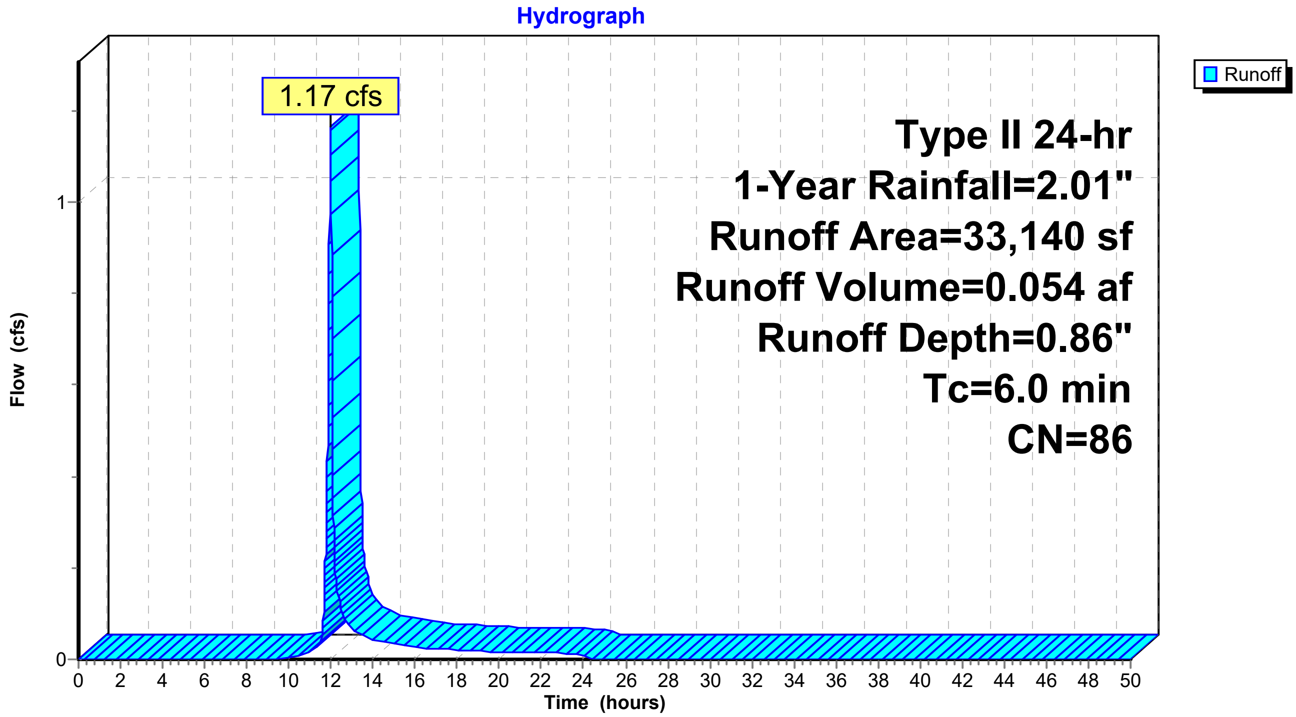
Runoff = 1.17 cfs @ 11.98 hrs, Volume= 0.054 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
22,192	80	>75% Grass cover, Good, HSG D
10,948	98	Paved parking, HSG D
33,140	86	Weighted Average
22,192		66.96% Pervious Area
10,948		33.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: Existing Area #3 (AP #3)



Summary for Subcatchment 17S: Existing Area #4 (AP #4)

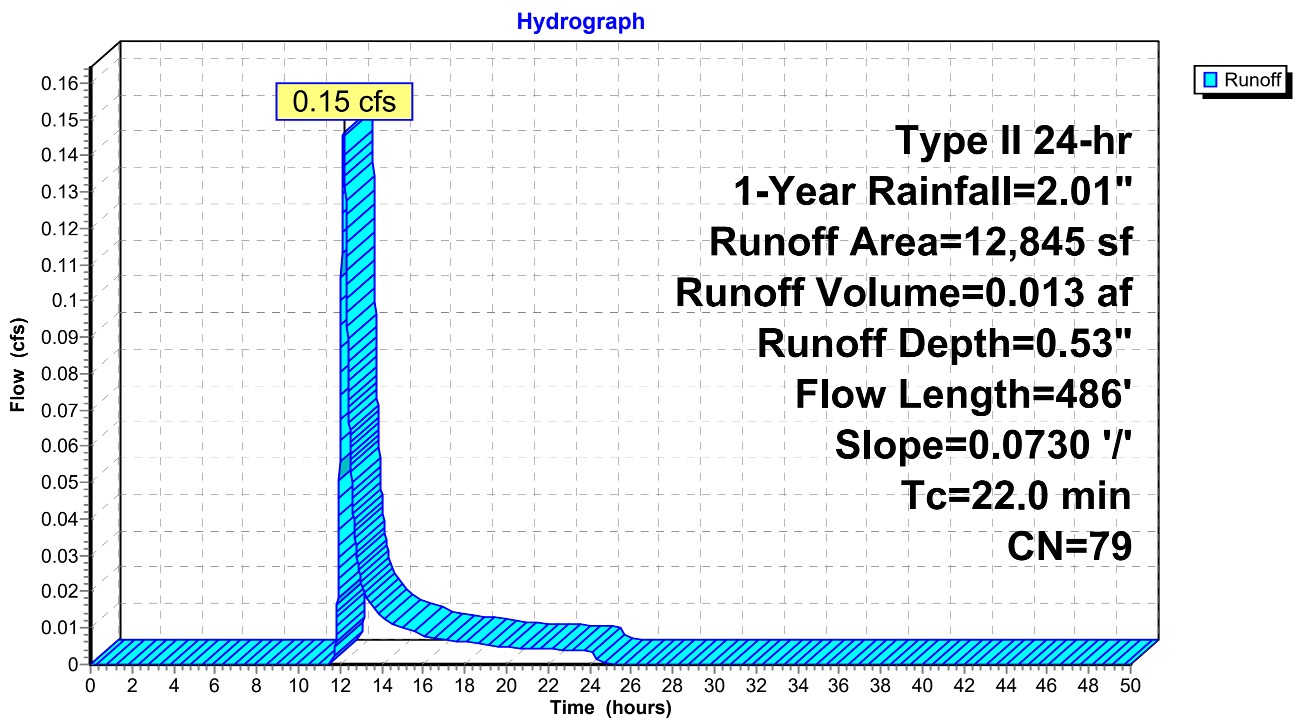
Runoff = 0.15 cfs @ 12.17 hrs, Volume= 0.013 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
7,136	79	Woods, Fair, HSG D
5,709	78	Meadow, non-grazed, HSG D
12,845	79	Weighted Average
12,845		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	150	0.0730	0.12		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
1.3	336	0.0730	4.35		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
22.0	486	Total			

Subcatchment 17S: Existing Area #4 (AP #4)



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: Existing Area #1 (AP #1) Runoff Area=3.141 ac 5.41% Impervious Runoff Depth=0.78"
Flow Length=780' Tc=14.7 min CN=80 Runoff=3.10 cfs 0.204 af

Subcatchment 8S: Existing Area #2 (AP #2) Runoff Area=121,182 sf 4.48% Impervious Runoff Depth=0.73"
Flow Length=780' Tc=14.7 min CN=79 Runoff=2.55 cfs 0.170 af

Subcatchment 9S: Existing Area #3 (AP #3) Runoff Area=33,140 sf 33.04% Impervious Runoff Depth=1.11"
Tc=6.0 min CN=86 Runoff=1.52 cfs 0.071 af

Subcatchment 17S: Existing Area #4 (AP #4) Runoff Area=12,845 sf 0.00% Impervious Runoff Depth=0.73"
Flow Length=486' Slope=0.0730 '/' Tc=22.0 min CN=79 Runoff=0.21 cfs 0.018 af

Total Runoff Area = 6.979 ac Runoff Volume = 0.463 af Average Runoff Depth = 0.80"
92.18% Pervious = 6.433 ac 7.82% Impervious = 0.546 ac

Summary for Subcatchment 7S: Existing Area #1 (AP #1)

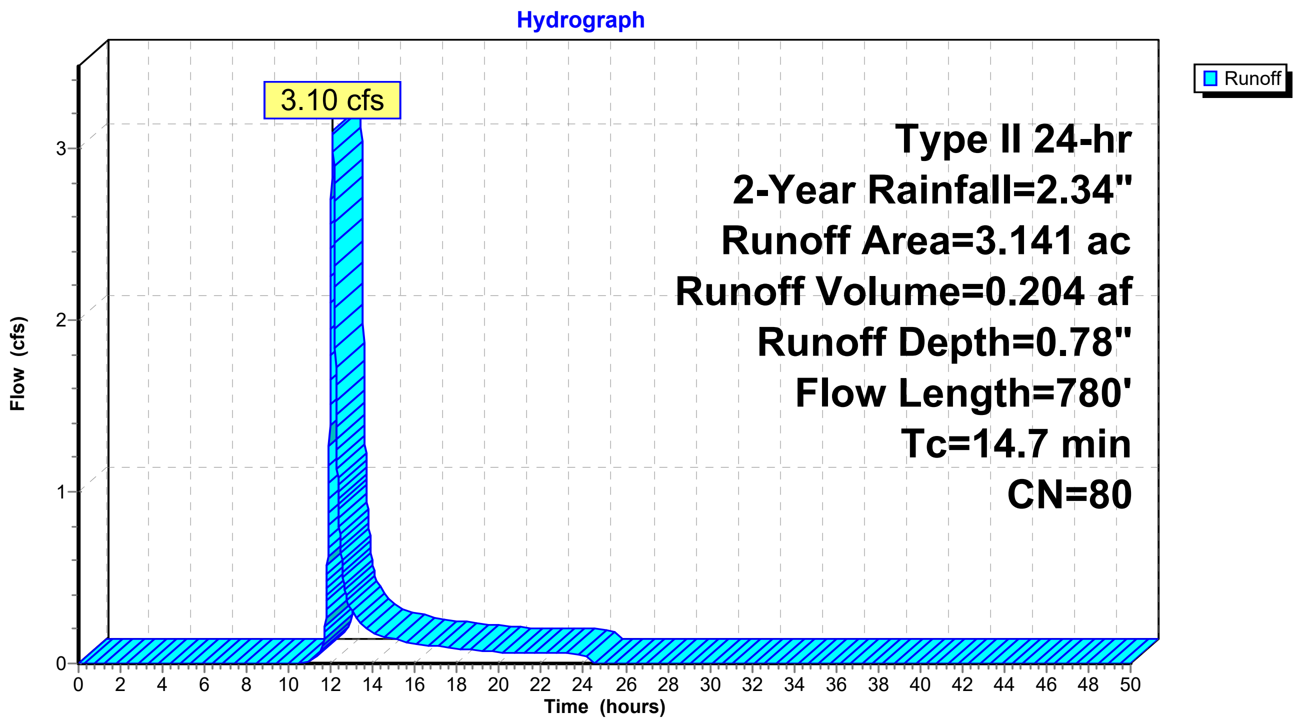
Runoff = 3.10 cfs @ 12.07 hrs, Volume= 0.204 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (ac)	CN	Description
0.815	79	Woods, Fair, HSG D
0.717	80	>75% Grass cover, Good, HSG D
1.439	78	Meadow, non-grazed, HSG D
0.170	98	Paved parking, HSG D
3.141	80	Weighted Average
2.971		94.59% Pervious Area
0.170		5.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.2500	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
2.1	630	0.0950	4.96		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
14.7	780	Total			

Subcatchment 7S: Existing Area #1 (AP #1)



Summary for Subcatchment 8S: Existing Area #2 (AP #2)

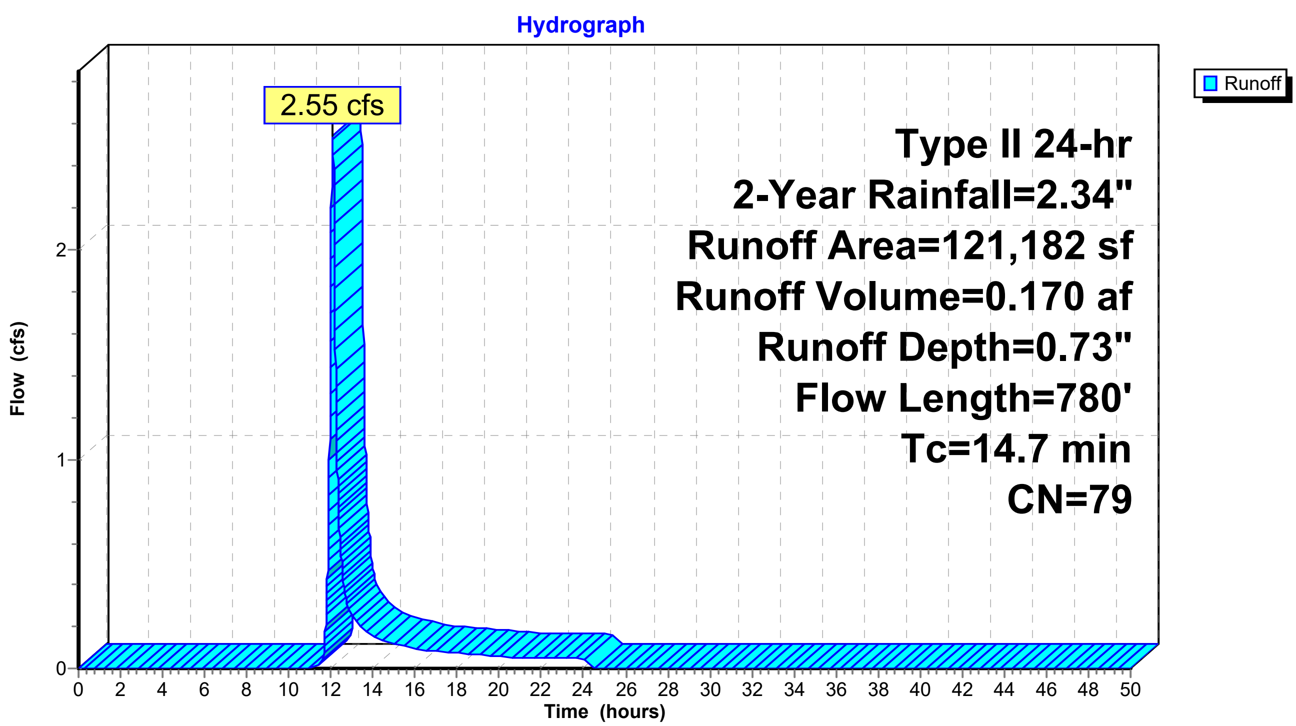
Runoff = 2.55 cfs @ 12.08 hrs, Volume= 0.170 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
36,315	79	Woods, Fair, HSG D
9,941	80	>75% Grass cover, Good, HSG D
69,496	78	Meadow, non-grazed, HSG D
5,430	98	Paved parking, HSG D
121,182	79	Weighted Average
115,752		95.52% Pervious Area
5,430		4.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.2500	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
2.1	630	0.0950	4.96		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
14.7	780	Total			

Subcatchment 8S: Existing Area #2 (AP #2)



Summary for Subcatchment 9S: Existing Area #3 (AP #3)

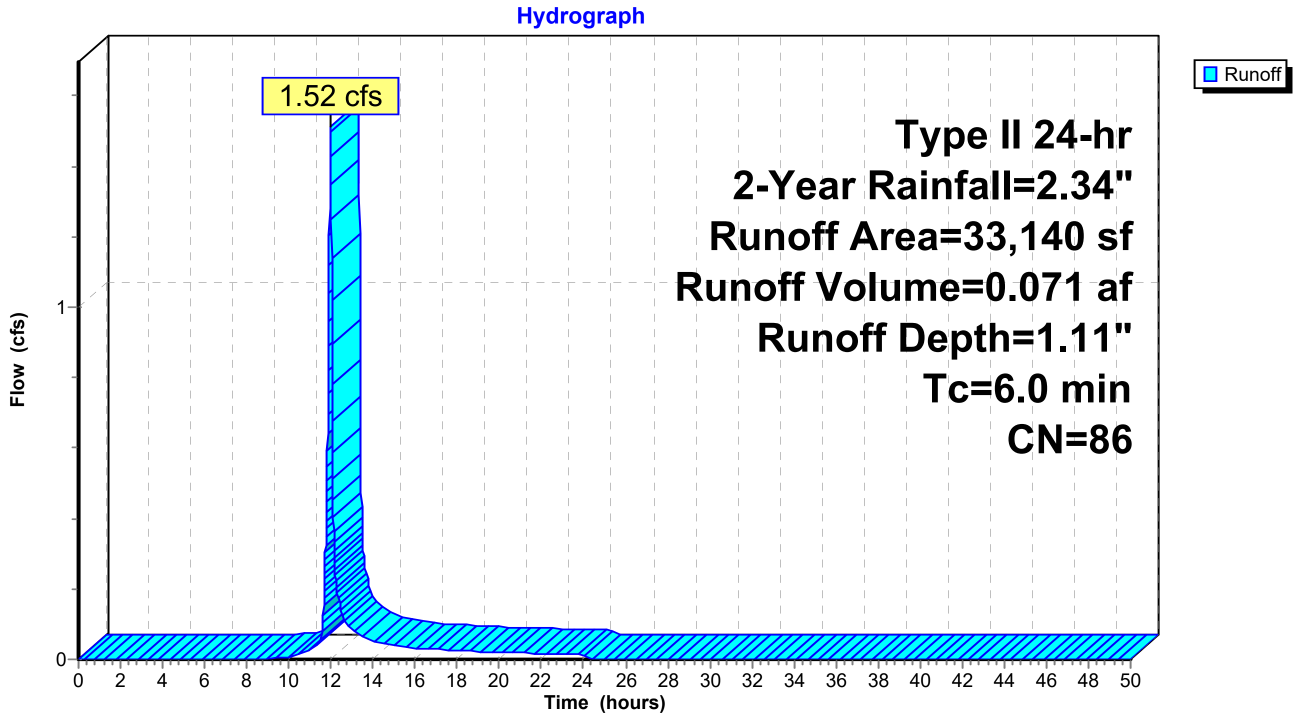
Runoff = 1.52 cfs @ 11.97 hrs, Volume= 0.071 af, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
22,192	80	>75% Grass cover, Good, HSG D
10,948	98	Paved parking, HSG D
33,140	86	Weighted Average
22,192		66.96% Pervious Area
10,948		33.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: Existing Area #3 (AP #3)



Summary for Subcatchment 17S: Existing Area #4 (AP #4)

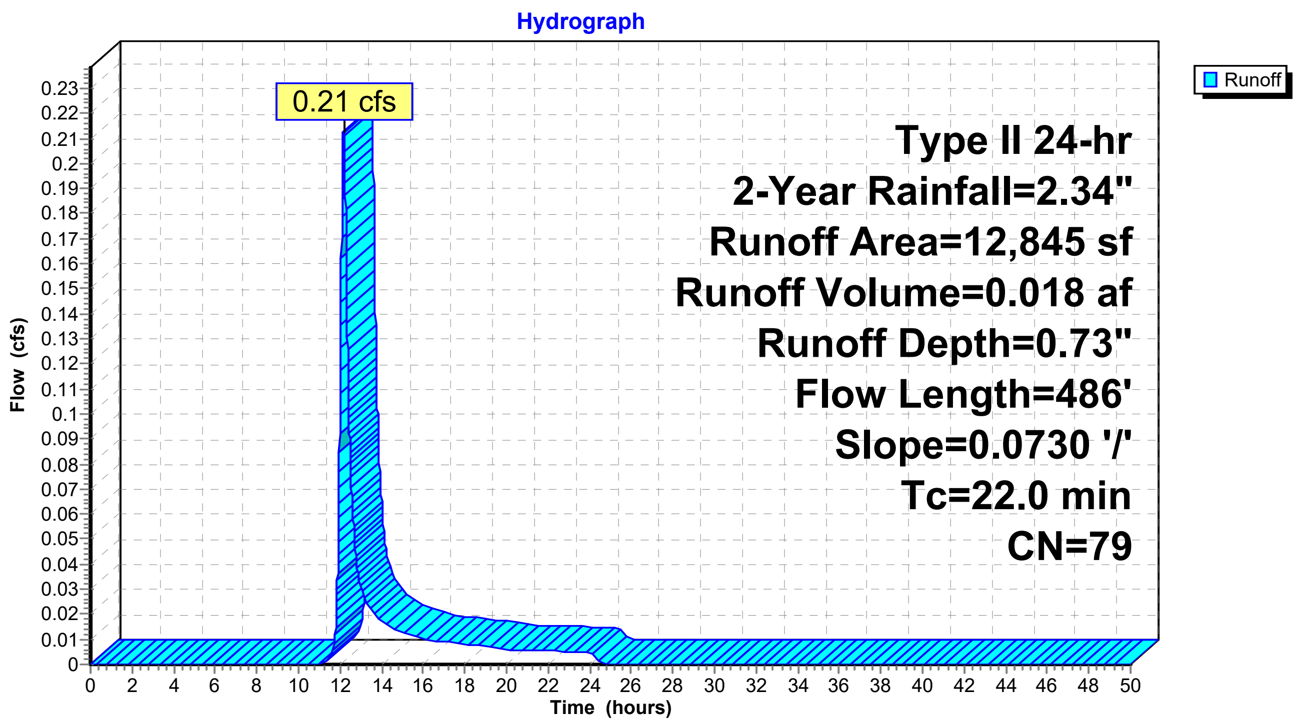
Runoff = 0.21 cfs @ 12.17 hrs, Volume= 0.018 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
7,136	79	Woods, Fair, HSG D
5,709	78	Meadow, non-grazed, HSG D
12,845	79	Weighted Average
12,845		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	150	0.0730	0.12		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
1.3	336	0.0730	4.35		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
22.0	486	Total			

Subcatchment 17S: Existing Area #4 (AP #4)



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: Existing Area #1 (AP #1) Runoff Area=3.141 ac 5.41% Impervious Runoff Depth=1.59"
Flow Length=780' Tc=14.7 min CN=80 Runoff=6.53 cfs 0.416 af

Subcatchment 8S: Existing Area #2 (AP #2) Runoff Area=121,182 sf 4.48% Impervious Runoff Depth=1.52"
Flow Length=780' Tc=14.7 min CN=79 Runoff=5.52 cfs 0.352 af

Subcatchment 9S: Existing Area #3 (AP #3) Runoff Area=33,140 sf 33.04% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=86 Runoff=2.74 cfs 0.130 af

Subcatchment 17S: Existing Area #4 (AP #4) Runoff Area=12,845 sf 0.00% Impervious Runoff Depth=1.52"
Flow Length=486' Slope=0.0730 '/' Tc=22.0 min CN=79 Runoff=0.47 cfs 0.037 af

Total Runoff Area = 6.979 ac Runoff Volume = 0.935 af Average Runoff Depth = 1.61"
92.18% Pervious = 6.433 ac 7.82% Impervious = 0.546 ac

Summary for Subcatchment 7S: Existing Area #1 (AP #1)

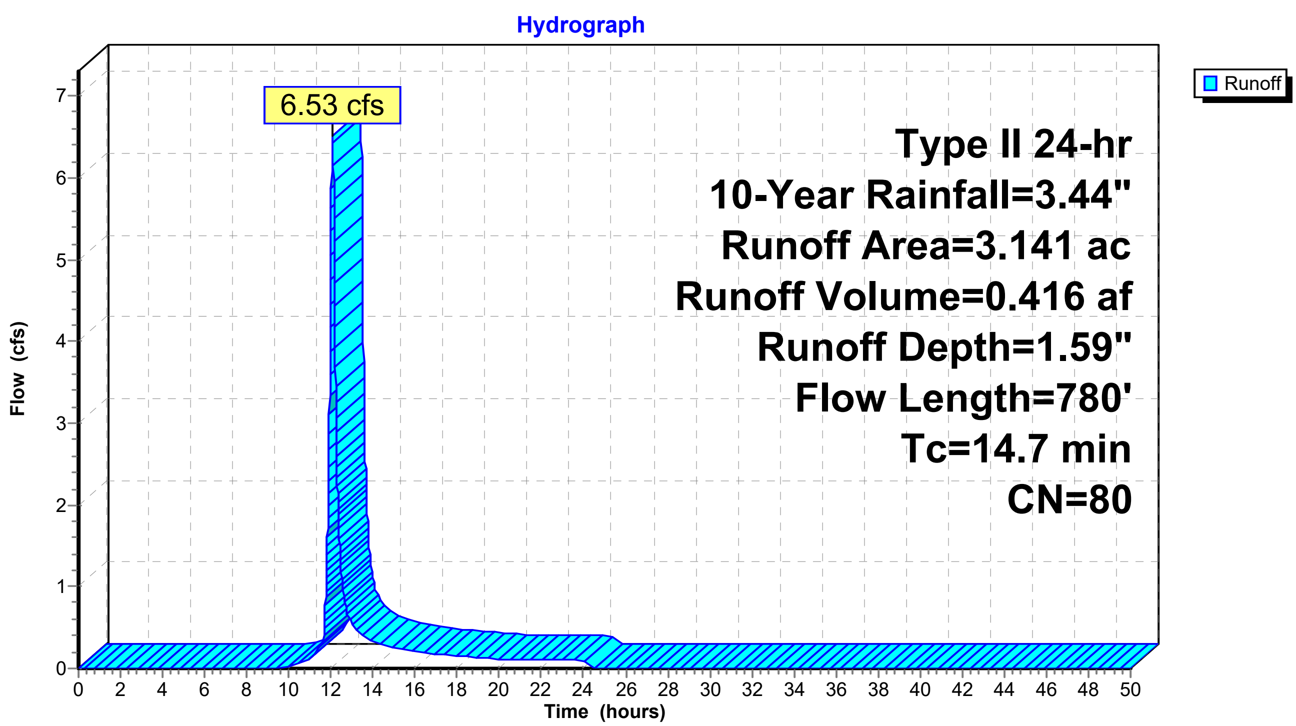
Runoff = 6.53 cfs @ 12.07 hrs, Volume= 0.416 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (ac)	CN	Description
0.815	79	Woods, Fair, HSG D
0.717	80	>75% Grass cover, Good, HSG D
1.439	78	Meadow, non-grazed, HSG D
0.170	98	Paved parking, HSG D
3.141	80	Weighted Average
2.971		94.59% Pervious Area
0.170		5.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.2500	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
2.1	630	0.0950	4.96		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
14.7	780	Total			

Subcatchment 7S: Existing Area #1 (AP #1)



Summary for Subcatchment 8S: Existing Area #2 (AP #2)

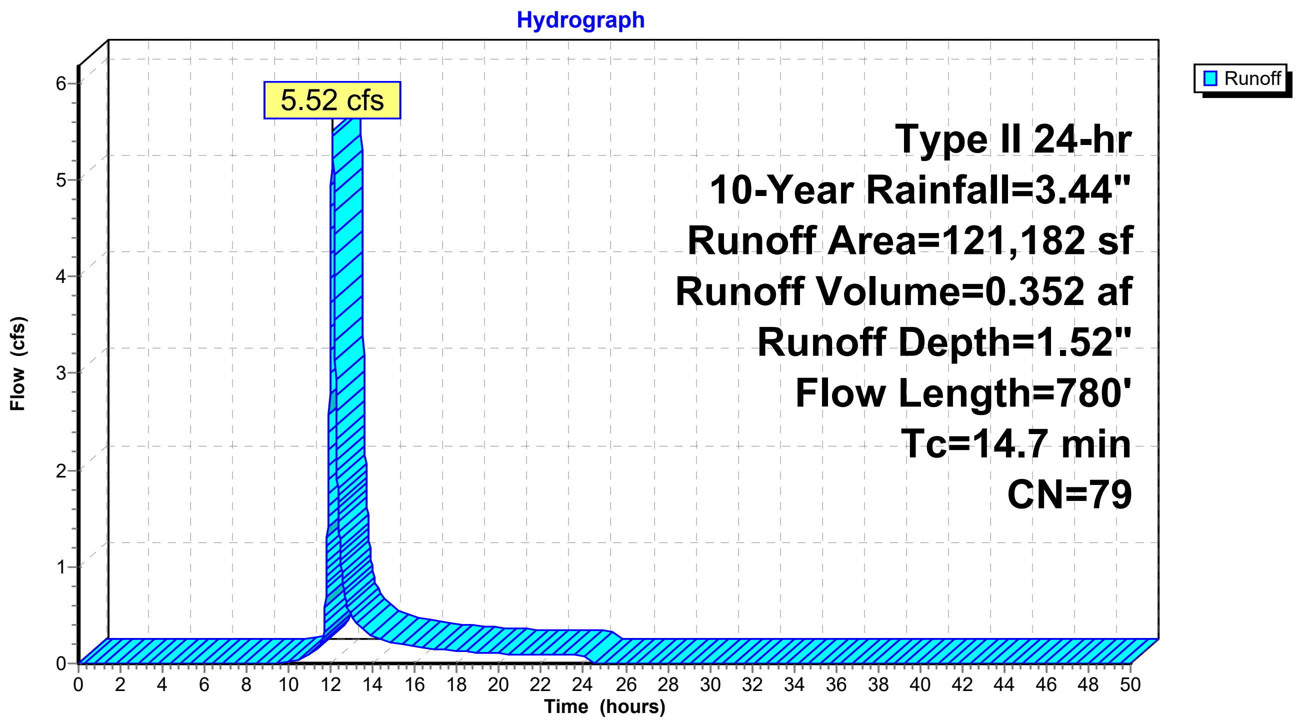
Runoff = 5.52 cfs @ 12.07 hrs, Volume= 0.352 af, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
36,315	79	Woods, Fair, HSG D
9,941	80	>75% Grass cover, Good, HSG D
69,496	78	Meadow, non-grazed, HSG D
5,430	98	Paved parking, HSG D
121,182	79	Weighted Average
115,752		95.52% Pervious Area
5,430		4.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.2500	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
2.1	630	0.0950	4.96		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
14.7	780	Total			

Subcatchment 8S: Existing Area #2 (AP #2)



Summary for Subcatchment 9S: Existing Area #3 (AP #3)

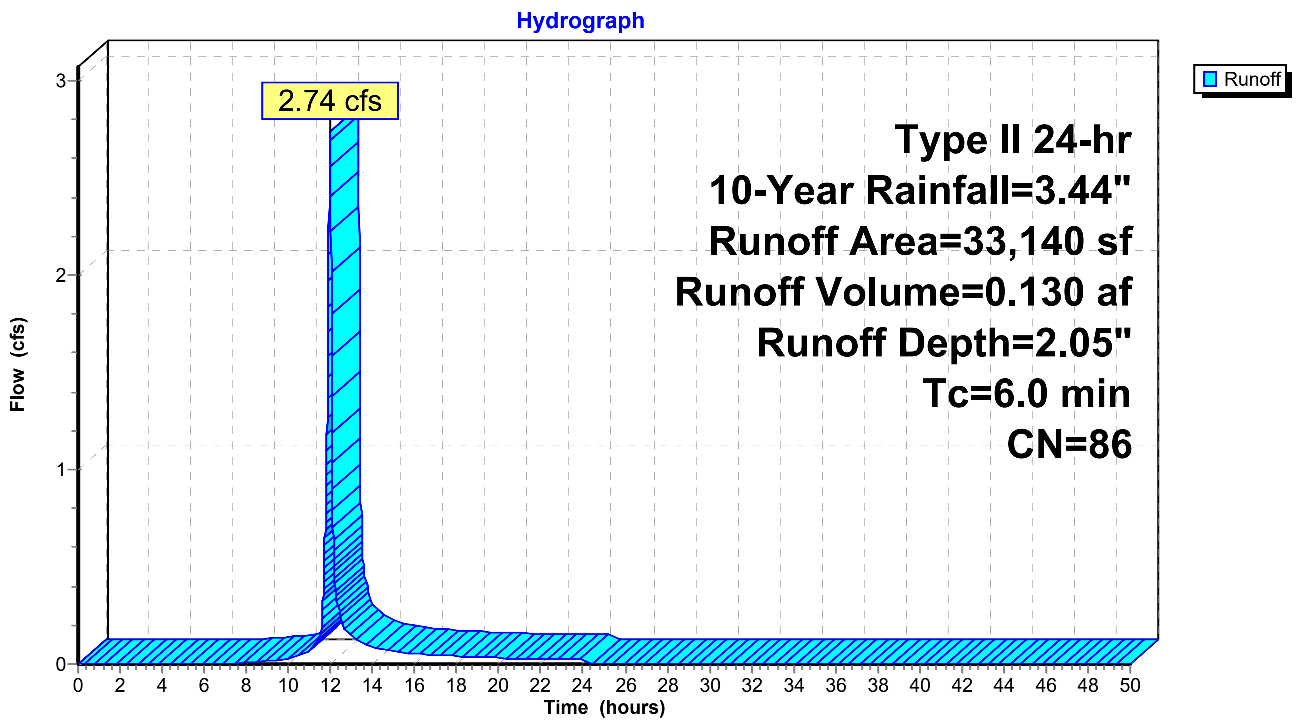
Runoff = 2.74 cfs @ 11.97 hrs, Volume= 0.130 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
22,192	80	>75% Grass cover, Good, HSG D
10,948	98	Paved parking, HSG D
33,140	86	Weighted Average
22,192		66.96% Pervious Area
10,948		33.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: Existing Area #3 (AP #3)



Summary for Subcatchment 17S: Existing Area #4 (AP #4)

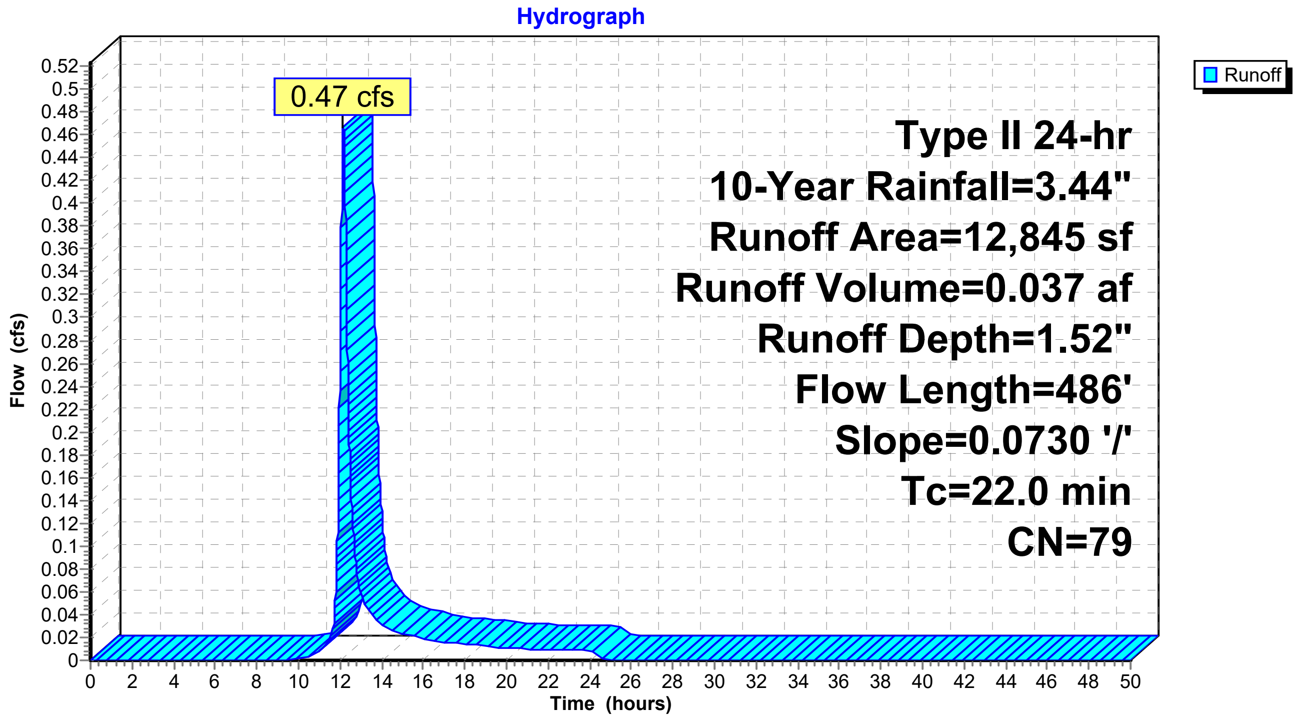
Runoff = 0.47 cfs @ 12.15 hrs, Volume= 0.037 af, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
7,136	79	Woods, Fair, HSG D
5,709	78	Meadow, non-grazed, HSG D
12,845	79	Weighted Average
12,845		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	150	0.0730	0.12		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
1.3	336	0.0730	4.35		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
22.0	486	Total			

Subcatchment 17S: Existing Area #4 (AP #4)



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: Existing Area #1 (AP #1) Runoff Area=3.141 ac 5.41% Impervious Runoff Depth=3.74"
Flow Length=780' Tc=14.7 min CN=80 Runoff=15.27 cfs 0.978 af

Subcatchment 8S: Existing Area #2 (AP #2) Runoff Area=121,182 sf 4.48% Impervious Runoff Depth=3.64"
Flow Length=780' Tc=14.7 min CN=79 Runoff=13.19 cfs 0.843 af

Subcatchment 9S: Existing Area #3 (AP #3) Runoff Area=33,140 sf 33.04% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=86 Runoff=5.62 cfs 0.277 af

Subcatchment 17S: Existing Area #4 (AP #4) Runoff Area=12,845 sf 0.00% Impervious Runoff Depth=3.64"
Flow Length=486' Slope=0.0730 '/' Tc=22.0 min CN=79 Runoff=1.13 cfs 0.089 af

Total Runoff Area = 6.979 ac Runoff Volume = 2.187 af Average Runoff Depth = 3.76"
92.18% Pervious = 6.433 ac 7.82% Impervious = 0.546 ac

Summary for Subcatchment 7S: Existing Area #1 (AP #1)

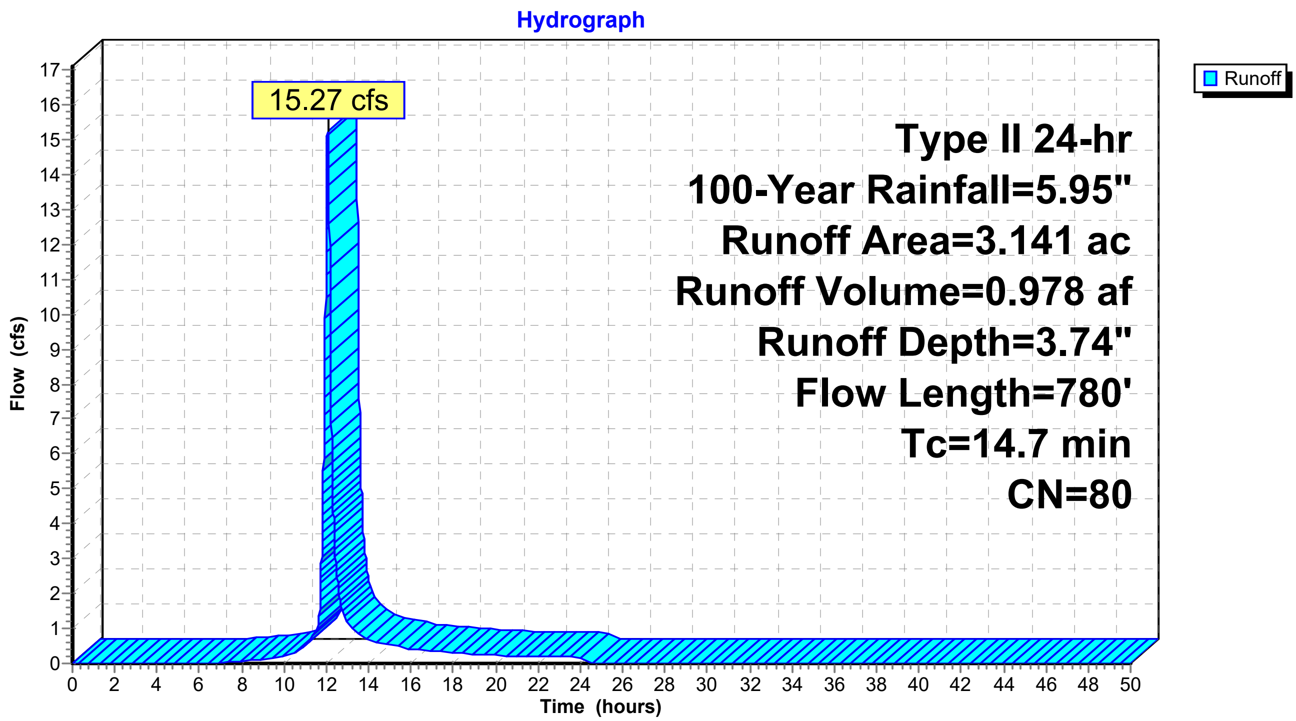
Runoff = 15.27 cfs @ 12.07 hrs, Volume= 0.978 af, Depth= 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (ac)	CN	Description
0.815	79	Woods, Fair, HSG D
0.717	80	>75% Grass cover, Good, HSG D
1.439	78	Meadow, non-grazed, HSG D
0.170	98	Paved parking, HSG D
3.141	80	Weighted Average
2.971		94.59% Pervious Area
0.170		5.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.2500	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
2.1	630	0.0950	4.96		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
14.7	780	Total			

Subcatchment 7S: Existing Area #1 (AP #1)



Summary for Subcatchment 8S: Existing Area #2 (AP #2)

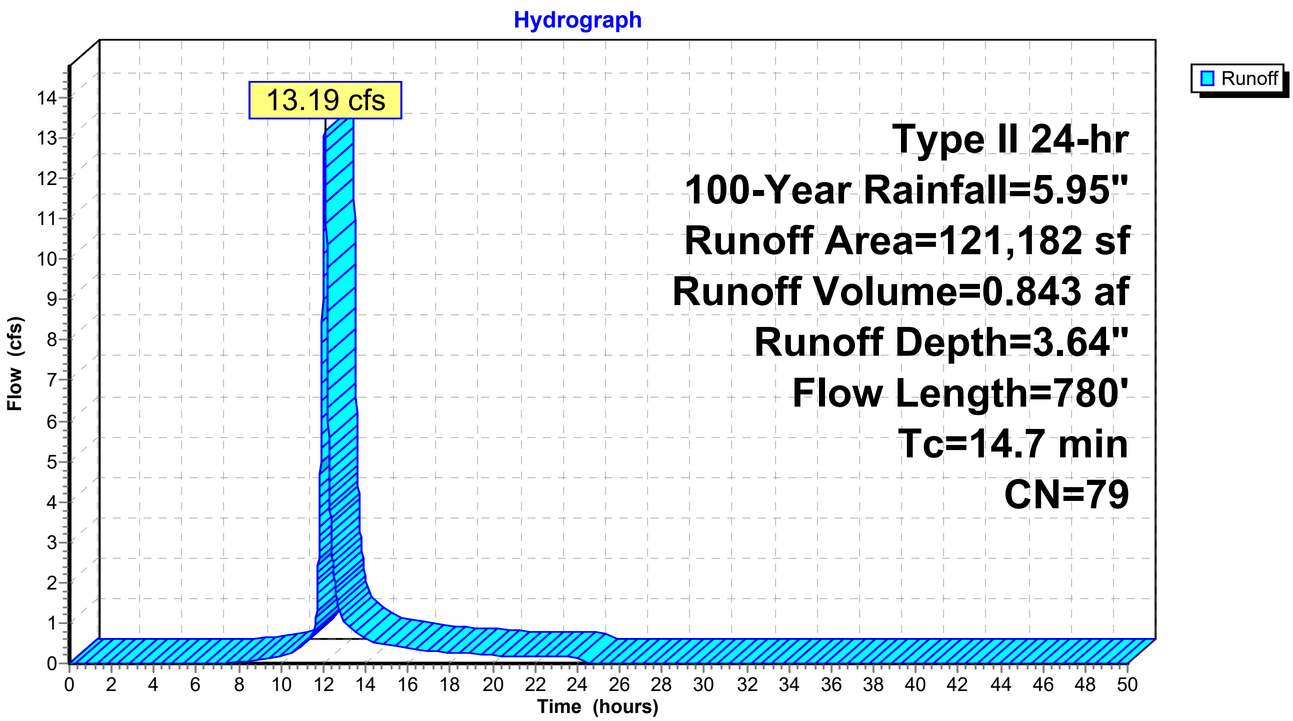
Runoff = 13.19 cfs @ 12.07 hrs, Volume= 0.843 af, Depth= 3.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
36,315	79	Woods, Fair, HSG D
9,941	80	>75% Grass cover, Good, HSG D
69,496	78	Meadow, non-grazed, HSG D
5,430	98	Paved parking, HSG D
121,182	79	Weighted Average
115,752		95.52% Pervious Area
5,430		4.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.2500	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
2.1	630	0.0950	4.96		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
14.7	780	Total			

Subcatchment 8S: Existing Area #2 (AP #2)



Summary for Subcatchment 9S: Existing Area #3 (AP #3)

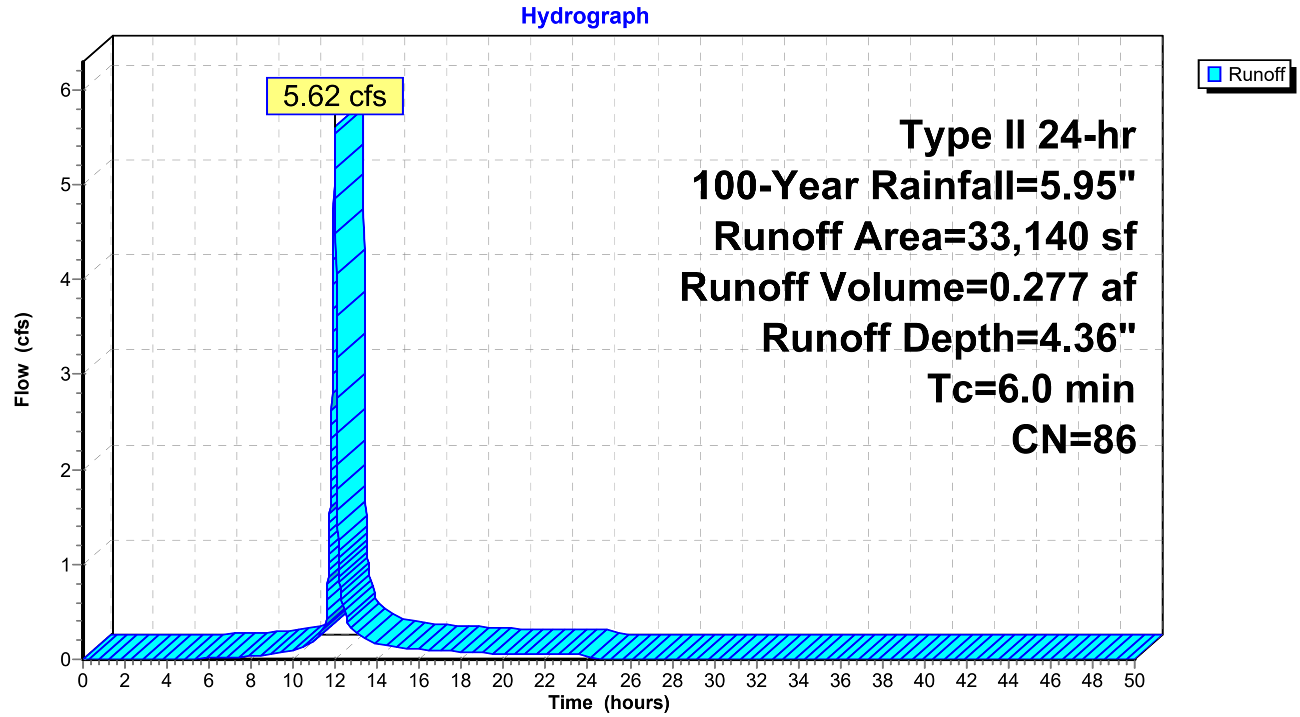
Runoff = 5.62 cfs @ 11.97 hrs, Volume= 0.277 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
22,192	80	>75% Grass cover, Good, HSG D
10,948	98	Paved parking, HSG D
33,140	86	Weighted Average
22,192		66.96% Pervious Area
10,948		33.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: Existing Area #3 (AP #3)



Summary for Subcatchment 17S: Existing Area #4 (AP #4)

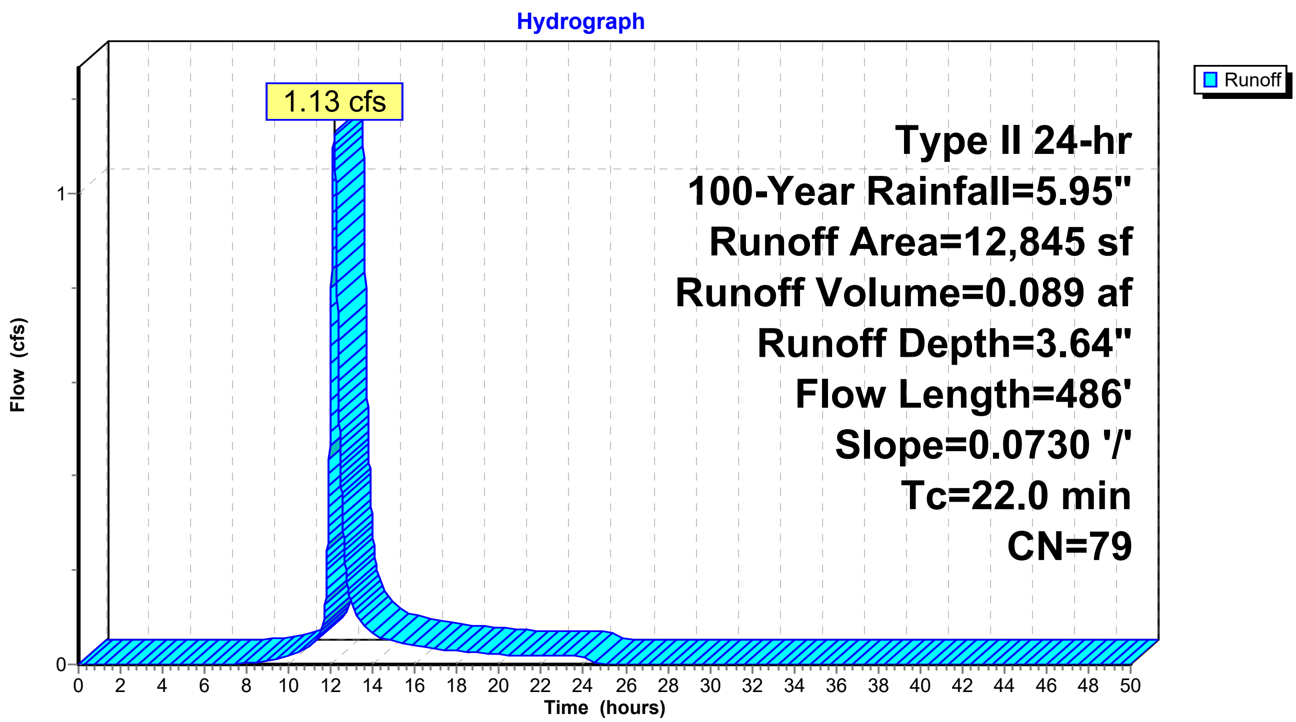
Runoff = 1.13 cfs @ 12.15 hrs, Volume= 0.089 af, Depth= 3.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
7,136	79	Woods, Fair, HSG D
5,709	78	Meadow, non-grazed, HSG D
12,845	79	Weighted Average
12,845		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	150	0.0730	0.12		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.34"
1.3	336	0.0730	4.35		**Shallow Concentrated Flow, Shallow Conc.** Unpaved Kv= 16.1 fps
22.0	486	Total			

Subcatchment 17S: Existing Area #4 (AP #4)



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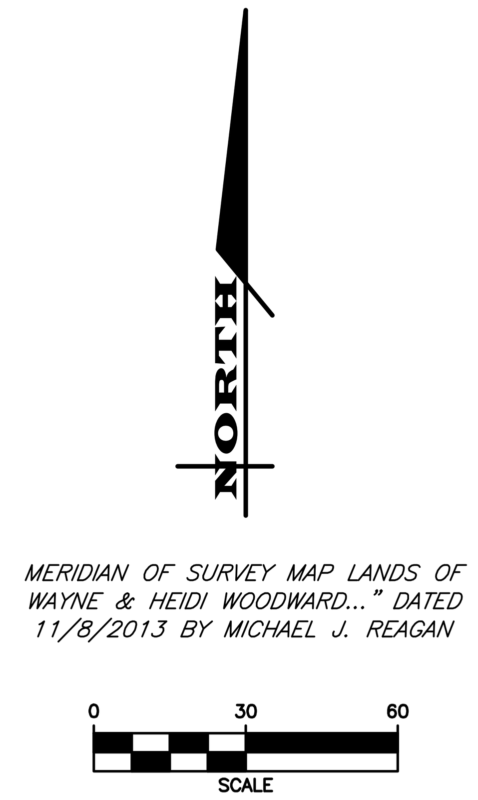

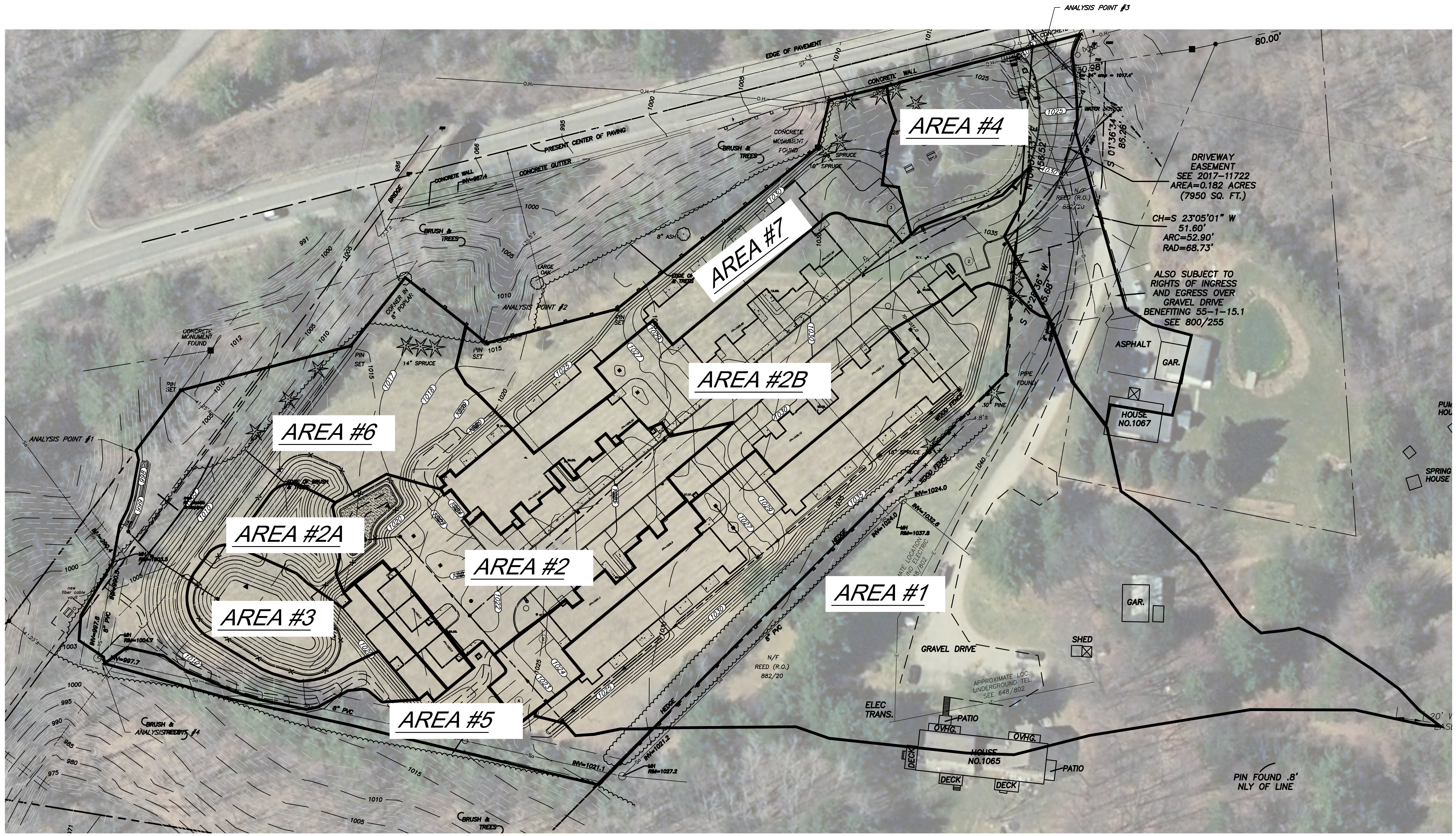

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SITE DEVELOPMENT PLANS for EVERGREEN APARTMENTS / PG DRYDEN, LLC

1061 DRYDEN ROAD (NYS ROUTE 366)

TOWN OF DRYDEN — TOMPKINS COUNTY — STATE OF NEW YORK

JOB NO:	1495-22
DRAWN:	RLJ
DESIGNED:	AMF
DATE:	8/30/23

REVISIONS

DATE	BY	REVISION
9/21/23	AF	TOWN SUBMITTAL
10/11/23	AF	TOWN SUBMITTAL

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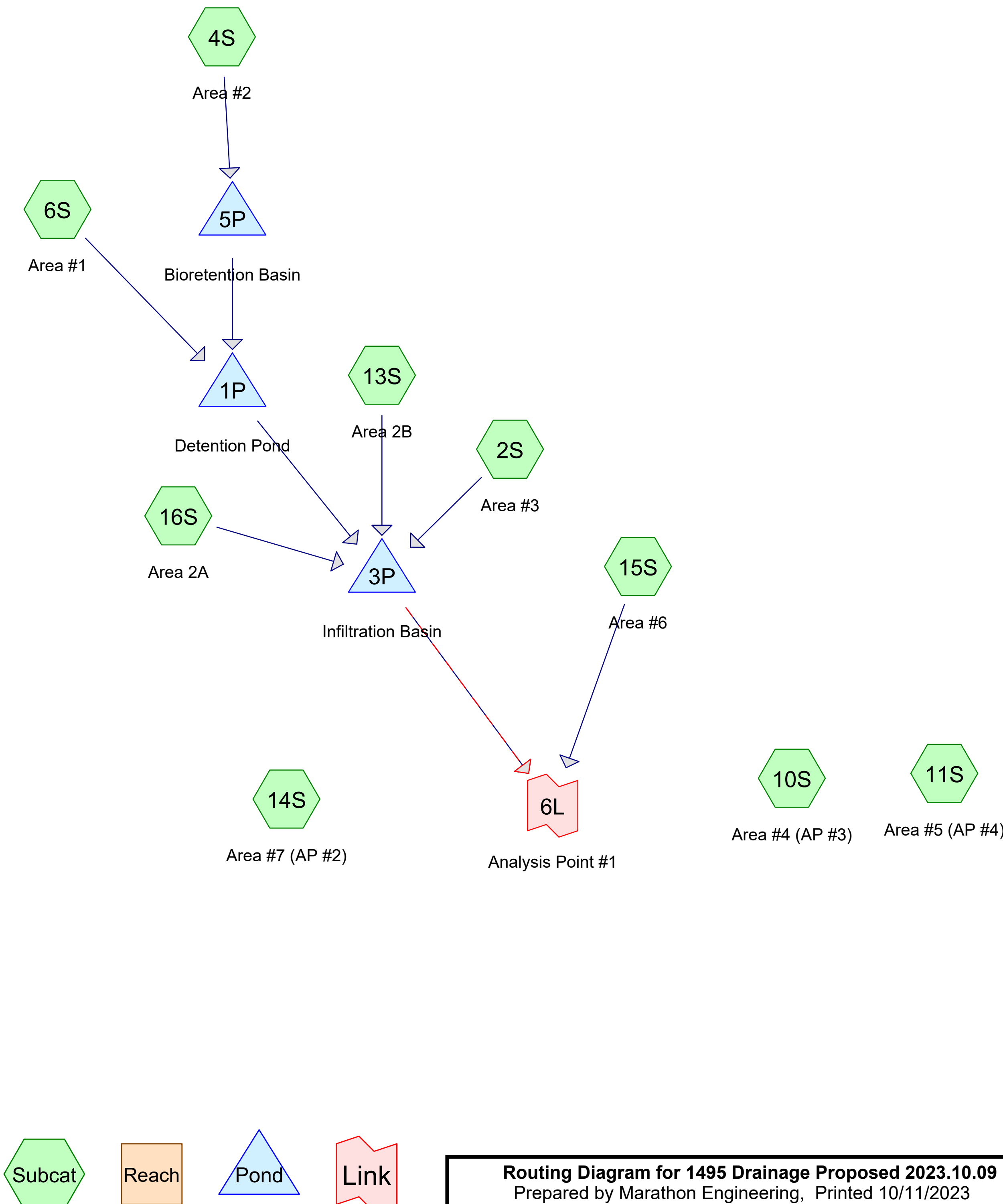
NOT FOR CONSTRUCTION

ADAM M. FISHEL

DRAWING TITLE: Proposed Drainage Conditions Map

2 of 2 SHEET No:	DR-2 DRAWING No:
1495-22 JOB No:	

File: I:\Engineering\Job Files\1495-22\Drawings\1495 Drainage.dwg, Last saved: 10/11/2023, Plot Date: 10/12/2023, By: AFISHEL, Plot Style: ----



Routing Diagram for 1495 Drainage Proposed 2023.10.09
Prepared by Marathon Engineering, Printed 10/11/2023
HydroCAD® 10.20-2g s/n 10755 © 2022 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	2.01	2
2	2-Year	Type II 24-hr		Default	24.00	1	2.34	2
3	10-Year	Type II 24-hr		Default	24.00	1	3.44	2
4	100-Year	Type II 24-hr		Default	24.00	1	5.95	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.092	80	>75% Grass cover, Good, HSG D (2S, 4S, 6S, 10S, 11S, 13S, 14S, 15S, 16S)
1.996	98	Paved parking, HSG D (2S, 4S, 6S, 10S, 13S, 14S, 15S, 16S)
1.240	79	Woods, Fair, HSG D (6S, 11S)
0.324	77	Woods, Good, HSG D (15S)
6.652	**85**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
6.652	HSG D	2S, 4S, 6S, 10S, 11S, 13S, 14S, 15S, 16S
0.000	Other	
6.652		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	3.092	0.000	3.092	>75% Grass cover, Good	2S, 4S, 6S, 10S, 11S, 13S, 14S, 15S, 16S
0.000	0.000	0.000	1.996	0.000	1.996	Paved parking	2S, 4S, 6S, 10S, 13S, 14S, 15S, 16S
0.000	0.000	0.000	1.240	0.000	1.240	Woods, Fair	6S, 11S
0.000	0.000	0.000	0.324	0.000	0.324	Woods, Good	15S
0.000	**0.000**	**0.000**	**6.652**	**0.000**	**6.652**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	4S	0.00	0.00	619.0	0.0300	0.010	0.0	18.0	0.0
2	1P	1,011.00	1,010.00	42.0	0.0238	0.013	0.0	18.0	0.0
3	3P	1,005.70	1,003.00	30.0	0.0900	0.013	0.0	24.0	0.0
4	5P	1,011.50	1,011.00	27.0	0.0185	0.013	0.0	12.0	0.0

Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Area #3 Runoff Area=10,645 sf 18.60% Impervious Runoff Depth=0.70"
Flow Length=47' Slope=0.2500 '/' Tc=6.0 min CN=83 Runoff=0.31 cfs 0.014 af

Subcatchment 4S: Area #2 Runoff Area=22,581 sf 67.11% Impervious Runoff Depth=1.25"
Flow Length=790' Tc=35.6 min CN=92 Runoff=0.50 cfs 0.054 af

Subcatchment 6S: Area #1 Runoff Area=111,872 sf 14.02% Impervious Runoff Depth=0.66"
Flow Length=527' Slope=0.0586 '/' Tc=24.2 min CN=82 Runoff=1.58 cfs 0.140 af

Subcatchment 10S: Area #4 (AP #3) Runoff Area=26,877 sf 39.06% Impervious Runoff Depth=0.91"
Flow Length=120' Tc=10.2 min CN=87 Runoff=0.86 cfs 0.047 af

Subcatchment 11S: Area #5 (AP #4) Runoff Area=10,307 sf 0.00% Impervious Runoff Depth=0.53"
Flow Length=420' Slope=0.0730 '/' Tc=16.2 min CN=79 Runoff=0.14 cfs 0.010 af

Subcatchment 13S: Area 2B Runoff Area=43,203 sf 77.73% Impervious Runoff Depth=1.41"
Flow Length=41' Tc=6.0 min CN=94 Runoff=2.39 cfs 0.116 af

Subcatchment 14S: Area #7 (AP #2) Runoff Area=20,616 sf 42.44% Impervious Runoff Depth=0.97"
Flow Length=98' Tc=6.3 min CN=88 Runoff=0.81 cfs 0.038 af

Subcatchment 15S: Area #6 Runoff Area=39,467 sf 3.16% Impervious Runoff Depth=0.53"
Flow Length=261' Tc=10.0 min CN=79 Runoff=0.70 cfs 0.040 af

Subcatchment 16S: Area 2A Runoff Area=4,186 sf 1.53% Impervious Runoff Depth=0.57"
Flow Length=41' Tc=6.0 min CN=80 Runoff=0.10 cfs 0.005 af

Pond 1P: Detention Pond Peak Elev=1,013.17' Storage=3,497 cf Inflow=1.58 cfs 0.171 af
Outflow=0.15 cfs 0.171 af

Pond 3P: Infiltration Basin Peak Elev=1,012.25' Storage=5,334 cf Inflow=2.83 cfs 0.306 af
Discarded=0.04 cfs 0.099 af Primary=0.17 cfs 0.141 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.241 af

Pond 5P: Bioretention Basin Peak Elev=1,015.54' Storage=1,059 cf Inflow=0.50 cfs 0.054 af
Outflow=0.30 cfs 0.031 af

Link 6L: Analysis Point #1 Inflow=0.70 cfs 0.181 af
Primary=0.70 cfs 0.181 af

Total Runoff Area = 6.652 ac Runoff Volume = 0.465 af Average Runoff Depth = 0.84"
69.99% Pervious = 4.656 ac 30.01% Impervious = 1.996 ac

Summary for Subcatchment 2S: Area #3

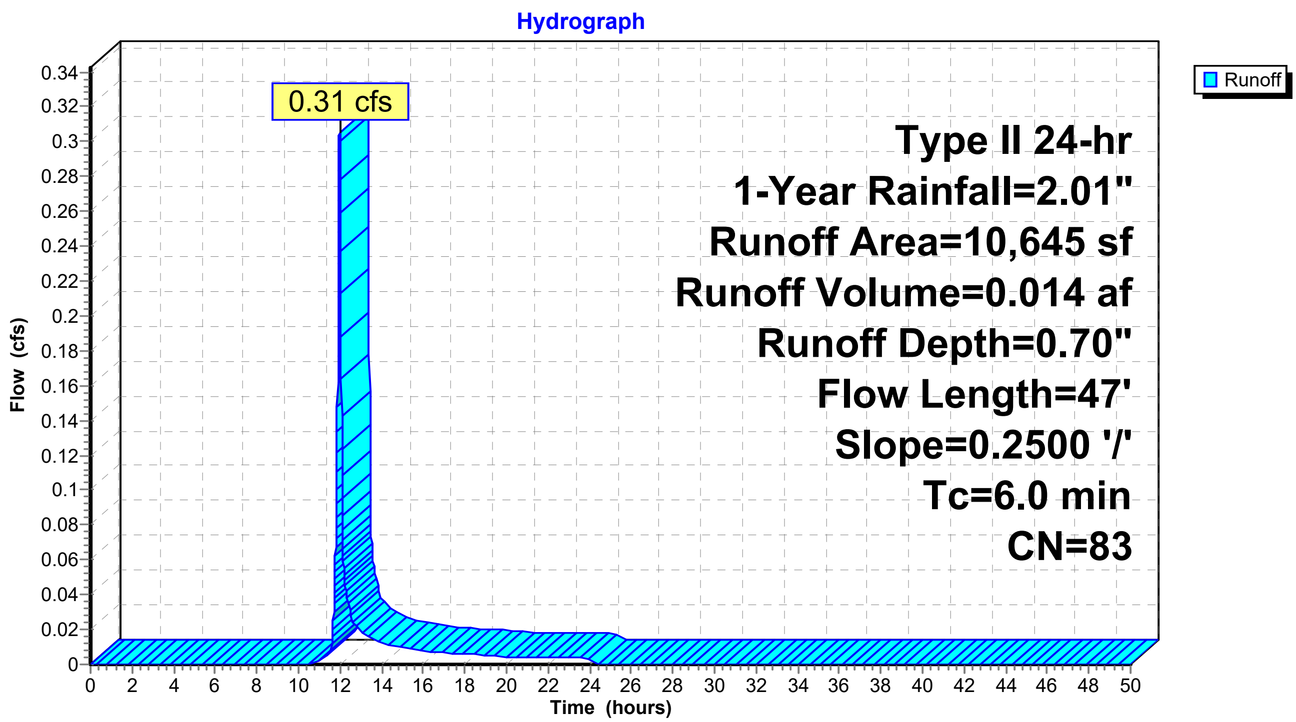
Runoff = 0.31 cfs @ 11.98 hrs, Volume= 0.014 af, Depth= 0.70"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
1,980	98	Paved parking, HSG D
8,665	80	>75% Grass cover, Good, HSG D
10,645	83	Weighted Average
8,665		81.40% Pervious Area
1,980		18.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	47	0.2500	0.24		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
3.3	47	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: Area #3



Summary for Subcatchment 4S: Area #2

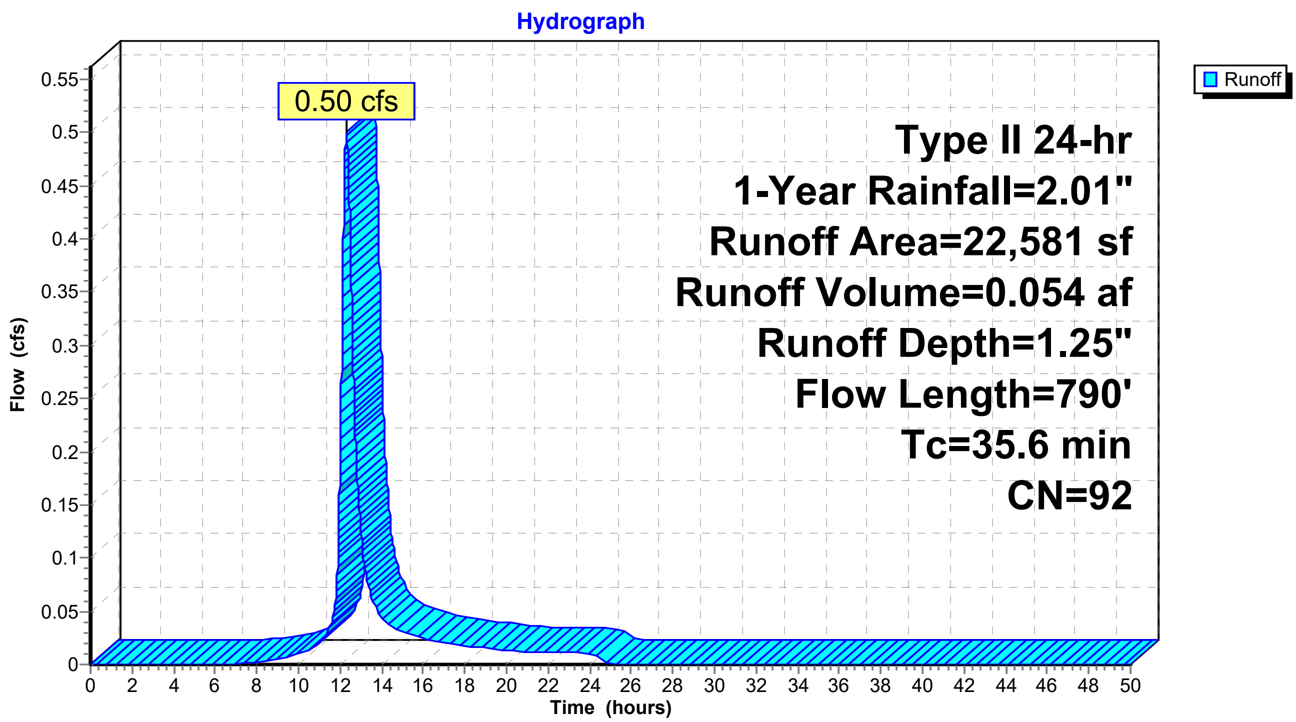
Runoff = 0.50 cfs @ 12.30 hrs, Volume= 0.054 af, Depth= 1.25"
Routed to Pond 5P : Bioretention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
15,153	98	Paved parking, HSG D
7,428	80	>75% Grass cover, Good, HSG D
22,581	92	Weighted Average
7,428		32.89% Pervious Area
15,153		67.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.7	150	0.0200	0.07		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
0.1	21	0.0200	2.87		**Shallow Concentrated Flow, Shallow concentrate** Paved Kv= 20.3 fps
0.8	619	0.0300	13.38	23.65	**Pipe Channel, storm pipe system** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
35.6	790	Total			

Subcatchment 4S: Area #2



Summary for Subcatchment 6S: Area #1

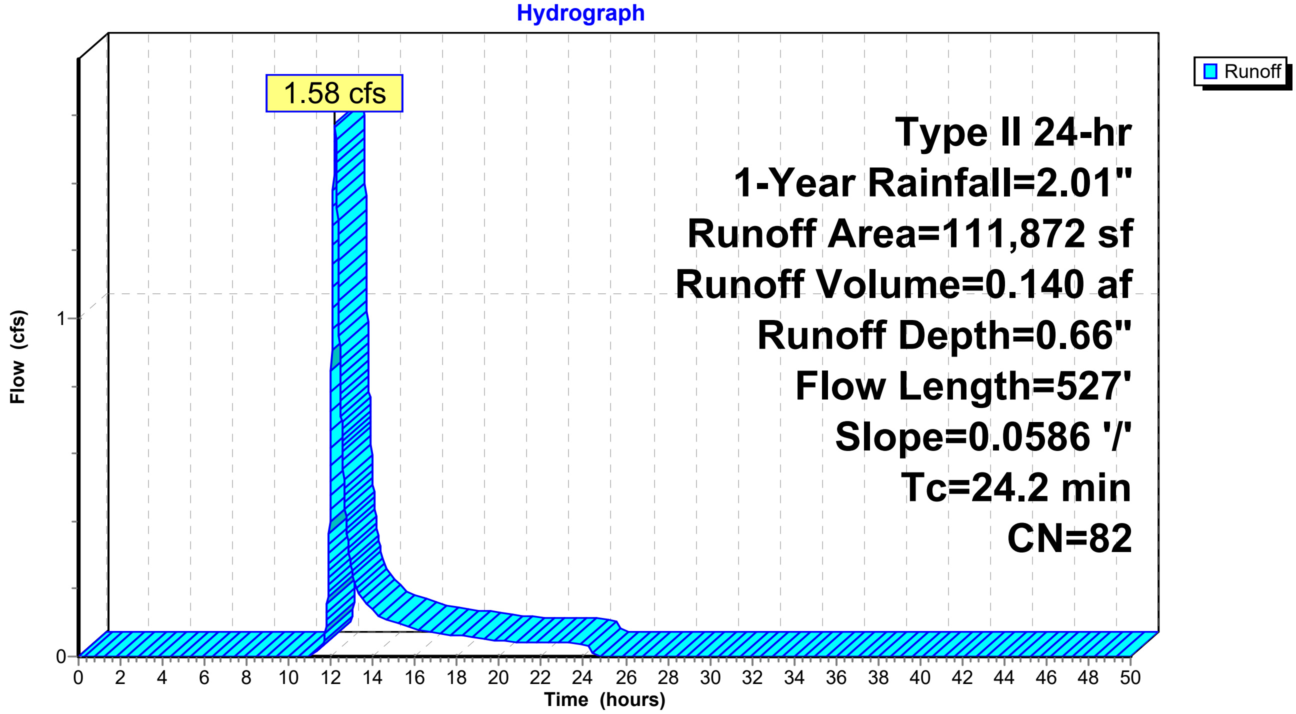
Runoff = 1.58 cfs @ 12.18 hrs, Volume= 0.140 af, Depth= 0.66"
Routed to Pond 1P : Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
15,686	98	Paved parking, HSG D
47,047	79	Woods, Fair, HSG D
49,139	80	>75% Grass cover, Good, HSG D
111,872	82	Weighted Average
96,186		85.98% Pervious Area
15,686		14.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6	150	0.0586	0.11		**Sheet Flow, sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
0.4	100	0.0586	3.90		**Shallow Concentrated Flow, Concentrated flow lawn** Unpaved Kv= 16.1 fps
0.5	117	0.0586	3.90		**Shallow Concentrated Flow, concetrated flow lawn** Unpaved Kv= 16.1 fps
0.1	24	0.0586	4.91		**Shallow Concentrated Flow, Shallow Concentrated driveway** Paved Kv= 20.3 fps
0.6	136	0.0586	3.90		**Shallow Concentrated Flow, Concentrated flow lawn** Unpaved Kv= 16.1 fps
24.2	527	Total			

Subcatchment 6S: Area #1



Summary for Subcatchment 10S: Area #4 (AP #3)

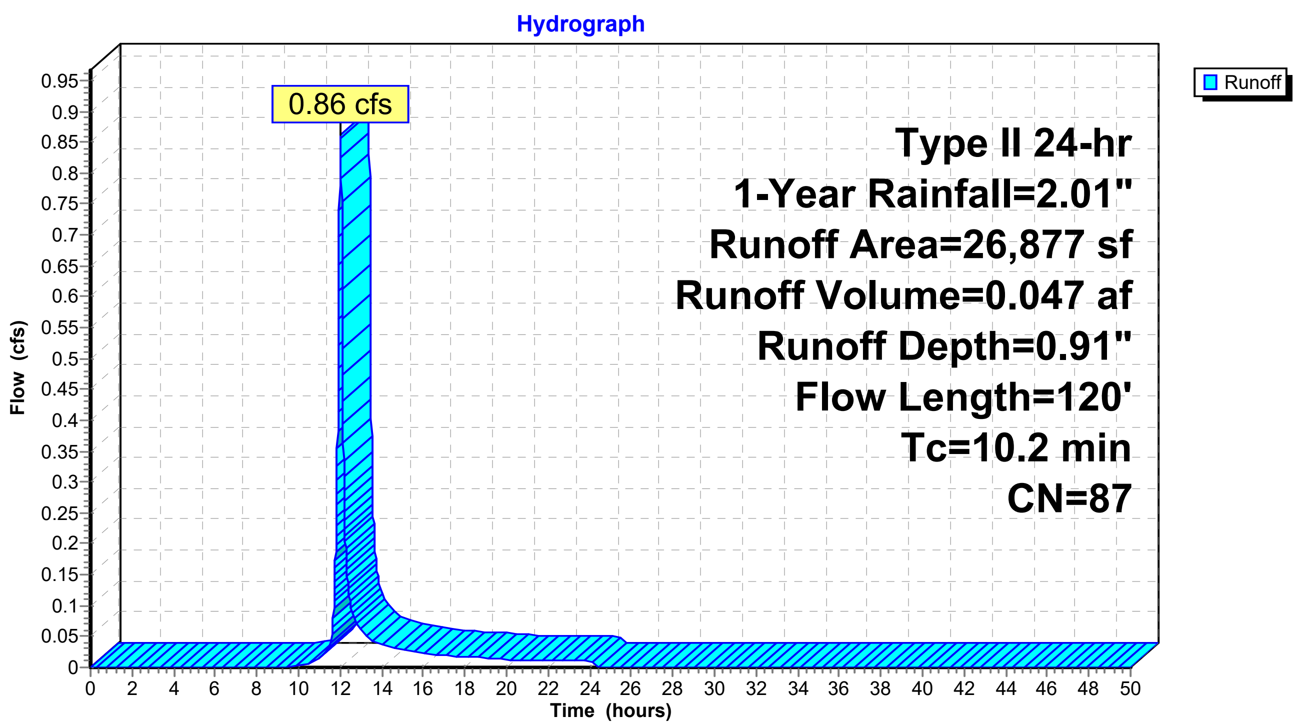
Runoff = 0.86 cfs @ 12.02 hrs, Volume= 0.047 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
16,379	80	>75% Grass cover, Good, HSG D
10,498	98	Paved parking, HSG D
26,877	87	Weighted Average
16,379		60.94% Pervious Area
10,498		39.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0700	0.16		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
0.1	20	0.1500	6.24		**Shallow Concentrated Flow, shallow concentrated** Unpaved Kv= 16.1 fps
10.2	120	Total			

Subcatchment 10S: Area #4 (AP #3)



Summary for Subcatchment 11S: Area #5 (AP #4)

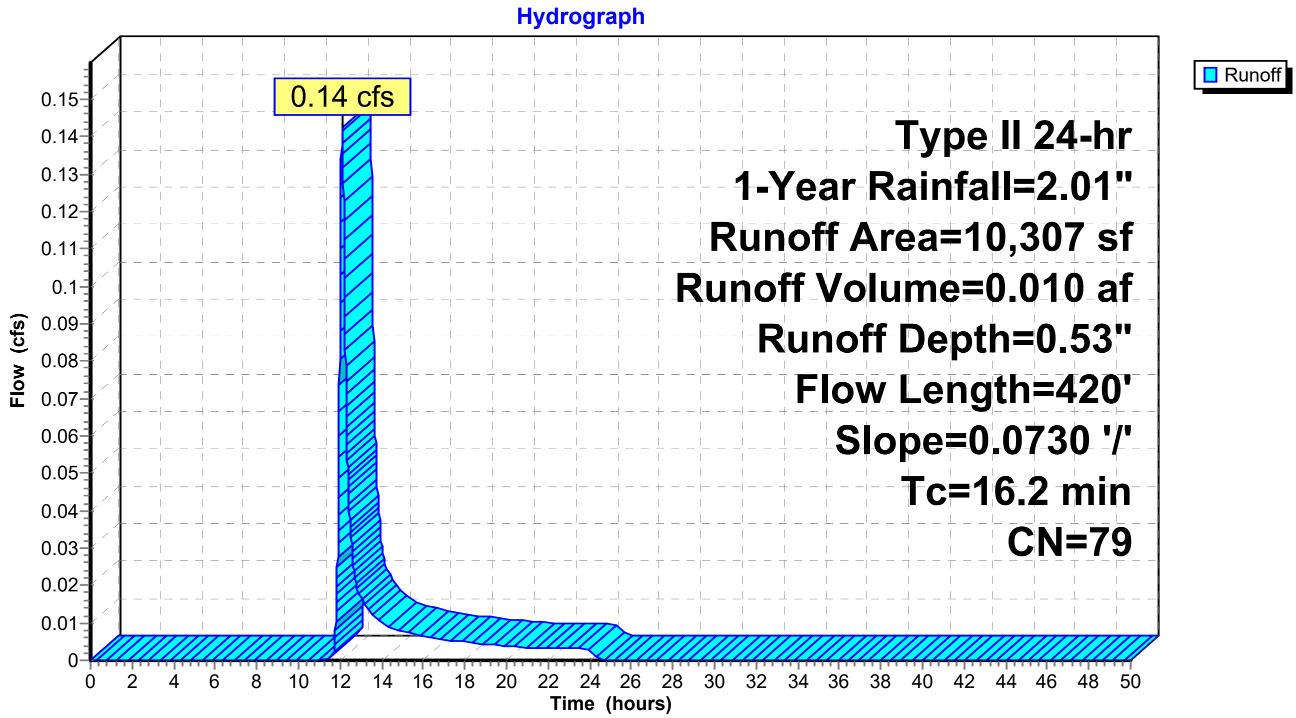
Runoff = 0.14 cfs @ 12.10 hrs, Volume= 0.010 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
3,347	80	>75% Grass cover, Good, HSG D
6,960	79	Woods, Fair, HSG D
10,307	79	Weighted Average
10,307		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100	0.0730	0.11		**Sheet Flow, sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
1.2	320	0.0730	4.35		**Shallow Concentrated Flow, Shallow Concentrated Flow** Unpaved Kv= 16.1 fps
16.2	420	Total			

Subcatchment 11S: Area #5 (AP #4)



Summary for Subcatchment 13S: Area 2B

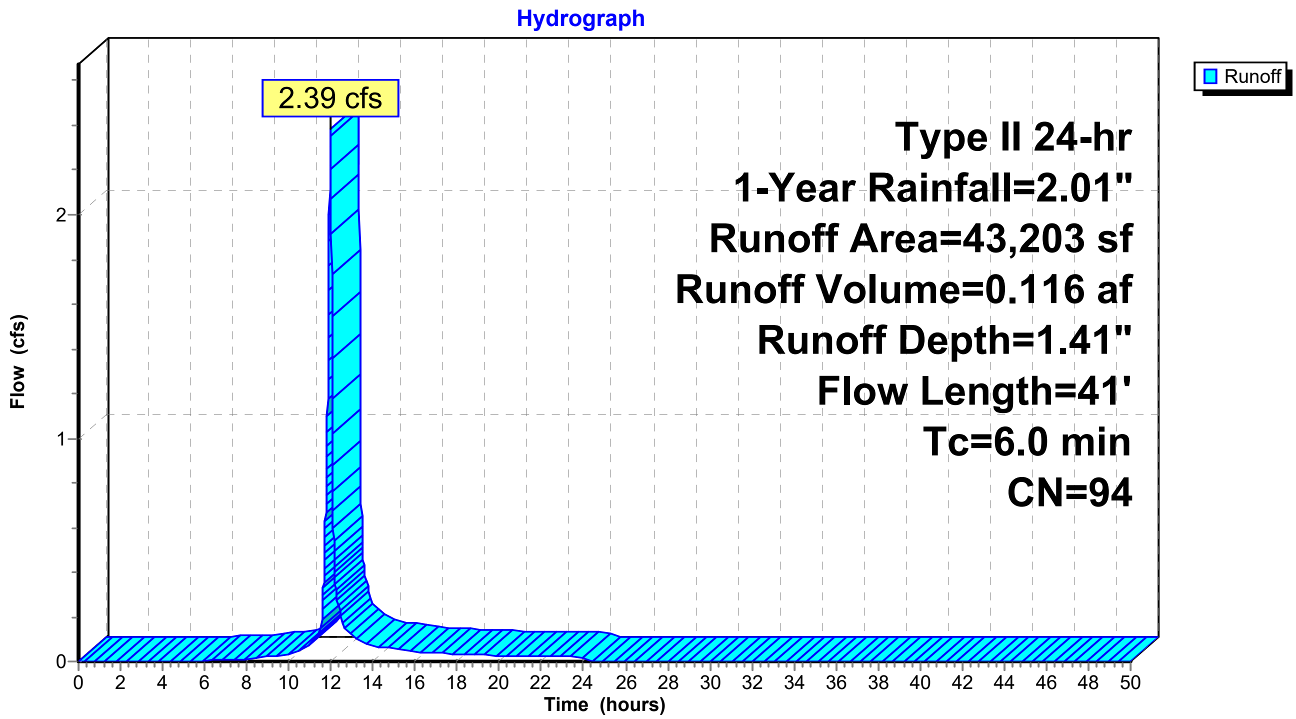
Runoff = 2.39 cfs @ 11.97 hrs, Volume= 0.116 af, Depth= 1.41"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
33,580	98	Paved parking, HSG D
9,623	80	>75% Grass cover, Good, HSG D
43,203	94	Weighted Average
9,623		22.27% Pervious Area
33,580		77.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	10	0.5000	0.33		**Sheet Flow, sheet flow** Grass: Short n= 0.150 P2= 2.34"
1.6	15	0.0667	0.16		**Sheet Flow, sheet flow lawn** Grass: Short n= 0.150 P2= 2.34"
1.4	16	0.2400	0.19		**Sheet Flow, detention pond slope** Grass: Dense n= 0.240 P2= 2.34"
3.5	41	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Area 2B



Summary for Subcatchment 14S: Area #7 (AP #2)

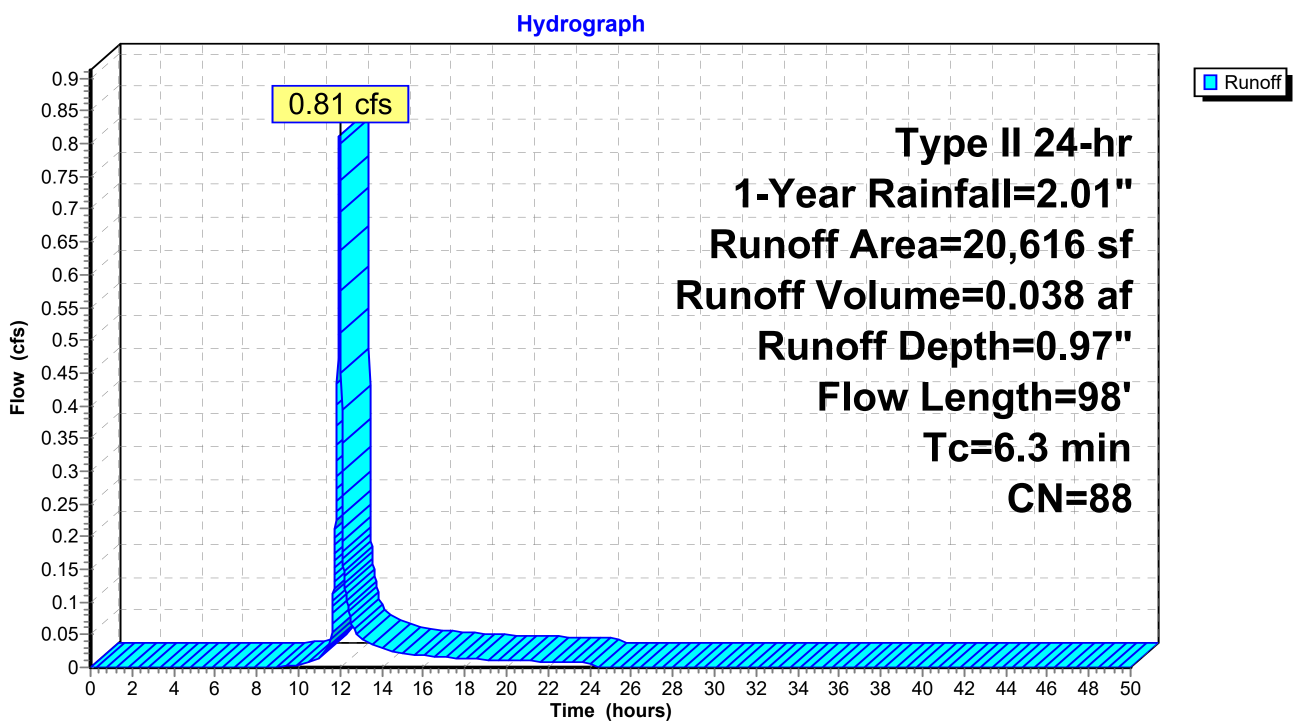
Runoff = 0.81 cfs @ 11.98 hrs, Volume= 0.038 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
8,749	98	Paved parking, HSG D
11,867	80	>75% Grass cover, Good, HSG D
20,616	88	Weighted Average
11,867		57.56% Pervious Area
8,749		42.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	34	0.0588	1.46		**Sheet Flow, impervious** Smooth surfaces n= 0.011 P2= 2.34"
5.9	64	0.1090	0.18		**Sheet Flow, sheet flow grass** Grass: Dense n= 0.240 P2= 2.34"
6.3	98	Total			

Subcatchment 14S: Area #7 (AP #2)



Summary for Subcatchment 15S: Area #6

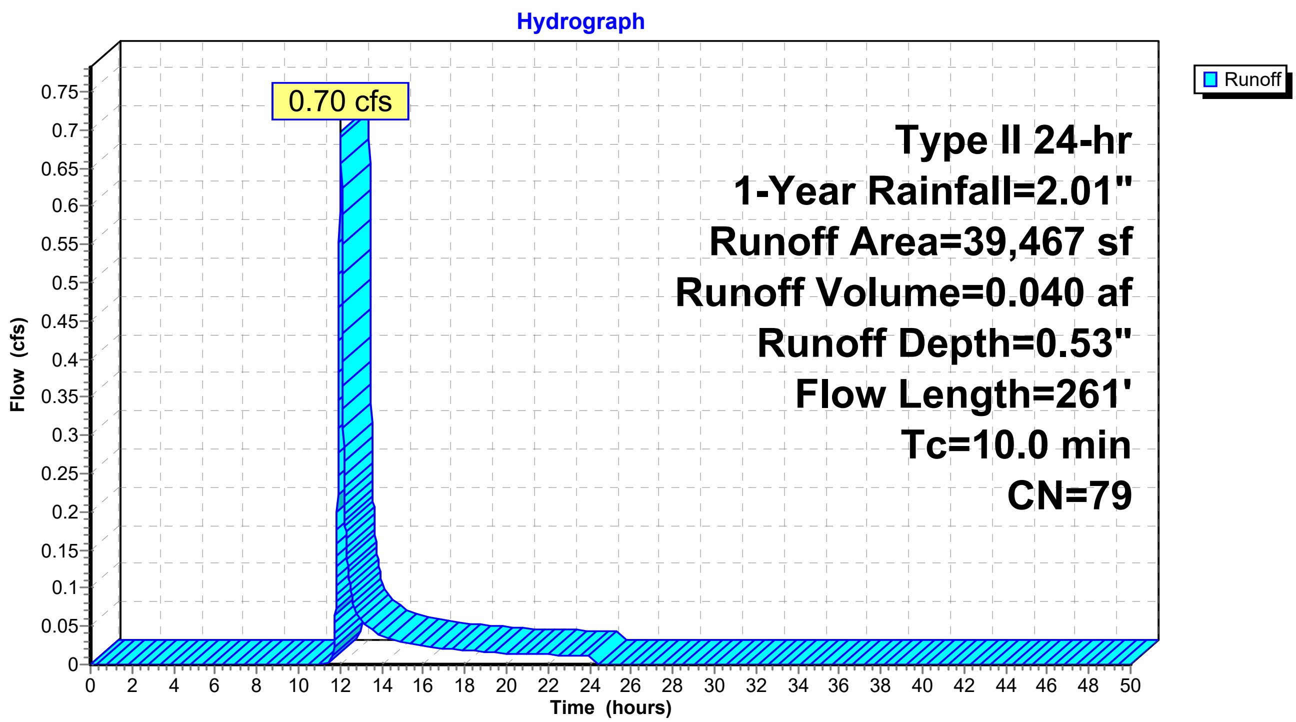
Runoff = 0.70 cfs @ 12.03 hrs, Volume= 0.040 af, Depth= 0.53"
Routed to Link 6L : Analysis Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
1,249	98	Paved parking, HSG D
24,099	80	>75% Grass cover, Good, HSG D
14,119	77	Woods, Good, HSG D
39,467	79	Weighted Average
38,218		96.84% Pervious Area
1,249		3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0925	0.18		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
0.7	64	0.0100	1.61		**Shallow Concentrated Flow, concentrated** Unpaved Kv= 16.1 fps
0.3	97	0.1600	6.44		**Shallow Concentrated Flow, concentrated** Unpaved Kv= 16.1 fps
10.0	261	Total			

Subcatchment 15S: Area #6



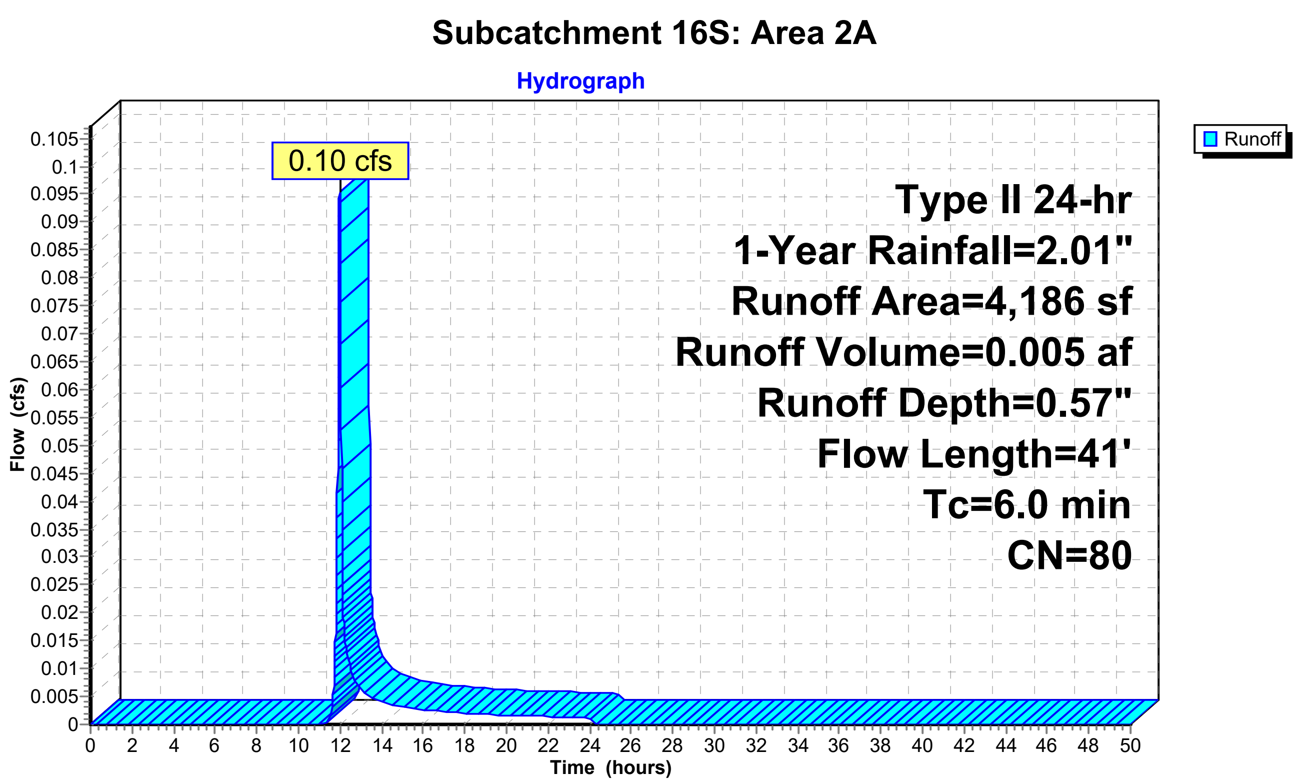
Summary for Subcatchment 16S: Area 2A

Runoff = 0.10 cfs @ 11.98 hrs, Volume= 0.005 af, Depth= 0.57"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.01"

Area (sf)	CN	Description
64	98	Paved parking, HSG D
4,122	80	>75% Grass cover, Good, HSG D
4,186	80	Weighted Average
4,122		98.47% Pervious Area
64		1.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	10	0.5000	0.33		**Sheet Flow, sheet flow** Grass: Short n= 0.150 P2= 2.34"
1.6	15	0.0667	0.16		**Sheet Flow, sheet flow lawn** Grass: Short n= 0.150 P2= 2.34"
1.4	16	0.2400	0.19		**Sheet Flow, detention pond slope** Grass: Dense n= 0.240 P2= 2.34"
3.5	41	Total, Increased to minimum Tc = 6.0 min			



Summary for Pond 1P: Detention Pond

[79] Warning: Submerged Pond 5P Primary device # 1 INLET by 1.67'

Inflow Area = 3.087 ac, 22.94% Impervious, Inflow Depth = 0.66" for 1-Year event
Inflow = 1.58 cfs @ 12.18 hrs, Volume= 0.171 af
Outflow = 0.15 cfs @ 14.40 hrs, Volume= 0.171 af, Atten= 90%, Lag= 133.2 min
Primary = 0.15 cfs @ 14.40 hrs, Volume= 0.171 af
Routed to Pond 3P : Infiltration Basin

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,013.17' @ 14.40 hrs Surf.Area= 2,351 sf Storage= 3,497 cf

Plug-Flow detention time= 289.0 min calculated for 0.171 af (100% of inflow)
Center-of-Mass det. time= 289.1 min (1,175.7 - 886.5)

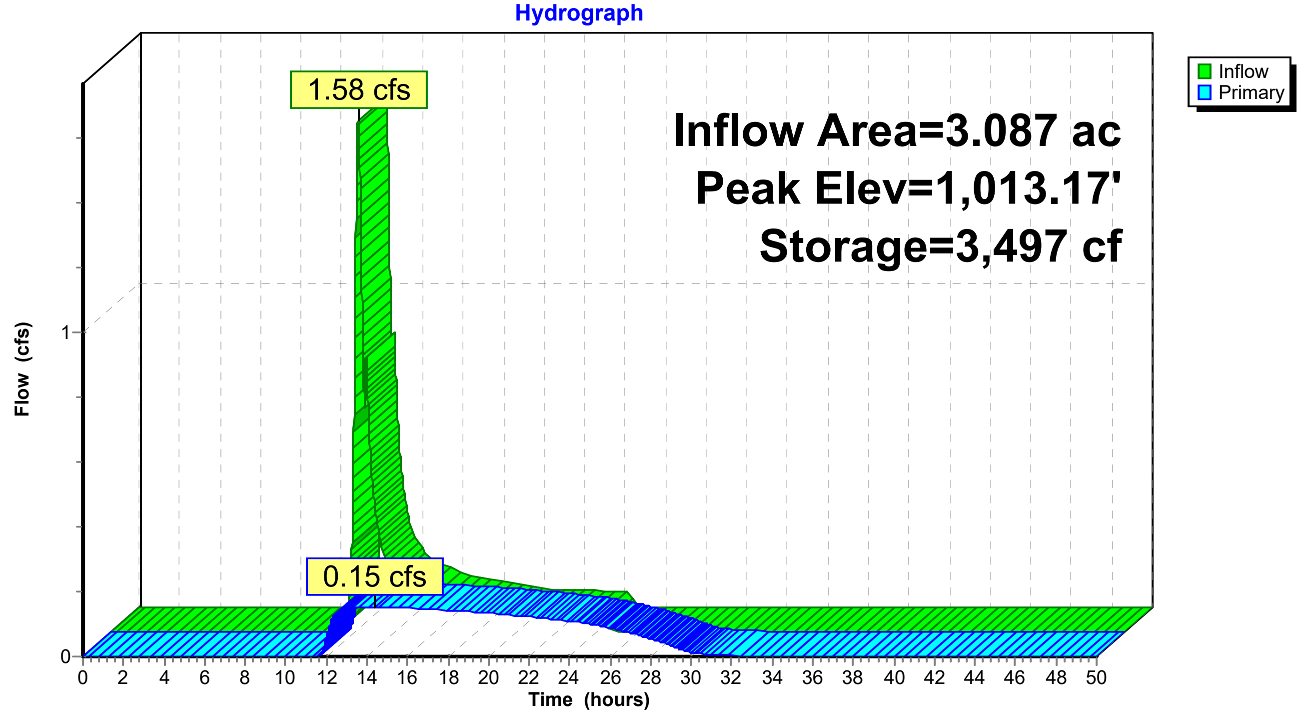
Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	12,988 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	721	0	0
1,012.00	1,632	1,177	1,177
1,013.00	2,239	1,936	3,112
1,014.00	2,909	2,574	5,686
1,015.00	3,637	3,273	8,959
1,016.00	4,421	4,029	12,988

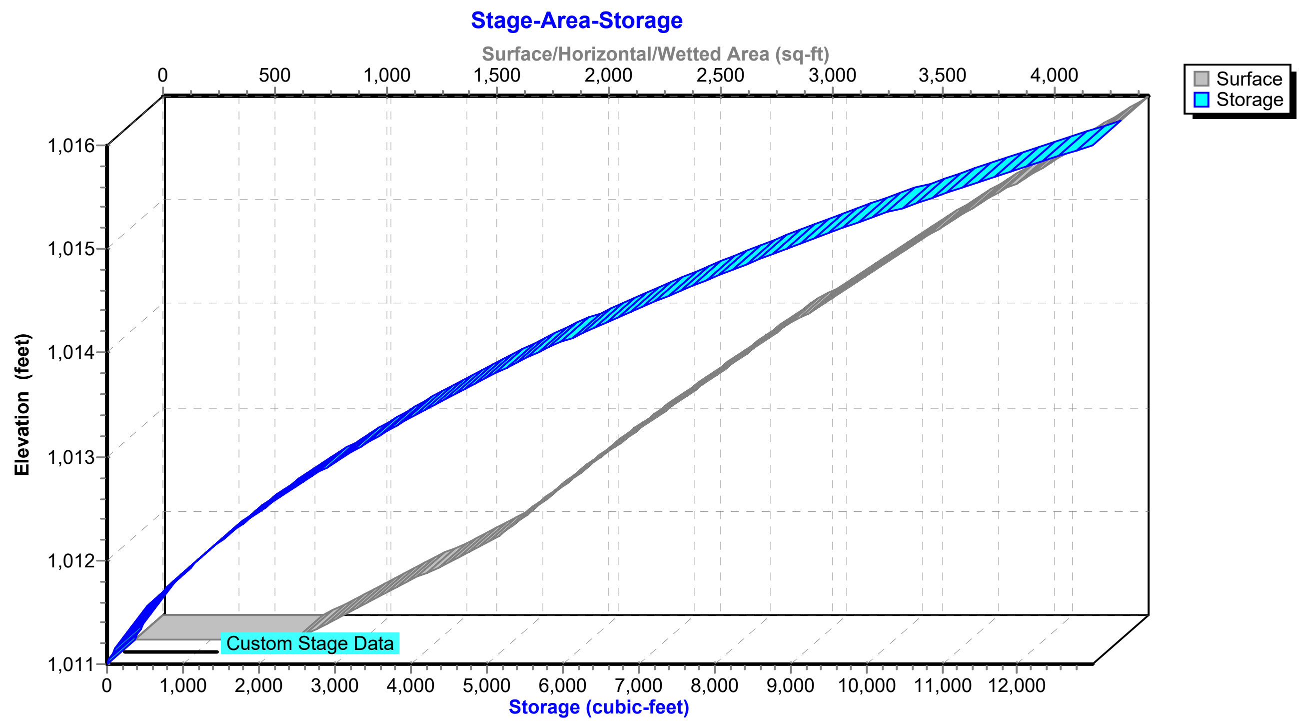
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	**18.0" Round Culvert** L= 42.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0238 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	1,011.00'	**2.0" Vert. Low Flow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,014.20'	**30.0" x 30.0" Horiz. High Flow** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.15 cfs @ 14.40 hrs HW=1,013.17' (Free Discharge)
└─**1=Culvert** (Passes 0.15 cfs of 8.94 cfs potential flow)
  ├─**2=Low Flow** (Orifice Controls 0.15 cfs @ 6.95 fps)
  └─**3=High Flow** (Controls 0.00 cfs)

Pond 1P: Detention Pond



Pond 1P: Detention Pond



Summary for Pond 3P: Infiltration Basin

[81] Warning: Exceeded Pond 1P by 0.96' @ 30.52 hrs

Inflow Area = 4.419 ac, 34.53% Impervious, Inflow Depth = 0.83" for 1-Year event
Inflow = 2.83 cfs @ 11.97 hrs, Volume= 0.306 af
Outflow = 0.21 cfs @ 15.86 hrs, Volume= 0.241 af, Atten= 93%, Lag= 233.1 min
Discarded = 0.04 cfs @ 15.86 hrs, Volume= 0.099 af
Primary = 0.17 cfs @ 15.86 hrs, Volume= 0.141 af
Routed to Link 6L : Analysis Point #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 6L : Analysis Point #1

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,012.25' @ 15.86 hrs Surf.Area= 3,091 sf Storage= 5,334 cf

Plug-Flow detention time= 543.8 min calculated for 0.241 af (79% of inflow)
Center-of-Mass det. time= 415.0 min (1,428.5 - 1,013.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	22,225 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,010.00	1,701	0	0	1,701
1,011.00	2,285	1,986	1,986	2,306
1,012.00	2,924	2,598	4,584	2,970
1,013.00	3,621	3,266	7,850	3,696
1,014.00	4,374	3,992	11,842	4,481
1,015.00	5,183	4,773	16,614	5,327
1,016.00	6,049	5,610	22,225	6,232

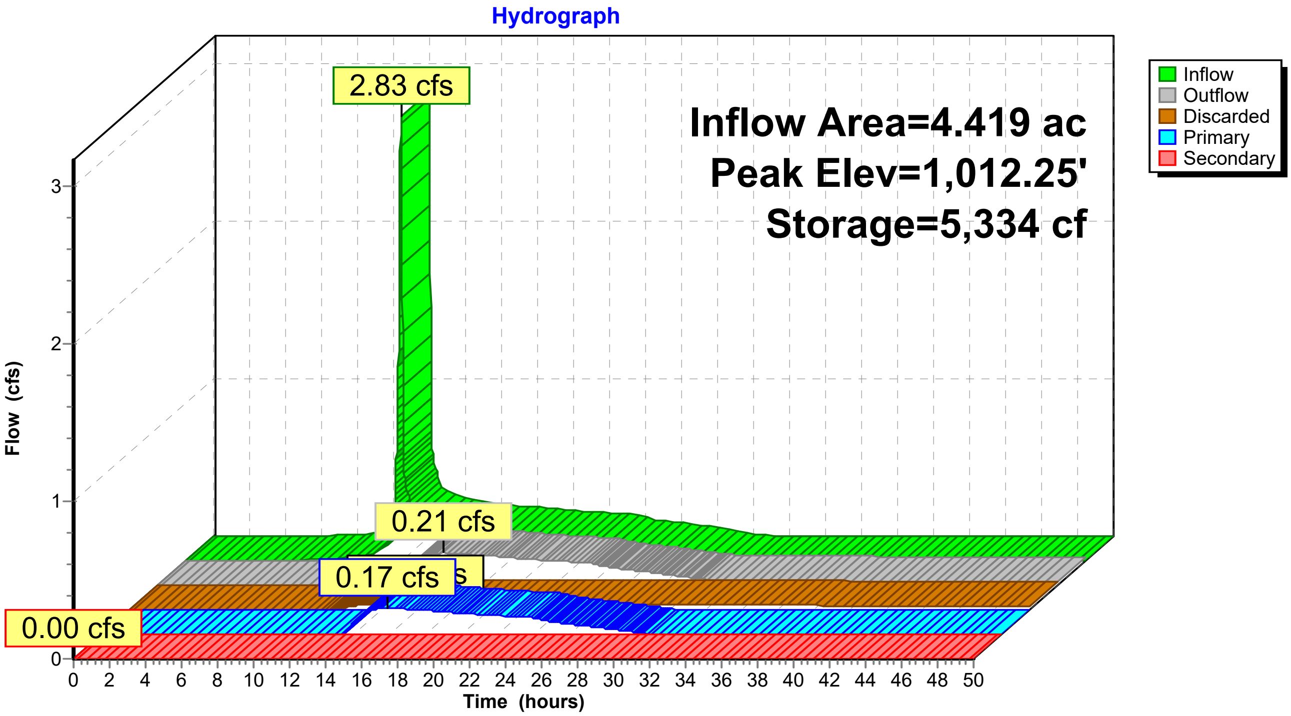
Device	Routing	Invert	Outlet Devices
#1	Primary	1,005.70'	**24.0" Round Culvert** L= 30.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,005.70' / 1,003.00' S= 0.0900 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	1,012.00'	**6.0" Vert. Intermediate Flow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,013.70'	**24.0" x 24.0" Horiz. High Flow** C= 0.600 Limited to weir flow at low heads
#4	Secondary	1,014.30'	**Emergency Spillway, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 15.00 21.00
#5	Discarded	1,010.00'	**1.000 in/hr Exfiltration over Surface area from 1,010.00' - 1,016.00'** Conductivity to Groundwater Elevation = 1,005.00' Excluded Surface area = 1,701 sf

Discarded OutFlow Max=0.04 cfs @ 15.86 hrs HW=1,012.25' (Free Discharge)
└─**5=Exfiltration** (Controls 0.04 cfs)

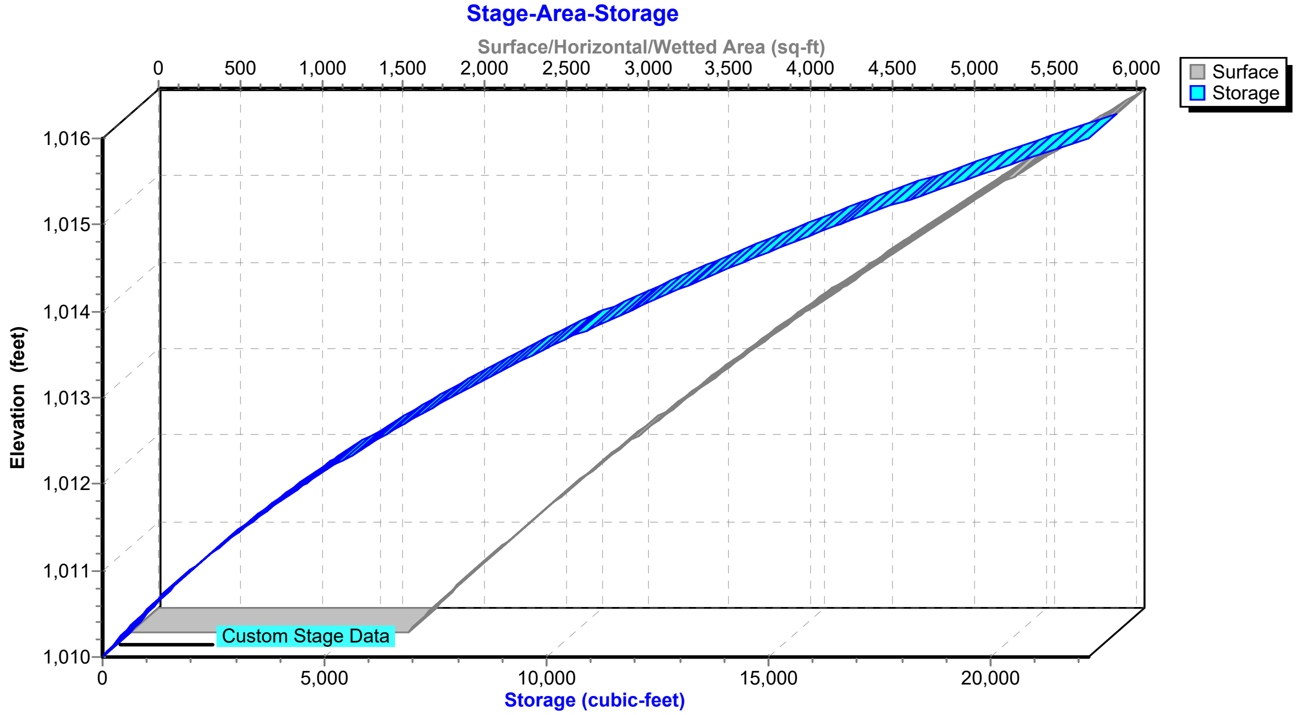
Primary OutFlow Max=0.17 cfs @ 15.86 hrs HW=1,012.25' (Free Discharge)
└─**1=Culvert** (Passes 0.17 cfs of 35.63 cfs potential flow)
  ├─**2=Intermediate Flow** (Orifice Controls 0.17 cfs @ 1.70 fps)
  └─**3=High Flow** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,010.00' (Free Discharge)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond 3P: Infiltration Basin



Pond 3P: Infiltration Basin



Summary for Pond 5P: Bioretention Basin

Inflow Area = 0.518 ac, 67.11% Impervious, Inflow Depth = 1.25" for 1-Year event
Inflow = 0.50 cfs @ 12.30 hrs, Volume= 0.054 af
Outflow = 0.30 cfs @ 12.60 hrs, Volume= 0.031 af, Atten= 39%, Lag= 17.8 min
Primary = 0.30 cfs @ 12.60 hrs, Volume= 0.031 af
Routed to Pond 1P : Detention Pond

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,015.54' @ 12.60 hrs Surf.Area= 1,248 sf Storage= 1,059 cf

Plug-Flow detention time= 211.1 min calculated for 0.031 af (57% of inflow)
Center-of-Mass det. time= 98.2 min (938.3 - 840.1)

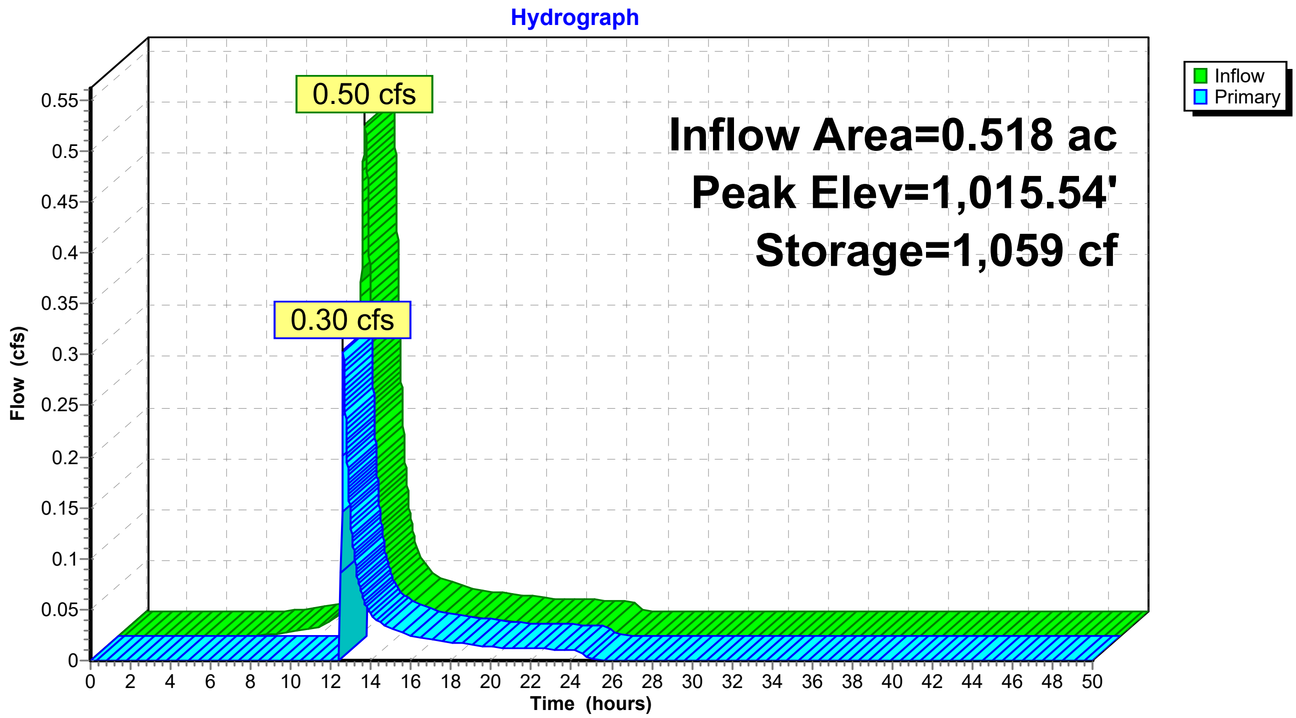
Volume	Invert	Avail.Storage	Storage Description
#1	1,014.50'	1,684 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,014.50	804	0	0
1,015.00	1,007	453	453
1,016.00	1,456	1,232	1,684

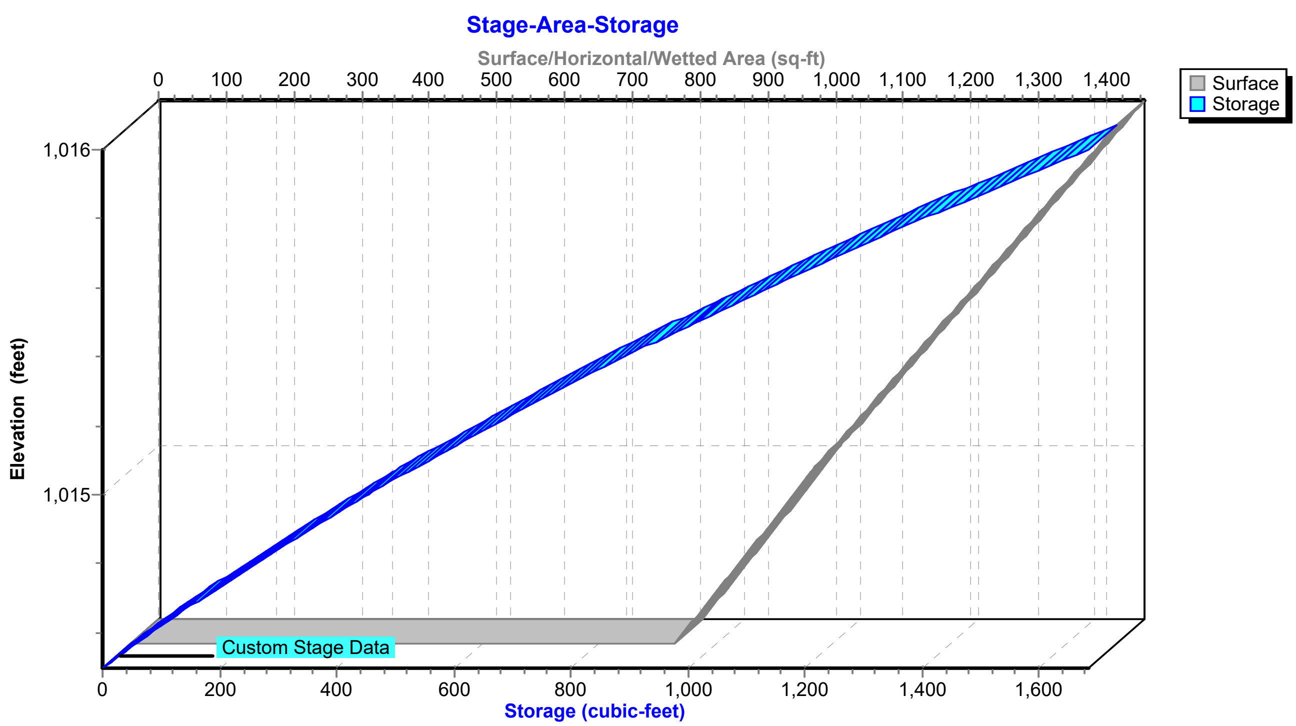
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.50'	**12.0" Round Culvert** L= 27.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,011.50' / 1,011.00' S= 0.0185 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	1,015.50'	**24.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.30 cfs @ 12.60 hrs HW=1,015.54' (Free Discharge)
└─**1=Culvert** (Passes 0.30 cfs of 7.11 cfs potential flow)
  └─**2=Orifice/Grate** (Weir Controls 0.30 cfs @ 0.64 fps)

Pond 5P: Bioretention Basin



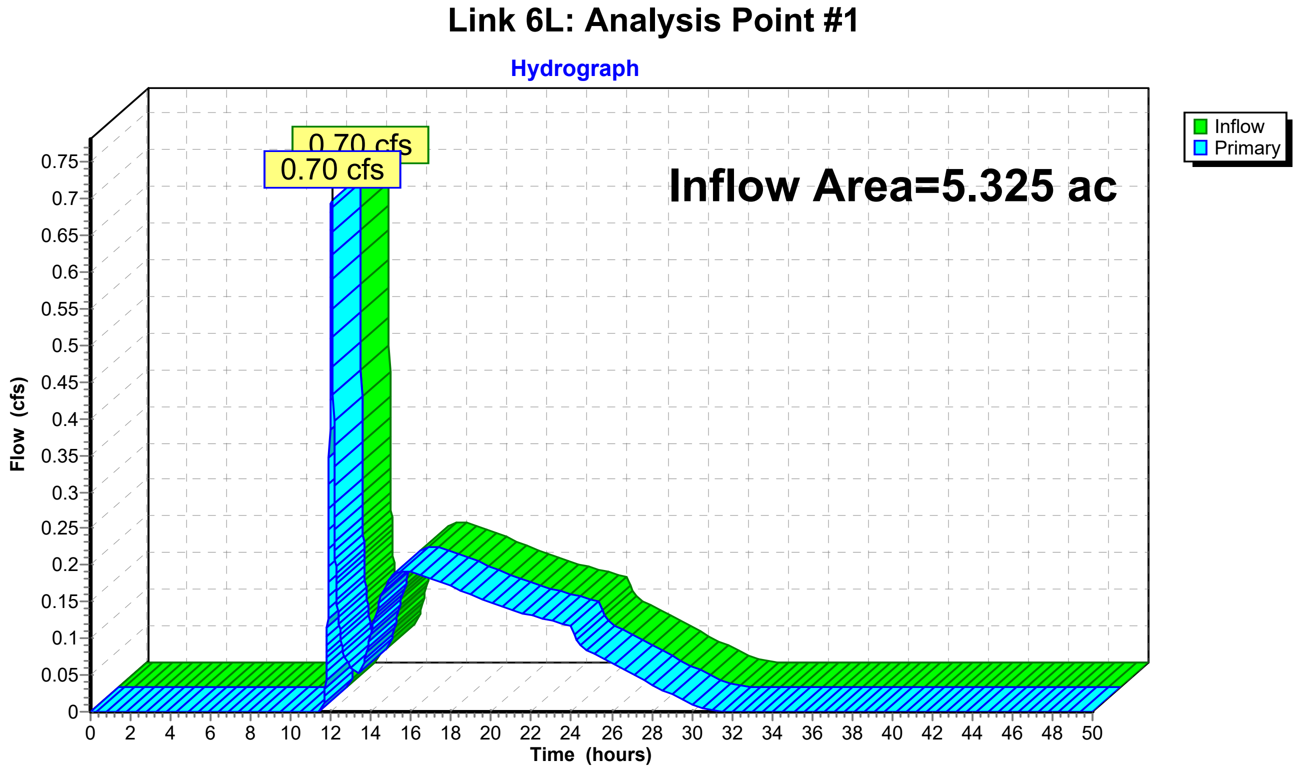
Pond 5P: Bioretention Basin



Summary for Link 6L: Analysis Point #1

Inflow Area = 5.325 ac, 29.19% Impervious, Inflow Depth = 0.41" for 1-Year event
Inflow = 0.70 cfs @ 12.03 hrs, Volume= 0.181 af
Primary = 0.70 cfs @ 12.03 hrs, Volume= 0.181 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Area #3 Runoff Area=10,645 sf 18.60% Impervious Runoff Depth=0.94"
Flow Length=47' Slope=0.2500 '/' Tc=6.0 min CN=83 Runoff=0.41 cfs 0.019 af

Subcatchment 4S: Area #2 Runoff Area=22,581 sf 67.11% Impervious Runoff Depth=1.55"
Flow Length=790' Tc=35.6 min CN=92 Runoff=0.62 cfs 0.067 af

Subcatchment 6S: Area #1 Runoff Area=111,872 sf 14.02% Impervious Runoff Depth=0.88"
Flow Length=527' Slope=0.0586 '/' Tc=24.2 min CN=82 Runoff=2.18 cfs 0.189 af

Subcatchment 10S: Area #4 (AP #3) Runoff Area=26,877 sf 39.06% Impervious Runoff Depth=1.18"
Flow Length=120' Tc=10.2 min CN=87 Runoff=1.11 cfs 0.061 af

Subcatchment 11S: Area #5 (AP #4) Runoff Area=10,307 sf 0.00% Impervious Runoff Depth=0.73"
Flow Length=420' Slope=0.0730 '/' Tc=16.2 min CN=79 Runoff=0.21 cfs 0.014 af

Subcatchment 13S: Area 2B Runoff Area=43,203 sf 77.73% Impervious Runoff Depth=1.72"
Flow Length=41' Tc=6.0 min CN=94 Runoff=2.88 cfs 0.142 af

Subcatchment 14S: Area #7 (AP #2) Runoff Area=20,616 sf 42.44% Impervious Runoff Depth=1.25"
Flow Length=98' Tc=6.3 min CN=88 Runoff=1.04 cfs 0.049 af

Subcatchment 15S: Area #6 Runoff Area=39,467 sf 3.16% Impervious Runoff Depth=0.73"
Flow Length=261' Tc=10.0 min CN=79 Runoff=1.00 cfs 0.055 af

Subcatchment 16S: Area 2A Runoff Area=4,186 sf 1.53% Impervious Runoff Depth=0.78"
Flow Length=41' Tc=6.0 min CN=80 Runoff=0.13 cfs 0.006 af

Pond 1P: Detention Pond Peak Elev=1,013.85' Storage=5,269 cf Inflow=2.18 cfs 0.232 af
Outflow=0.17 cfs 0.232 af

Pond 3P: Infiltration Basin Peak Elev=1,012.30' Storage=5,497 cf Inflow=3.49 cfs 0.400 af
Discarded=0.04 cfs 0.105 af Primary=0.23 cfs 0.223 af Secondary=0.00 cfs 0.000 af Outflow=0.27 cfs 0.329 af

Pond 5P: Bioretention Basin Peak Elev=1,015.55' Storage=1,081 cf Inflow=0.62 cfs 0.067 af
Outflow=0.53 cfs 0.044 af

Link 6L: Analysis Point #1 Inflow=1.00 cfs 0.279 af
Primary=1.00 cfs 0.279 af

Total Runoff Area = 6.652 ac Runoff Volume = 0.602 af Average Runoff Depth = 1.09"
69.99% Pervious = 4.656 ac 30.01% Impervious = 1.996 ac

Summary for Subcatchment 2S: Area #3

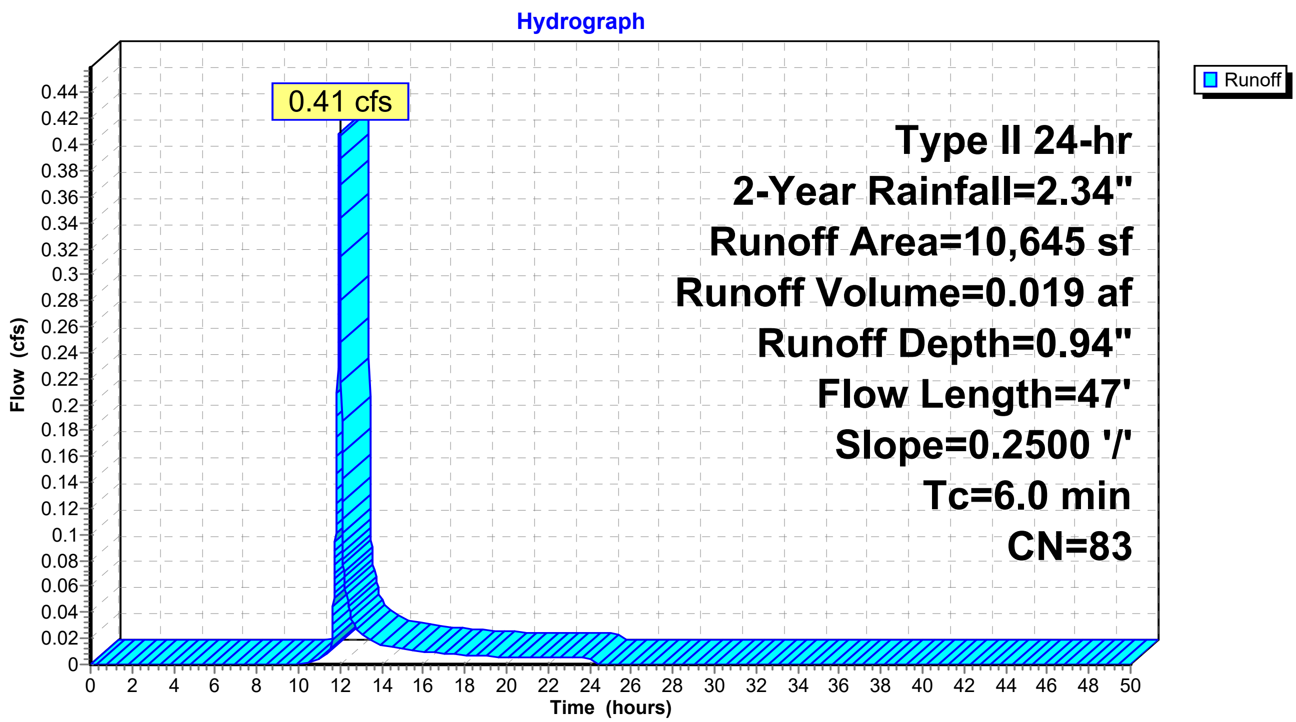
Runoff = 0.41 cfs @ 11.98 hrs, Volume= 0.019 af, Depth= 0.94"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
1,980	98	Paved parking, HSG D
8,665	80	>75% Grass cover, Good, HSG D
10,645	83	Weighted Average
8,665		81.40% Pervious Area
1,980		18.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	47	0.2500	0.24		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
3.3	47	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: Area #3



Summary for Subcatchment 4S: Area #2

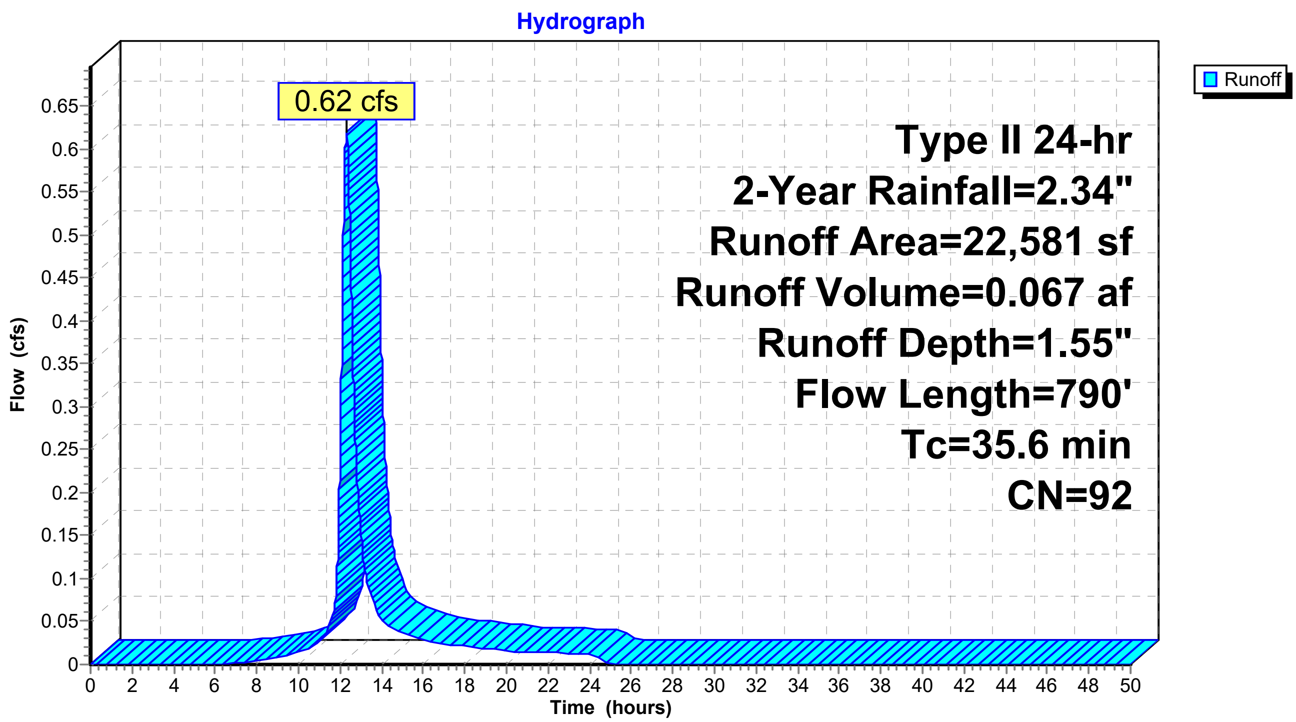
Runoff = 0.62 cfs @ 12.30 hrs, Volume= 0.067 af, Depth= 1.55"
Routed to Pond 5P : Bioretention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
15,153	98	Paved parking, HSG D
7,428	80	>75% Grass cover, Good, HSG D
22,581	92	Weighted Average
7,428		32.89% Pervious Area
15,153		67.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.7	150	0.0200	0.07		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
0.1	21	0.0200	2.87		**Shallow Concentrated Flow, Shallow concentrate** Paved Kv= 20.3 fps
0.8	619	0.0300	13.38	23.65	**Pipe Channel, storm pipe system** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
35.6	790	Total			

Subcatchment 4S: Area #2



Summary for Subcatchment 6S: Area #1

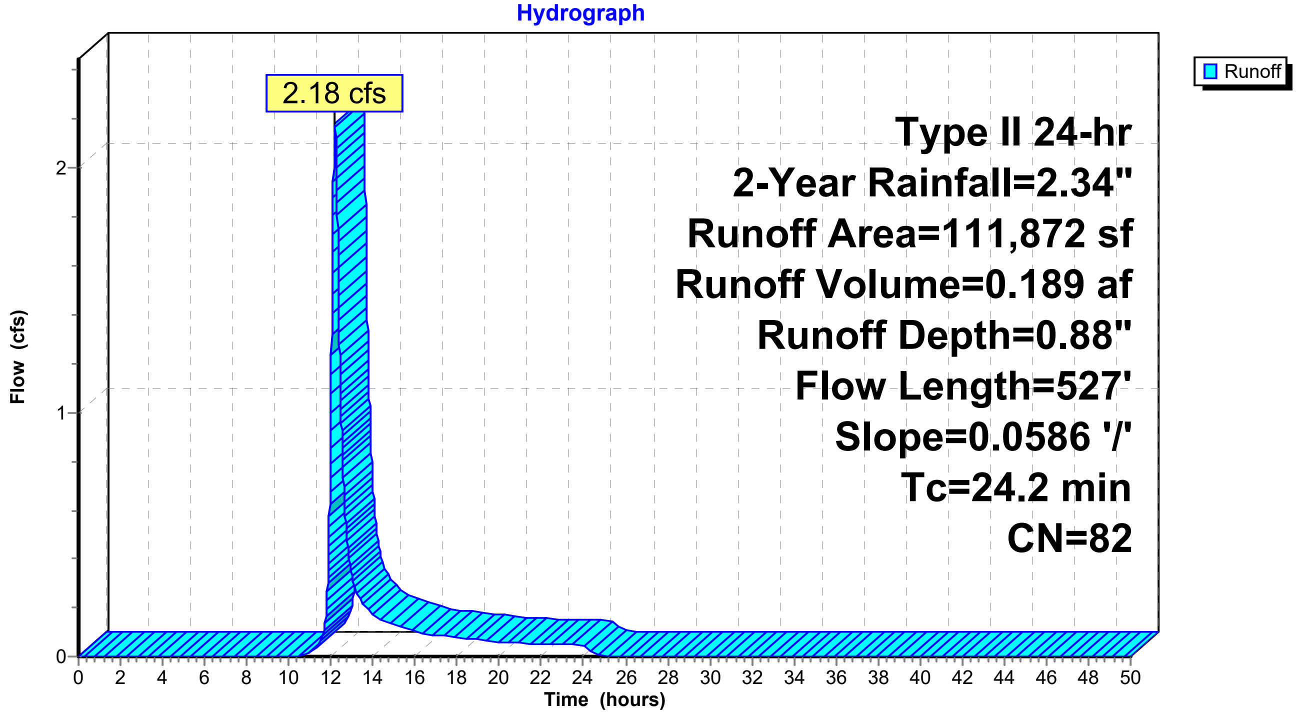
Runoff = 2.18 cfs @ 12.18 hrs, Volume= 0.189 af, Depth= 0.88"
Routed to Pond 1P : Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
15,686	98	Paved parking, HSG D
47,047	79	Woods, Fair, HSG D
49,139	80	>75% Grass cover, Good, HSG D
111,872	82	Weighted Average
96,186		85.98% Pervious Area
15,686		14.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6	150	0.0586	0.11		**Sheet Flow, sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
0.4	100	0.0586	3.90		**Shallow Concentrated Flow, Concentrated flow lawn** Unpaved Kv= 16.1 fps
0.5	117	0.0586	3.90		**Shallow Concentrated Flow, concetrated flow lawn** Unpaved Kv= 16.1 fps
0.1	24	0.0586	4.91		**Shallow Concentrated Flow, Shallow Concentrated driveway** Paved Kv= 20.3 fps
0.6	136	0.0586	3.90		**Shallow Concentrated Flow, Concentrated flow lawn** Unpaved Kv= 16.1 fps
24.2	527	Total			

Subcatchment 6S: Area #1



Summary for Subcatchment 10S: Area #4 (AP #3)

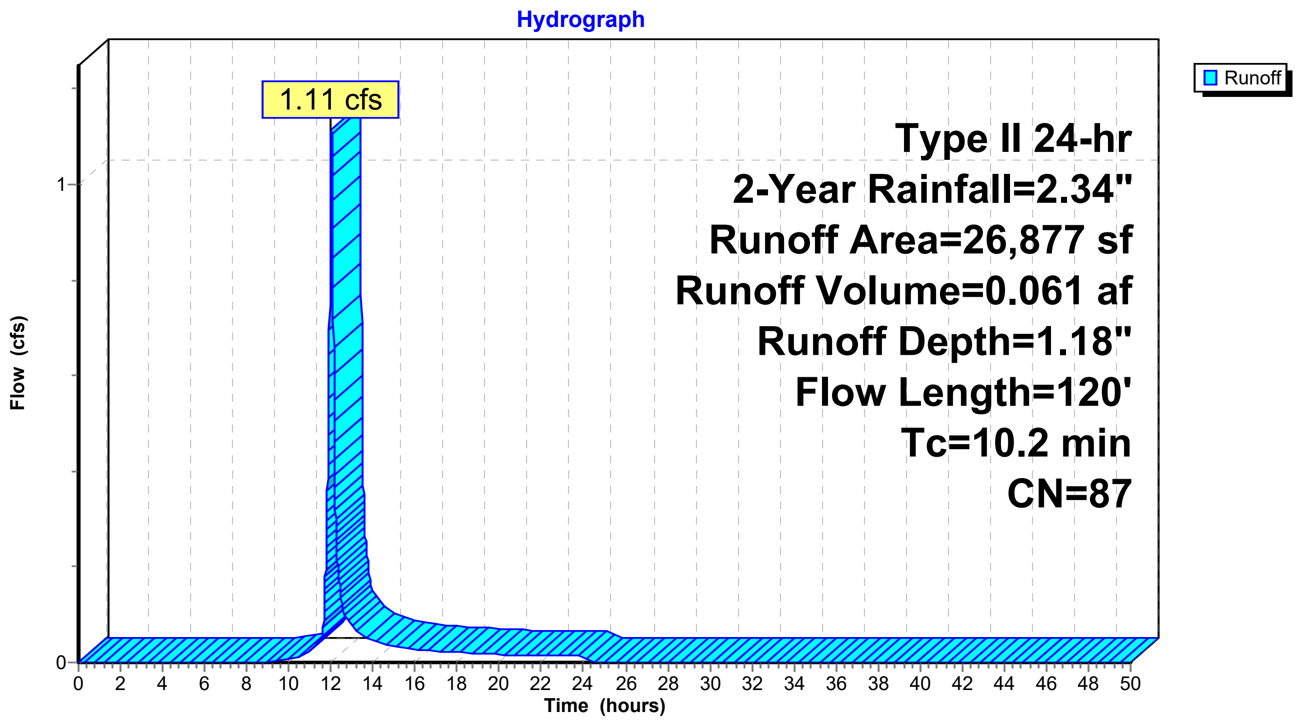
Runoff = 1.11 cfs @ 12.02 hrs, Volume= 0.061 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
16,379	80	>75% Grass cover, Good, HSG D
10,498	98	Paved parking, HSG D
26,877	87	Weighted Average
16,379		60.94% Pervious Area
10,498		39.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0700	0.16		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
0.1	20	0.1500	6.24		**Shallow Concentrated Flow, shallow concentrated** Unpaved Kv= 16.1 fps
10.2	120	Total			

Subcatchment 10S: Area #4 (AP #3)



Summary for Subcatchment 11S: Area #5 (AP #4)

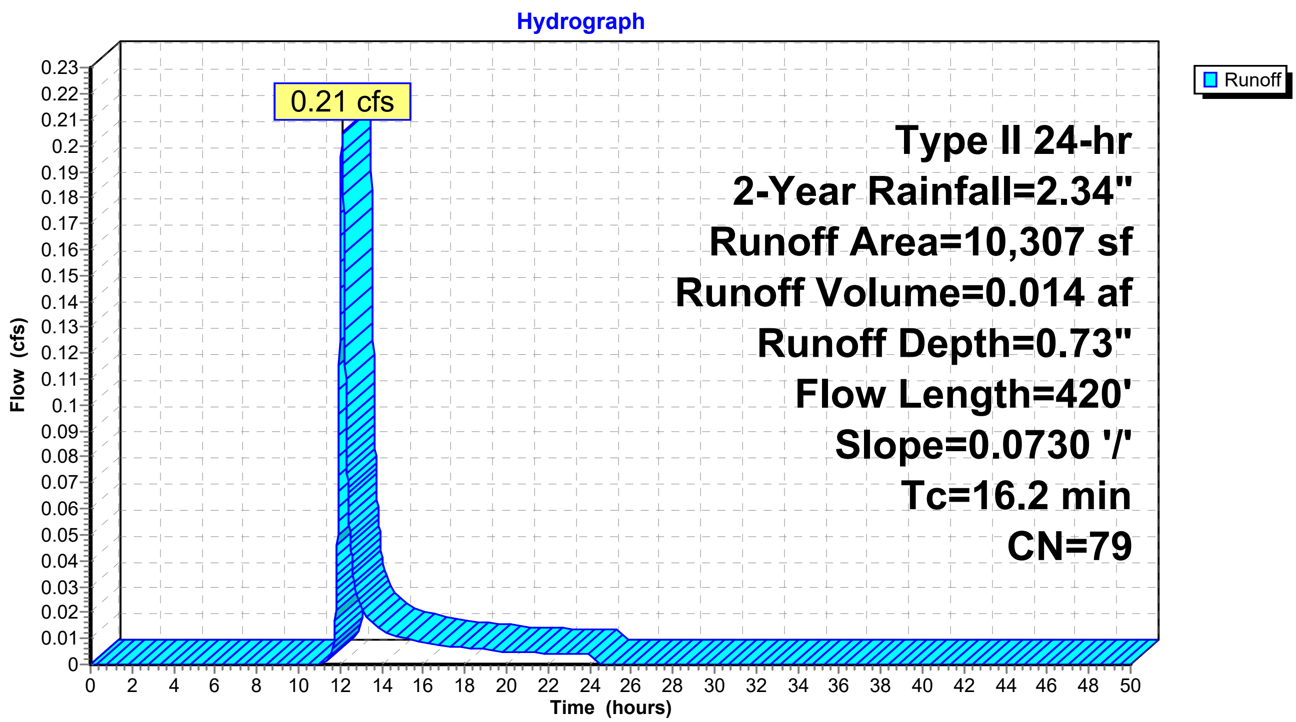
Runoff = 0.21 cfs @ 12.10 hrs, Volume= 0.014 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
3,347	80	>75% Grass cover, Good, HSG D
6,960	79	Woods, Fair, HSG D
10,307	79	Weighted Average
10,307		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100	0.0730	0.11		**Sheet Flow, sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
1.2	320	0.0730	4.35		**Shallow Concentrated Flow, Shallow Concentrated Flow** Unpaved Kv= 16.1 fps
16.2	420	Total			

Subcatchment 11S: Area #5 (AP #4)



Summary for Subcatchment 13S: Area 2B

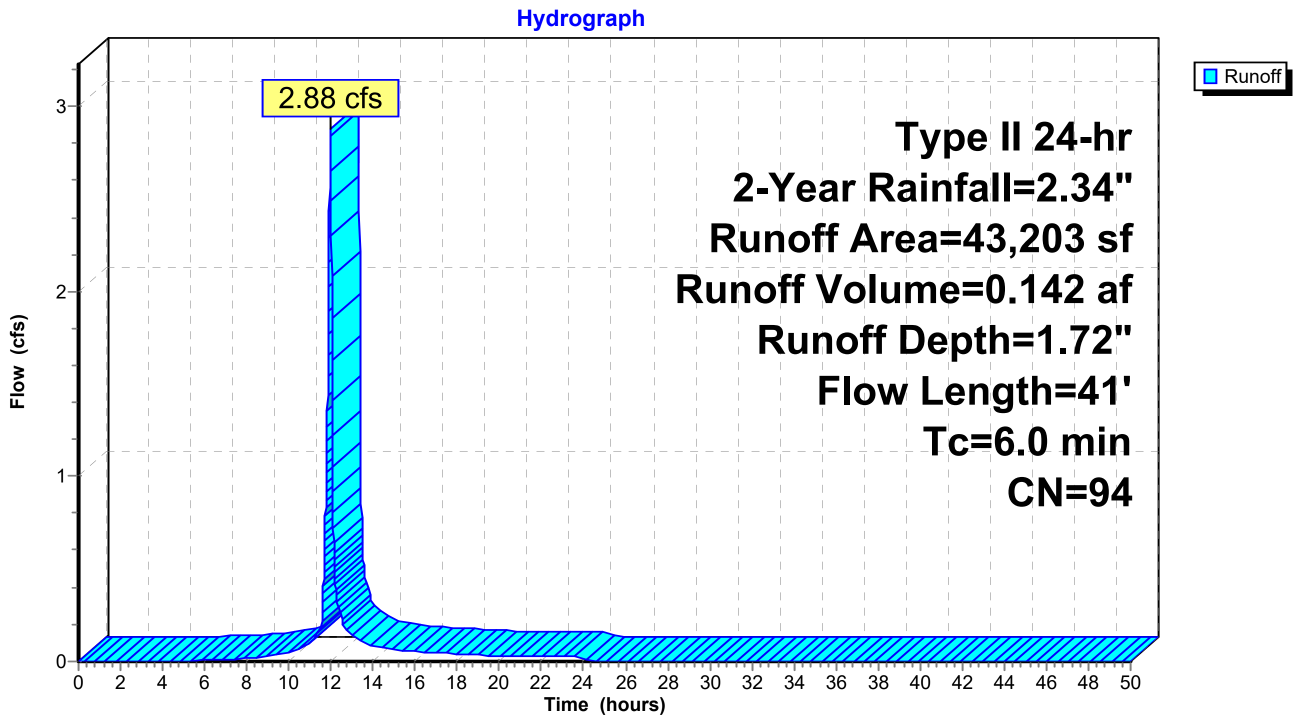
Runoff = 2.88 cfs @ 11.97 hrs, Volume= 0.142 af, Depth= 1.72"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
33,580	98	Paved parking, HSG D
9,623	80	>75% Grass cover, Good, HSG D
43,203	94	Weighted Average
9,623		22.27% Pervious Area
33,580		77.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	10	0.5000	0.33		**Sheet Flow, sheet flow** Grass: Short n= 0.150 P2= 2.34"
1.6	15	0.0667	0.16		**Sheet Flow, sheet flow lawn** Grass: Short n= 0.150 P2= 2.34"
1.4	16	0.2400	0.19		**Sheet Flow, detention pond slope** Grass: Dense n= 0.240 P2= 2.34"
3.5	41	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Area 2B



Summary for Subcatchment 14S: Area #7 (AP #2)

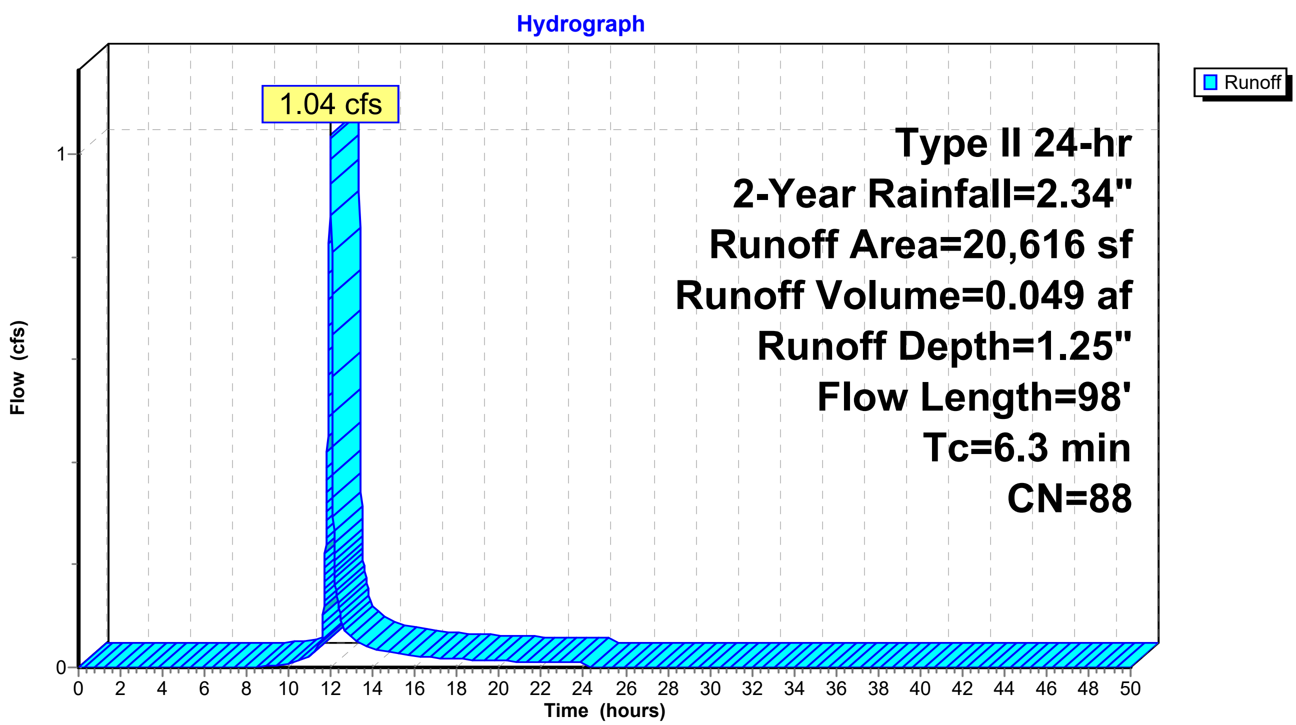
Runoff = 1.04 cfs @ 11.98 hrs, Volume= 0.049 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
8,749	98	Paved parking, HSG D
11,867	80	>75% Grass cover, Good, HSG D
20,616	88	Weighted Average
11,867		57.56% Pervious Area
8,749		42.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	34	0.0588	1.46		**Sheet Flow, impervious** Smooth surfaces n= 0.011 P2= 2.34"
5.9	64	0.1090	0.18		**Sheet Flow, sheet flow grass** Grass: Dense n= 0.240 P2= 2.34"
6.3	98	Total			

Subcatchment 14S: Area #7 (AP #2)



Summary for Subcatchment 15S: Area #6

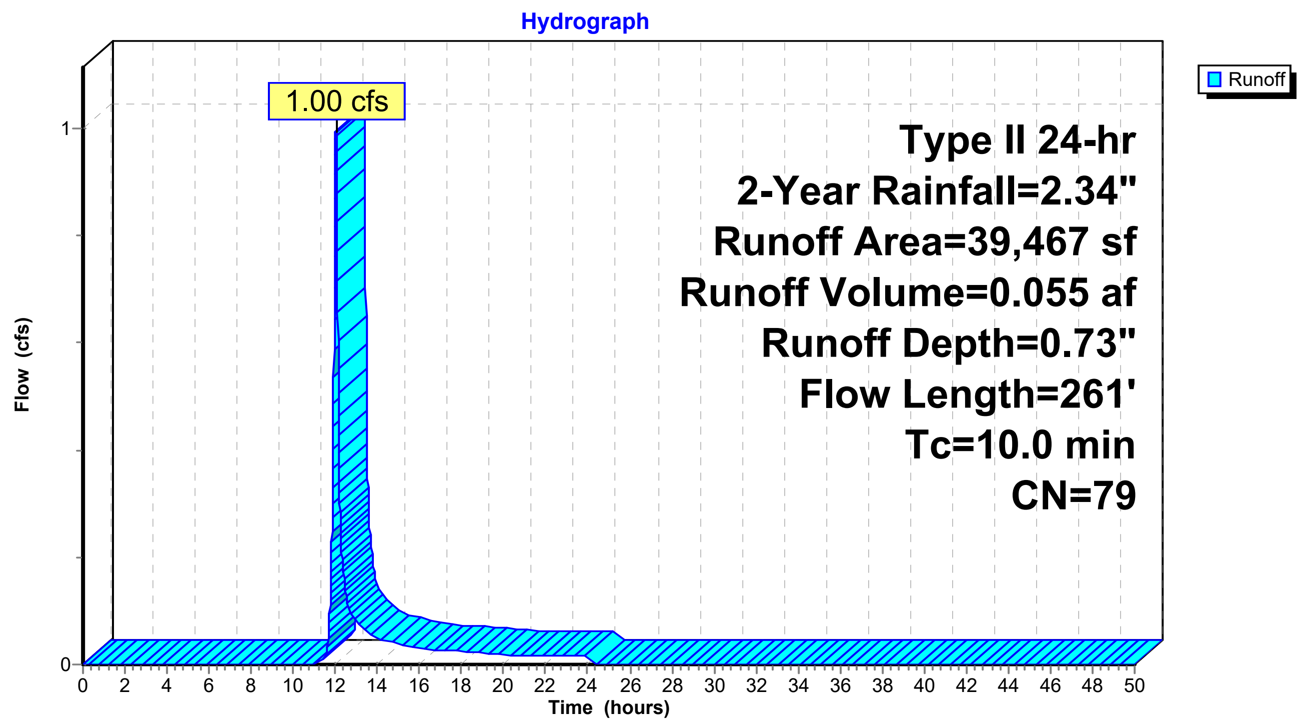
Runoff = 1.00 cfs @ 12.03 hrs, Volume= 0.055 af, Depth= 0.73"
Routed to Link 6L : Analysis Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
1,249	98	Paved parking, HSG D
24,099	80	>75% Grass cover, Good, HSG D
14,119	77	Woods, Good, HSG D
39,467	79	Weighted Average
38,218		96.84% Pervious Area
1,249		3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0925	0.18		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
0.7	64	0.0100	1.61		**Shallow Concentrated Flow, concentrated** Unpaved Kv= 16.1 fps
0.3	97	0.1600	6.44		**Shallow Concentrated Flow, concentrated** Unpaved Kv= 16.1 fps
10.0	261	Total			

Subcatchment 15S: Area #6



Summary for Subcatchment 16S: Area 2A

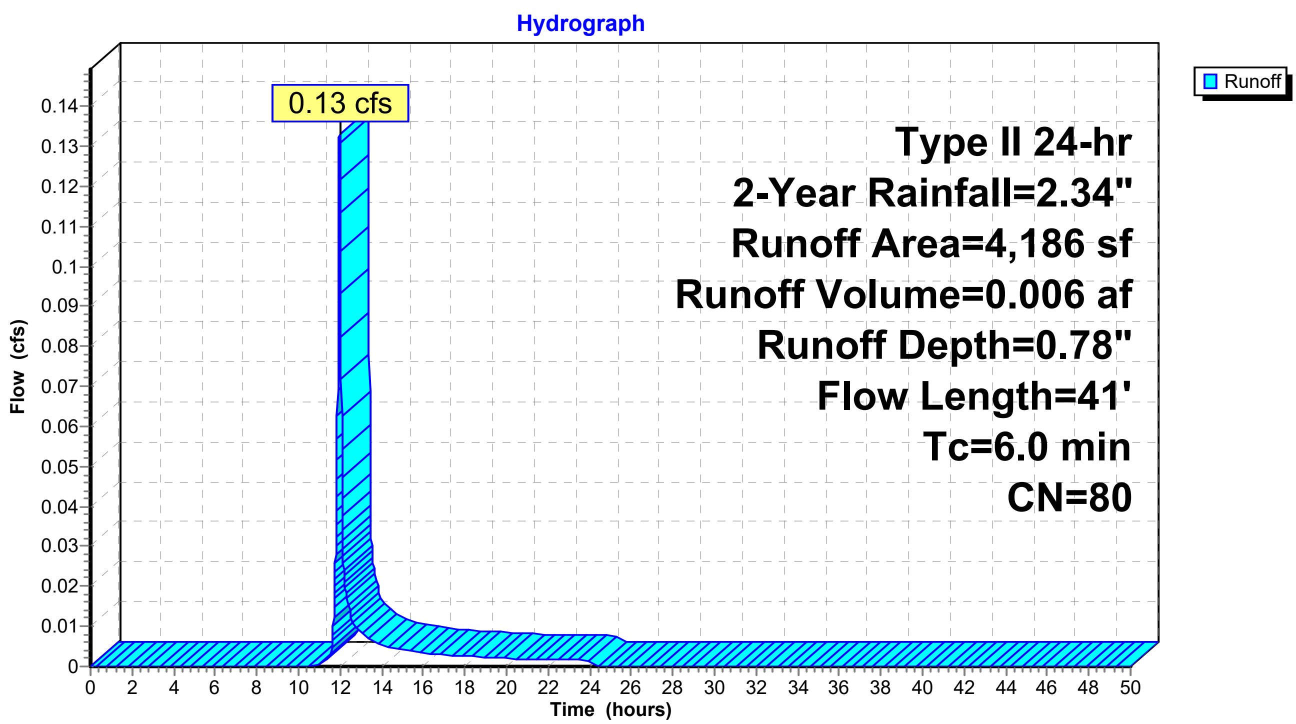
Runoff = 0.13 cfs @ 11.98 hrs, Volume= 0.006 af, Depth= 0.78"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.34"

Area (sf)	CN	Description
64	98	Paved parking, HSG D
4,122	80	>75% Grass cover, Good, HSG D
4,186	80	Weighted Average
4,122		98.47% Pervious Area
64		1.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	10	0.5000	0.33		**Sheet Flow, sheet flow** Grass: Short n= 0.150 P2= 2.34"
1.6	15	0.0667	0.16		**Sheet Flow, sheet flow lawn** Grass: Short n= 0.150 P2= 2.34"
1.4	16	0.2400	0.19		**Sheet Flow, detention pond slope** Grass: Dense n= 0.240 P2= 2.34"
3.5	41	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 16S: Area 2A



Summary for Pond 1P: Detention Pond

[79] Warning: Submerged Pond 5P Primary device # 1 INLET by 2.35'

Inflow Area = 3.087 ac, 22.94% Impervious, Inflow Depth = 0.90" for 2-Year event
Inflow = 2.18 cfs @ 12.18 hrs, Volume= 0.232 af
Outflow = 0.17 cfs @ 14.77 hrs, Volume= 0.232 af, Atten= 92%, Lag= 155.1 min
Primary = 0.17 cfs @ 14.77 hrs, Volume= 0.232 af
Routed to Pond 3P : Infiltration Basin

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,013.85' @ 14.77 hrs Surf.Area= 2,811 sf Storage= 5,269 cf

Plug-Flow detention time= 374.2 min calculated for 0.232 af (100% of inflow)
Center-of-Mass det. time= 374.4 min (1,248.3 - 874.0)

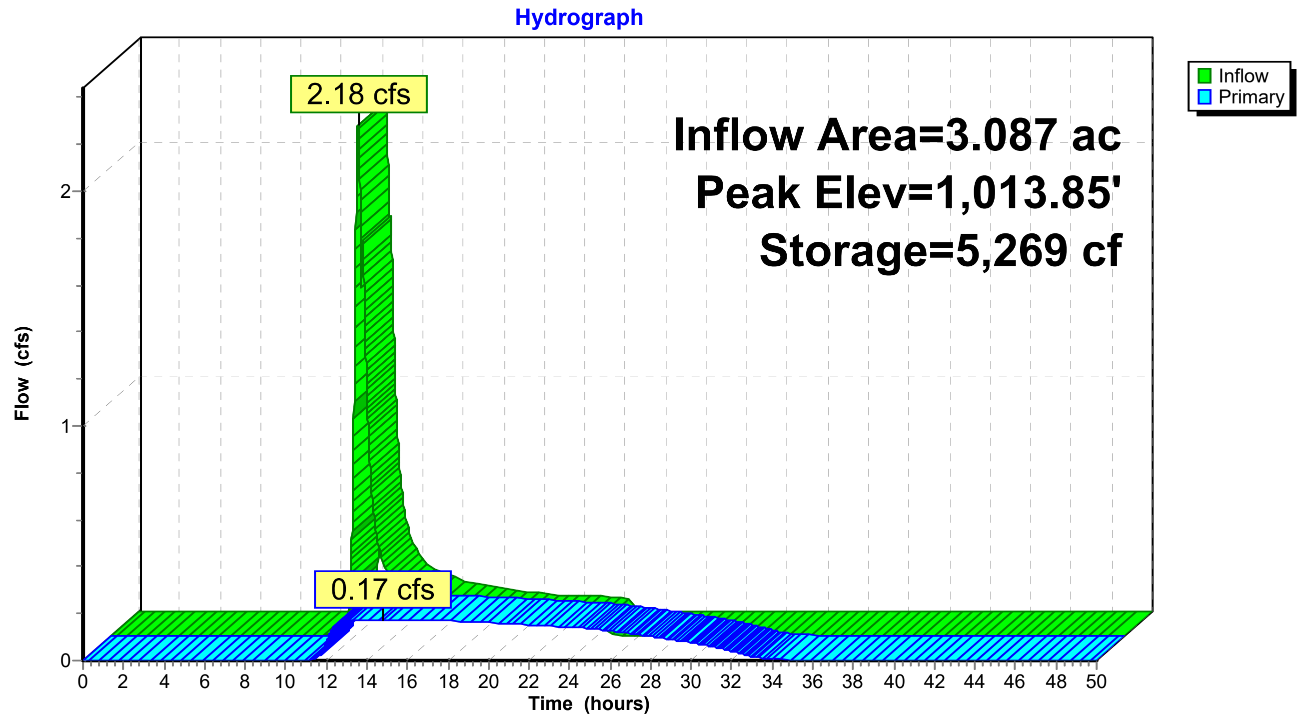
Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	12,988 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	721	0	0
1,012.00	1,632	1,177	1,177
1,013.00	2,239	1,936	3,112
1,014.00	2,909	2,574	5,686
1,015.00	3,637	3,273	8,959
1,016.00	4,421	4,029	12,988

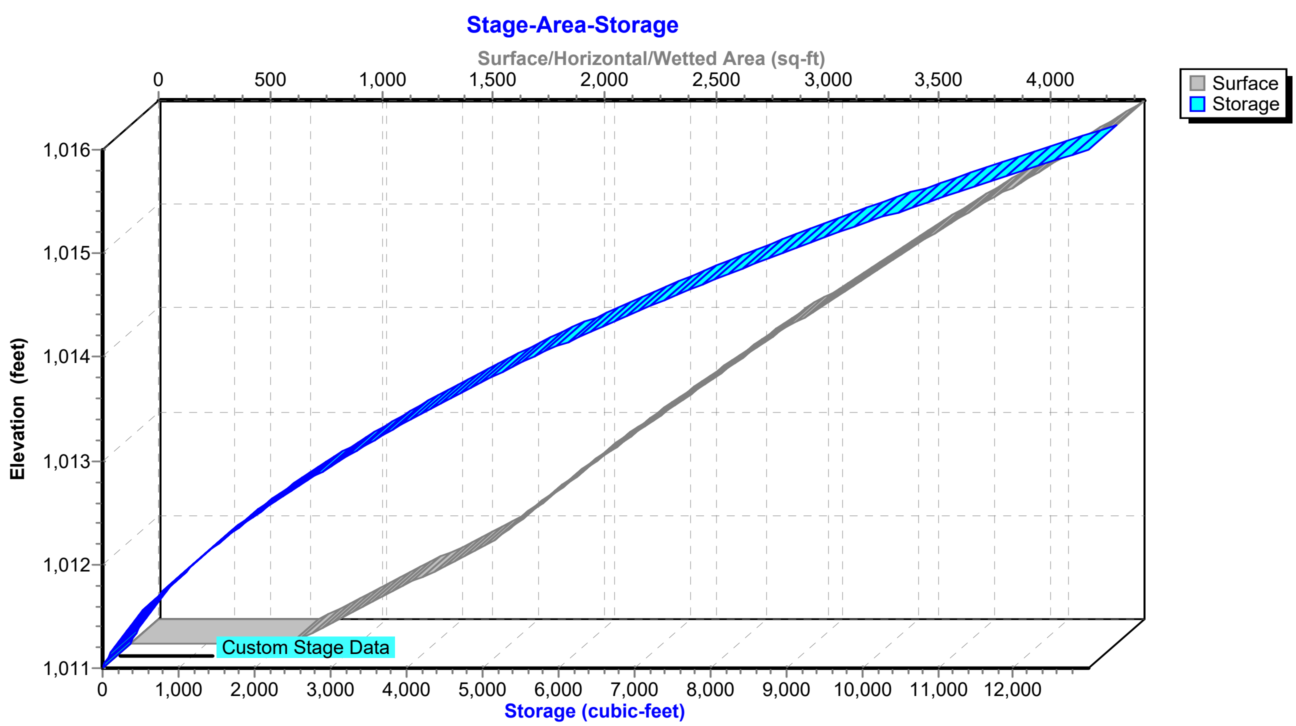
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	**18.0" Round Culvert** L= 42.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0238 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	1,011.00'	**2.0" Vert. Low Flow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,014.20'	**30.0" x 30.0" Horiz. High Flow** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.17 cfs @ 14.77 hrs HW=1,013.85' (Free Discharge)
└─**1=Culvert** (Passes 0.17 cfs of 10.89 cfs potential flow)
  ├─**2=Low Flow** (Orifice Controls 0.17 cfs @ 8.02 fps)
  └─**3=High Flow** (Controls 0.00 cfs)

Pond 1P: Detention Pond



Pond 1P: Detention Pond



Summary for Pond 3P: Infiltration Basin

[81] Warning: Exceeded Pond 1P by 0.96' @ 33.75 hrs

Inflow Area = 4.419 ac, 34.53% Impervious, Inflow Depth = 1.09" for 2-Year event
Inflow = 3.49 cfs @ 11.97 hrs, Volume= 0.400 af
Outflow = 0.27 cfs @ 14.26 hrs, Volume= 0.329 af, Atten= 92%, Lag= 137.3 min
Discarded = 0.04 cfs @ 14.26 hrs, Volume= 0.105 af
Primary = 0.23 cfs @ 14.26 hrs, Volume= 0.223 af
Routed to Link 6L : Analysis Point #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 6L : Analysis Point #1

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,012.30' @ 14.26 hrs Surf.Area= 3,126 sf Storage= 5,497 cf

Plug-Flow detention time= 452.4 min calculated for 0.329 af (82% of inflow)
Center-of-Mass det. time= 323.5 min (1,385.4 - 1,061.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	22,225 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,010.00	1,701	0	0	1,701
1,011.00	2,285	1,986	1,986	2,306
1,012.00	2,924	2,598	4,584	2,970
1,013.00	3,621	3,266	7,850	3,696
1,014.00	4,374	3,992	11,842	4,481
1,015.00	5,183	4,773	16,614	5,327
1,016.00	6,049	5,610	22,225	6,232

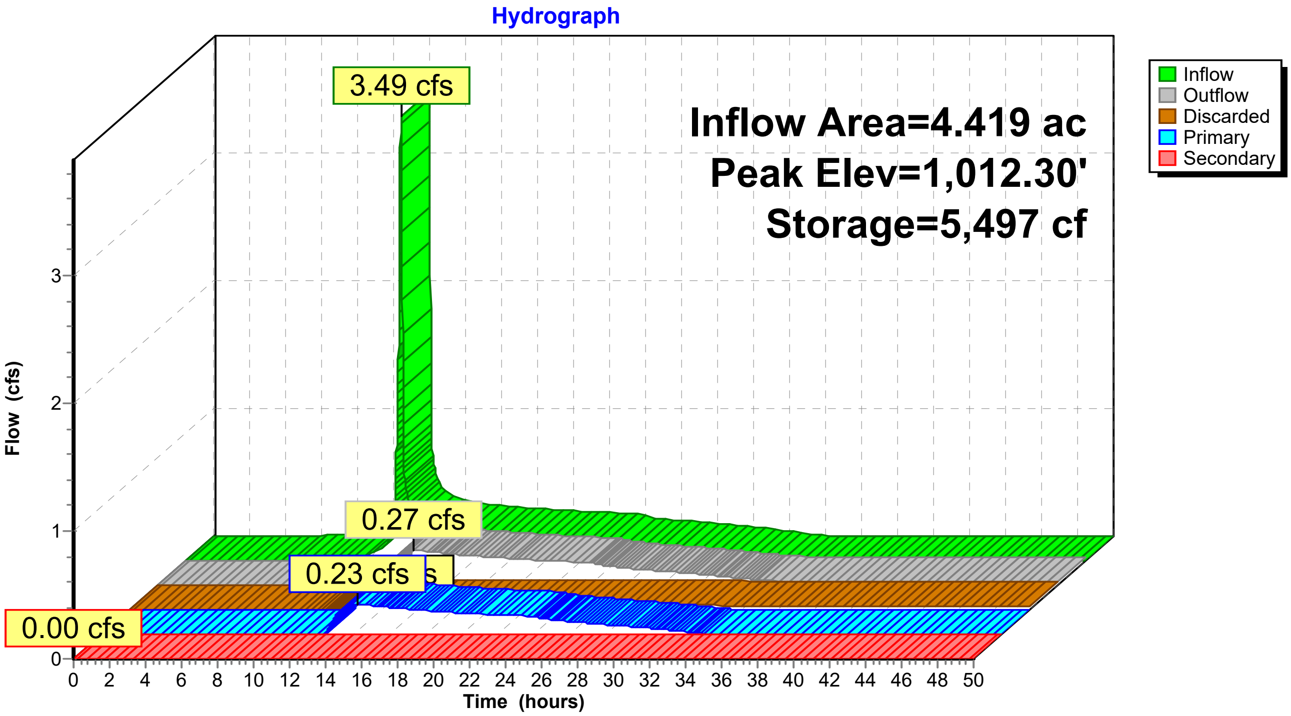
Device	Routing	Invert	Outlet Devices
#1	Primary	1,005.70'	**24.0" Round Culvert** L= 30.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,005.70' / 1,003.00' S= 0.0900 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	1,012.00'	**6.0" Vert. Intermediate Flow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,013.70'	**24.0" x 24.0" Horiz. High Flow** C= 0.600 Limited to weir flow at low heads
#4	Secondary	1,014.30'	**Emergency Spillway, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 15.00 21.00
#5	Discarded	1,010.00'	**1.000 in/hr Exfiltration over Surface area from 1,010.00' - 1,016.00'** Conductivity to Groundwater Elevation = 1,005.00' Excluded Surface area = 1,701 sf

Discarded OutFlow Max=0.04 cfs @ 14.26 hrs HW=1,012.30' (Free Discharge)
└─**5=Exfiltration** (Controls 0.04 cfs)

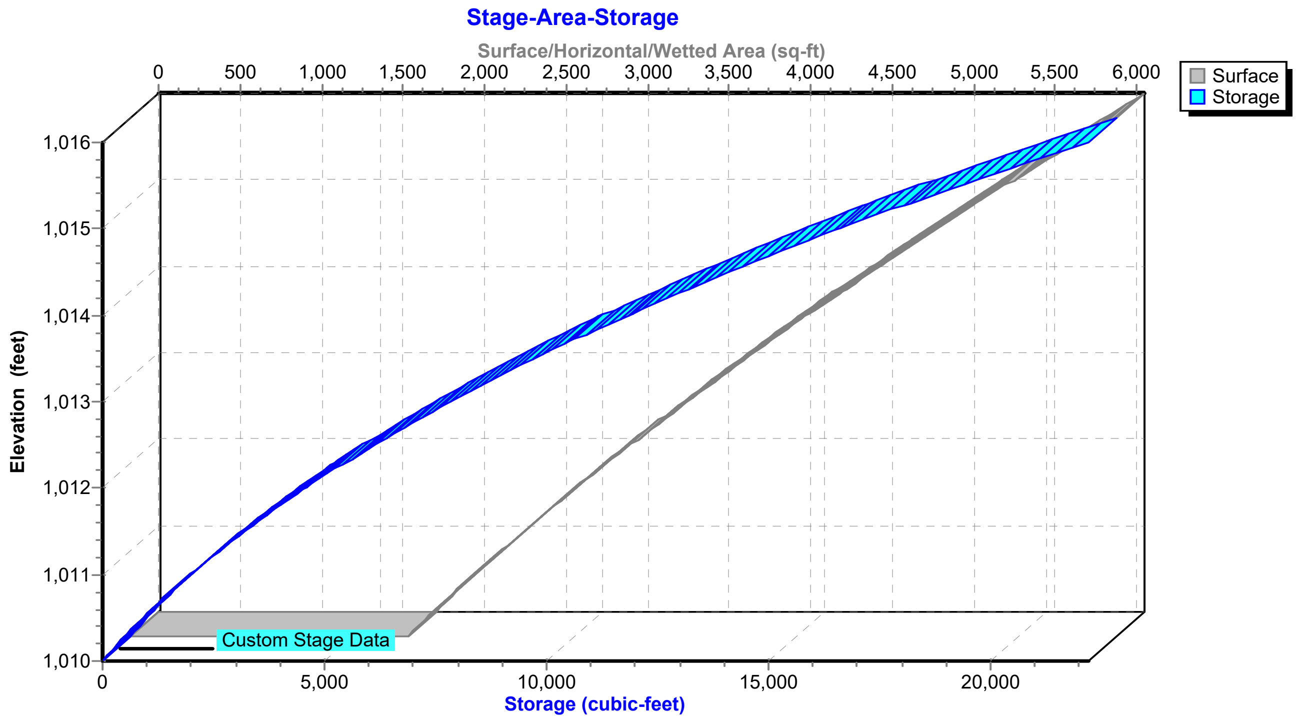
Primary OutFlow Max=0.23 cfs @ 14.26 hrs HW=1,012.30' (Free Discharge)
└─**1=Culvert** (Passes 0.23 cfs of 35.80 cfs potential flow)
  ├─**2=Intermediate Flow** (Orifice Controls 0.23 cfs @ 1.87 fps)
  └─**3=High Flow** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,010.00' (Free Discharge)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond 3P: Infiltration Basin



Pond 3P: Infiltration Basin



Summary for Pond 5P: Bioretention Basin

Inflow Area = 0.518 ac, 67.11% Impervious, Inflow Depth = 1.55" for 2-Year event
Inflow = 0.62 cfs @ 12.30 hrs, Volume= 0.067 af
Outflow = 0.53 cfs @ 12.45 hrs, Volume= 0.044 af, Atten= 14%, Lag= 9.0 min
Primary = 0.53 cfs @ 12.45 hrs, Volume= 0.044 af
Routed to Pond 1P : Detention Pond

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,015.55' @ 12.45 hrs Surf.Area= 1,256 sf Storage= 1,081 cf

Plug-Flow detention time= 178.1 min calculated for 0.044 af (65% of inflow)
Center-of-Mass det. time= 73.8 min (907.7 - 833.9)

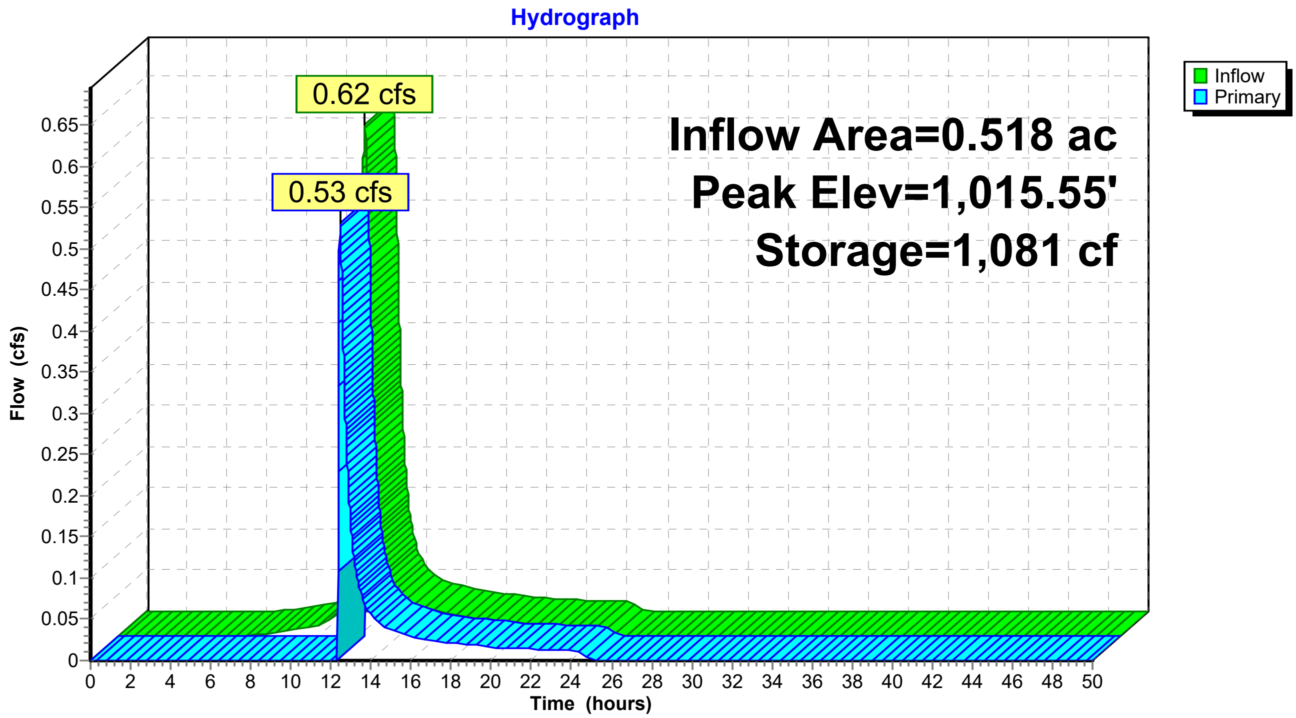
Volume	Invert	Avail.Storage	Storage Description
#1	1,014.50'	1,684 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,014.50	804	0	0
1,015.00	1,007	453	453
1,016.00	1,456	1,232	1,684

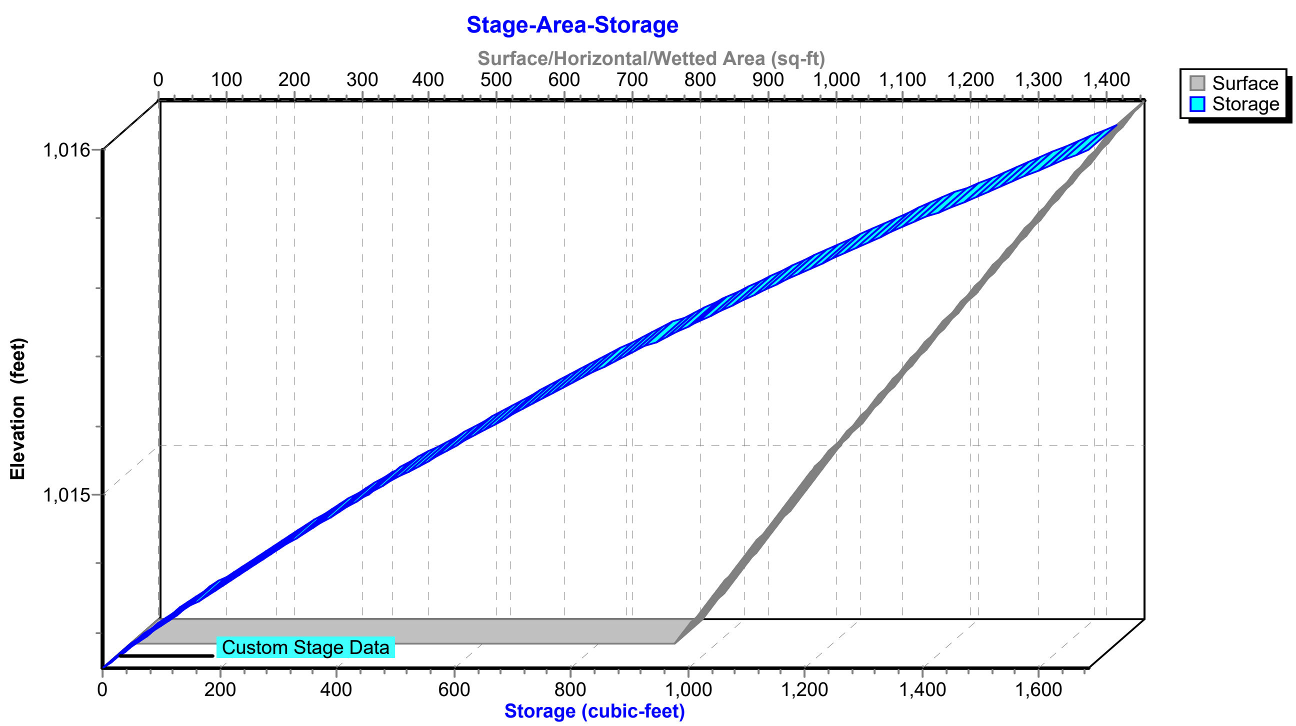
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.50'	**12.0" Round Culvert** L= 27.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,011.50' / 1,011.00' S= 0.0185 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	1,015.50'	**24.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.53 cfs @ 12.45 hrs HW=1,015.55' (Free Discharge)
└─**1=Culvert** (Passes 0.53 cfs of 7.13 cfs potential flow)
  └─**2=Orifice/Grate** (Weir Controls 0.53 cfs @ 0.77 fps)

Pond 5P: Bioretention Basin



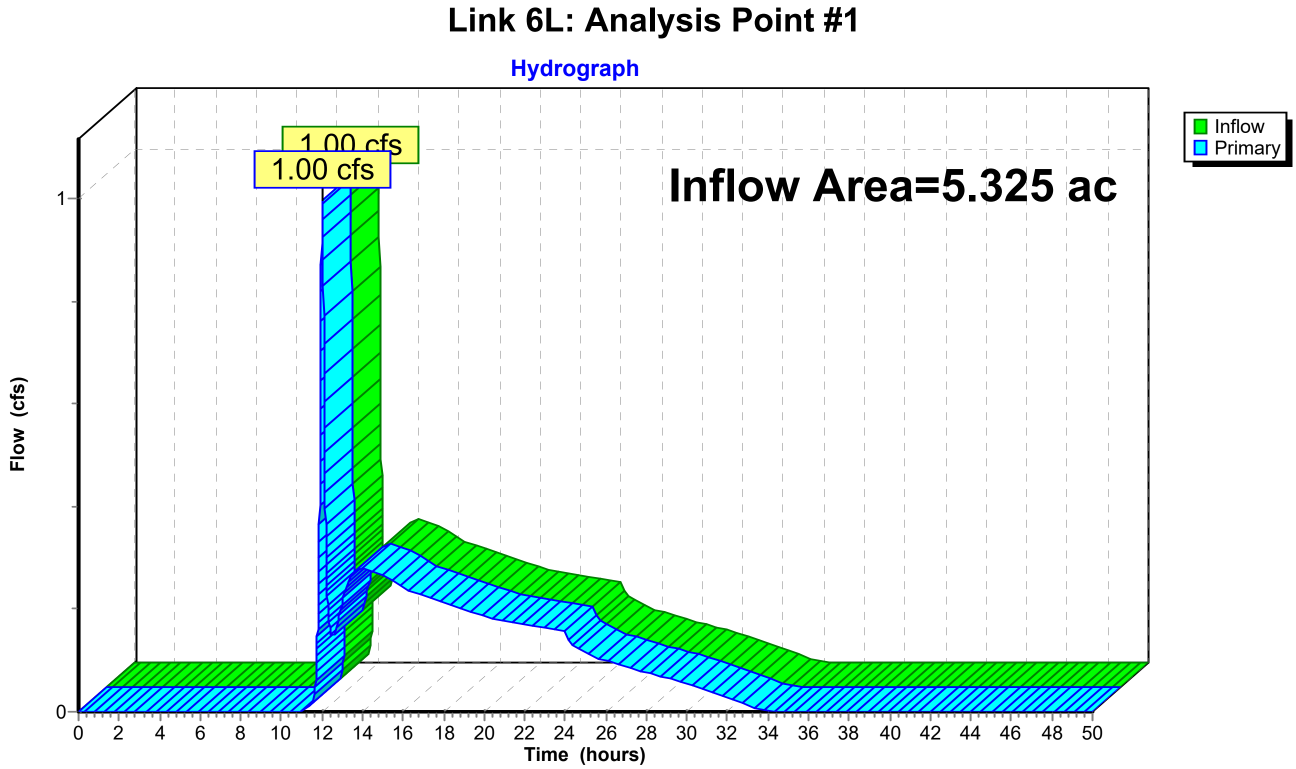
Pond 5P: Bioretention Basin



Summary for Link 6L: Analysis Point #1

Inflow Area = 5.325 ac, 29.19% Impervious, Inflow Depth = 0.63" for 2-Year event
Inflow = 1.00 cfs @ 12.03 hrs, Volume= 0.279 af
Primary = 1.00 cfs @ 12.03 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Area #3 Runoff Area=10,645 sf 18.60% Impervious Runoff Depth=1.81"
Flow Length=47' Slope=0.2500 '/' Tc=6.0 min CN=83 Runoff=0.79 cfs 0.037 af

Subcatchment 4S: Area #2 Runoff Area=22,581 sf 67.11% Impervious Runoff Depth=2.58"
Flow Length=790' Tc=35.6 min CN=92 Runoff=1.02 cfs 0.111 af

Subcatchment 6S: Area #1 Runoff Area=111,872 sf 14.02% Impervious Runoff Depth=1.73"
Flow Length=527' Slope=0.0586 '/' Tc=24.2 min CN=82 Runoff=4.42 cfs 0.371 af

Subcatchment 10S: Area #4 (AP #3) Runoff Area=26,877 sf 39.06% Impervious Runoff Depth=2.13"
Flow Length=120' Tc=10.2 min CN=87 Runoff=1.99 cfs 0.109 af

Subcatchment 11S: Area #5 (AP #4) Runoff Area=10,307 sf 0.00% Impervious Runoff Depth=1.52"
Flow Length=420' Slope=0.0730 '/' Tc=16.2 min CN=79 Runoff=0.45 cfs 0.030 af

Subcatchment 13S: Area 2B Runoff Area=43,203 sf 77.73% Impervious Runoff Depth=2.78"
Flow Length=41' Tc=6.0 min CN=94 Runoff=4.52 cfs 0.230 af

Subcatchment 14S: Area #7 (AP #2) Runoff Area=20,616 sf 42.44% Impervious Runoff Depth=2.21"
Flow Length=98' Tc=6.3 min CN=88 Runoff=1.80 cfs 0.087 af

Subcatchment 15S: Area #6 Runoff Area=39,467 sf 3.16% Impervious Runoff Depth=1.52"
Flow Length=261' Tc=10.0 min CN=79 Runoff=2.12 cfs 0.115 af

Subcatchment 16S: Area 2A Runoff Area=4,186 sf 1.53% Impervious Runoff Depth=1.59"
Flow Length=41' Tc=6.0 min CN=80 Runoff=0.27 cfs 0.013 af

Pond 1P: Detention Pond Peak Elev=1,014.40' Storage=6,919 cf Inflow=5.23 cfs 0.459 af
Outflow=3.20 cfs 0.459 af

Pond 3P: Infiltration Basin Peak Elev=1,013.62' Storage=10,238 cf Inflow=5.68 cfs 0.738 af
Discarded=0.07 cfs 0.119 af Primary=1.11 cfs 0.541 af Secondary=0.00 cfs 0.000 af Outflow=1.18 cfs 0.660 af

Pond 5P: Bioretention Basin Peak Elev=1,015.58' Storage=1,118 cf Inflow=1.02 cfs 0.111 af
Outflow=1.02 cfs 0.088 af

Link 6L: Analysis Point #1 Inflow=2.66 cfs 0.656 af
Primary=2.66 cfs 0.656 af

Total Runoff Area = 6.652 ac Runoff Volume = 1.103 af Average Runoff Depth = 1.99"
69.99% Pervious = 4.656 ac 30.01% Impervious = 1.996 ac

Summary for Subcatchment 2S: Area #3

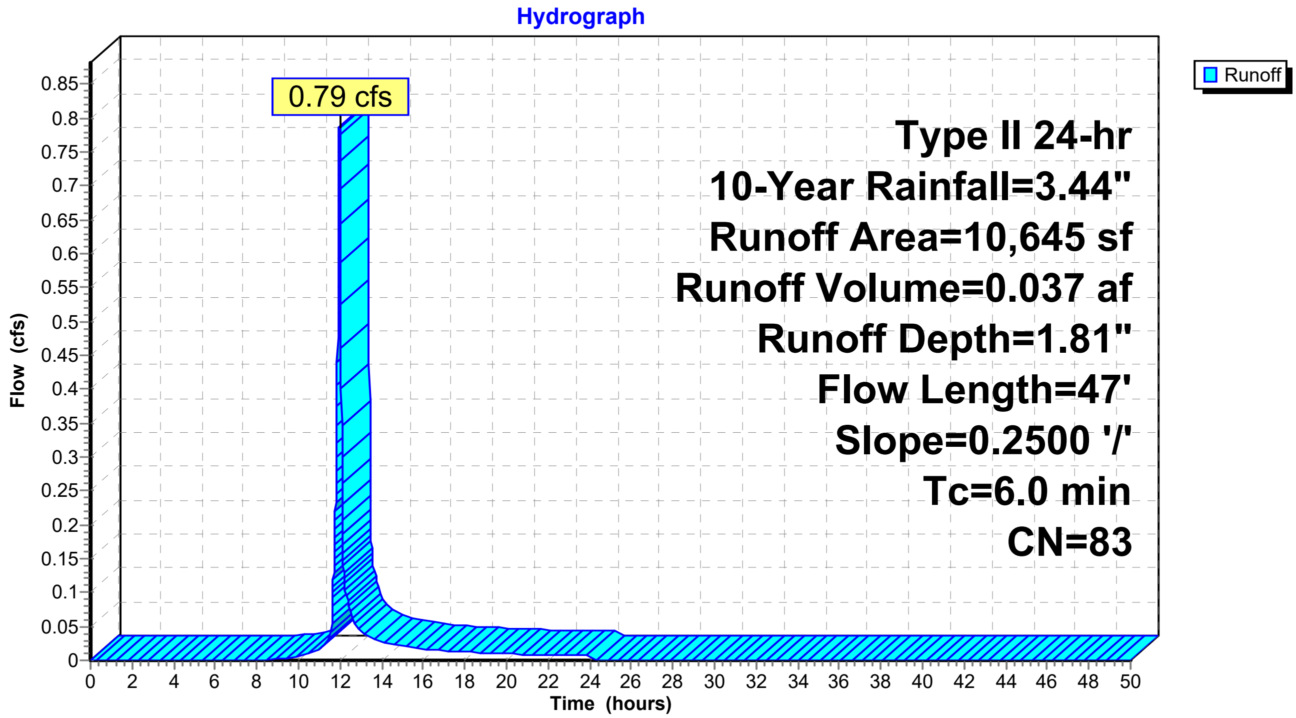
Runoff = 0.79 cfs @ 11.97 hrs, Volume= 0.037 af, Depth= 1.81"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
1,980	98	Paved parking, HSG D
8,665	80	>75% Grass cover, Good, HSG D
10,645	83	Weighted Average
8,665		81.40% Pervious Area
1,980		18.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	47	0.2500	0.24		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
3.3	47	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: Area #3



Summary for Subcatchment 4S: Area #2

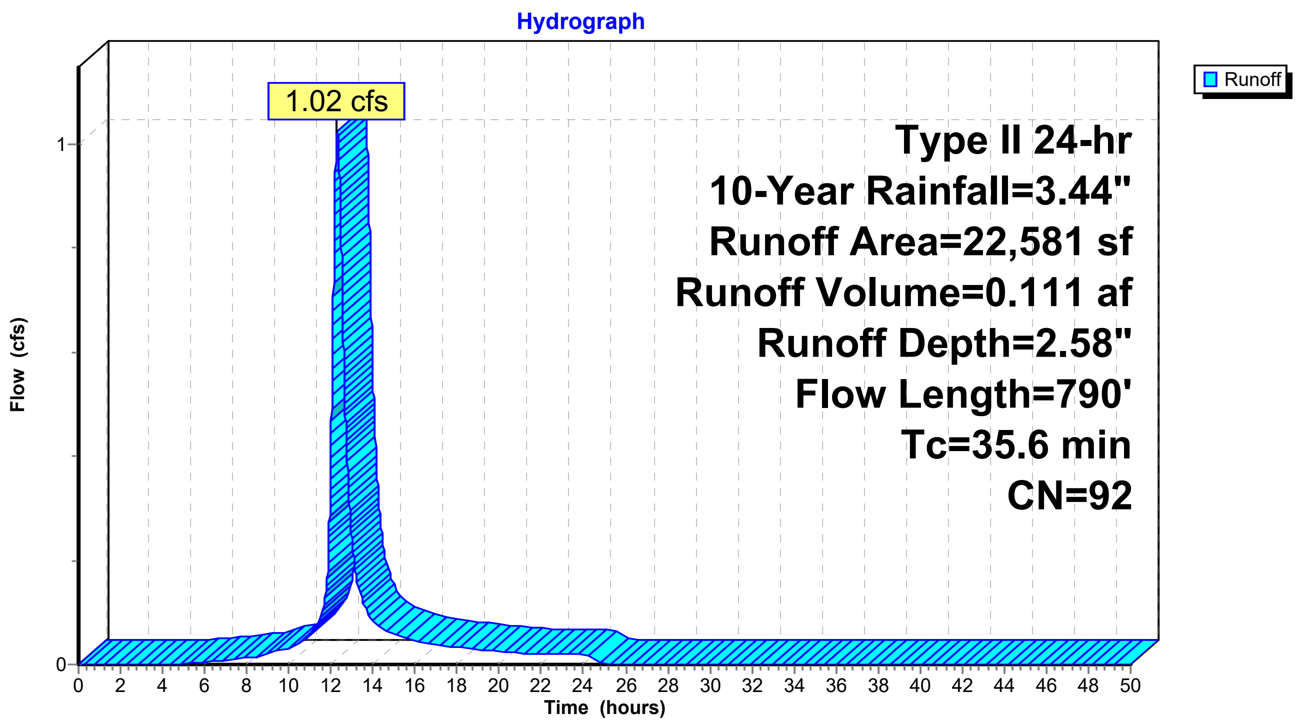
Runoff = 1.02 cfs @ 12.30 hrs, Volume= 0.111 af, Depth= 2.58"
Routed to Pond 5P : Bioretention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
15,153	98	Paved parking, HSG D
7,428	80	>75% Grass cover, Good, HSG D
22,581	92	Weighted Average
7,428		32.89% Pervious Area
15,153		67.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.7	150	0.0200	0.07		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
0.1	21	0.0200	2.87		**Shallow Concentrated Flow, Shallow concentrate** Paved Kv= 20.3 fps
0.8	619	0.0300	13.38	23.65	**Pipe Channel, storm pipe system** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
35.6	790	Total			

Subcatchment 4S: Area #2



Summary for Subcatchment 6S: Area #1

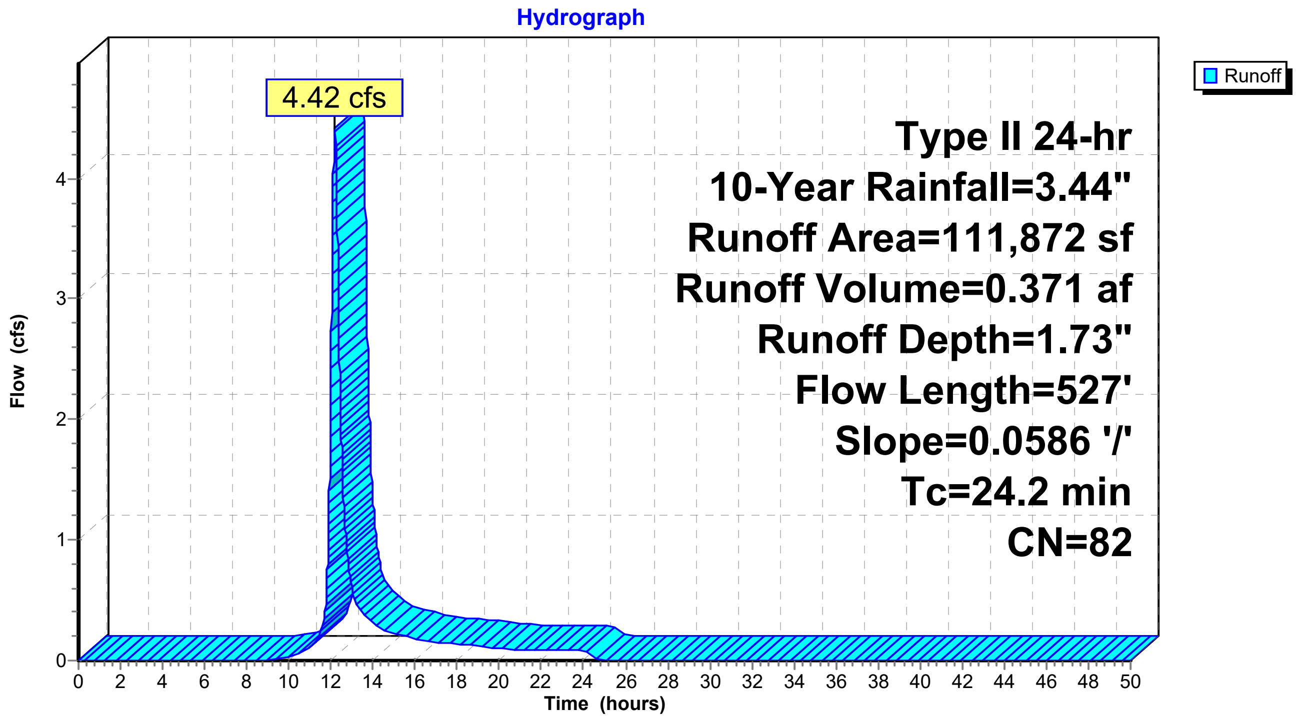
Runoff = 4.42 cfs @ 12.18 hrs, Volume= 0.371 af, Depth= 1.73"
Routed to Pond 1P : Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
15,686	98	Paved parking, HSG D
47,047	79	Woods, Fair, HSG D
49,139	80	>75% Grass cover, Good, HSG D
111,872	82	Weighted Average
96,186		85.98% Pervious Area
15,686		14.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6	150	0.0586	0.11		**Sheet Flow, sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
0.4	100	0.0586	3.90		**Shallow Concentrated Flow, Concentrated flow lawn** Unpaved Kv= 16.1 fps
0.5	117	0.0586	3.90		**Shallow Concentrated Flow, concetrated flow lawn** Unpaved Kv= 16.1 fps
0.1	24	0.0586	4.91		**Shallow Concentrated Flow, Shallow Concentrated driveway** Paved Kv= 20.3 fps
0.6	136	0.0586	3.90		**Shallow Concentrated Flow, Concentrated flow lawn** Unpaved Kv= 16.1 fps
24.2	527	Total			

Subcatchment 6S: Area #1



Summary for Subcatchment 10S: Area #4 (AP #3)

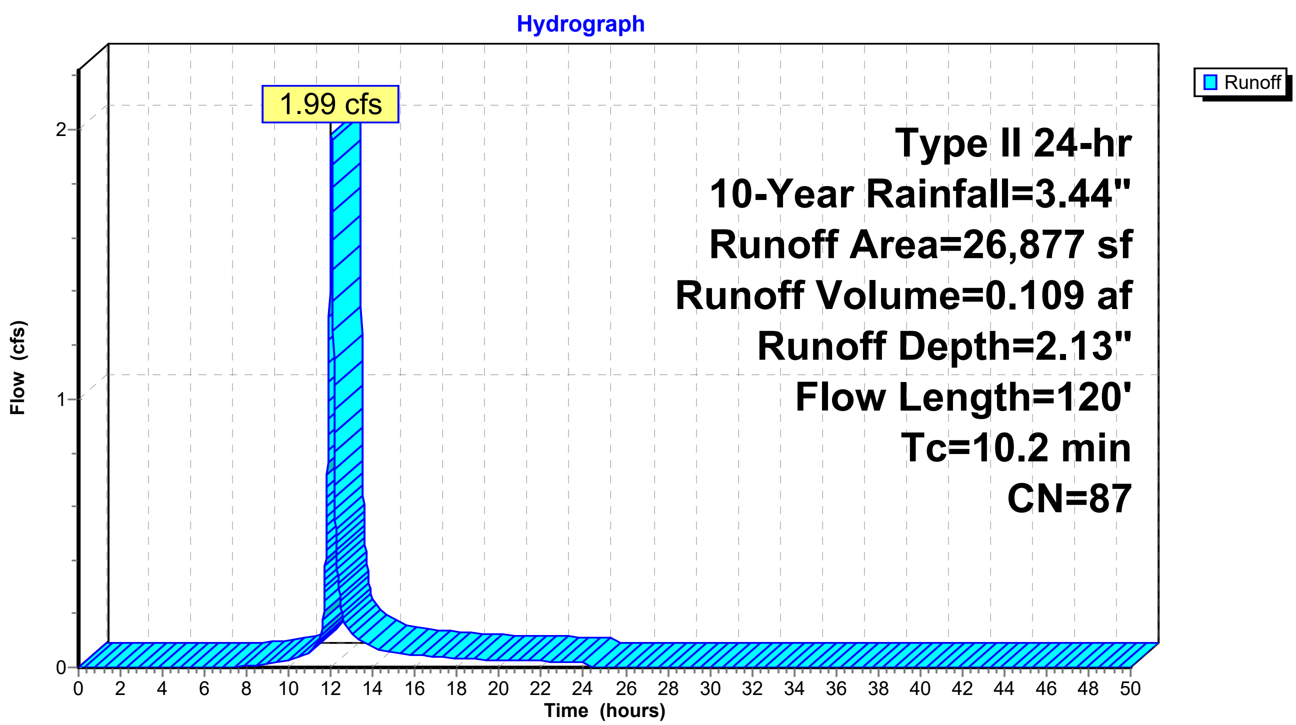
Runoff = 1.99 cfs @ 12.02 hrs, Volume= 0.109 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
16,379	80	>75% Grass cover, Good, HSG D
10,498	98	Paved parking, HSG D
26,877	87	Weighted Average
16,379		60.94% Pervious Area
10,498		39.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0700	0.16		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
0.1	20	0.1500	6.24		**Shallow Concentrated Flow, shallow concentrated** Unpaved Kv= 16.1 fps
10.2	120	Total			

Subcatchment 10S: Area #4 (AP #3)



Summary for Subcatchment 11S: Area #5 (AP #4)

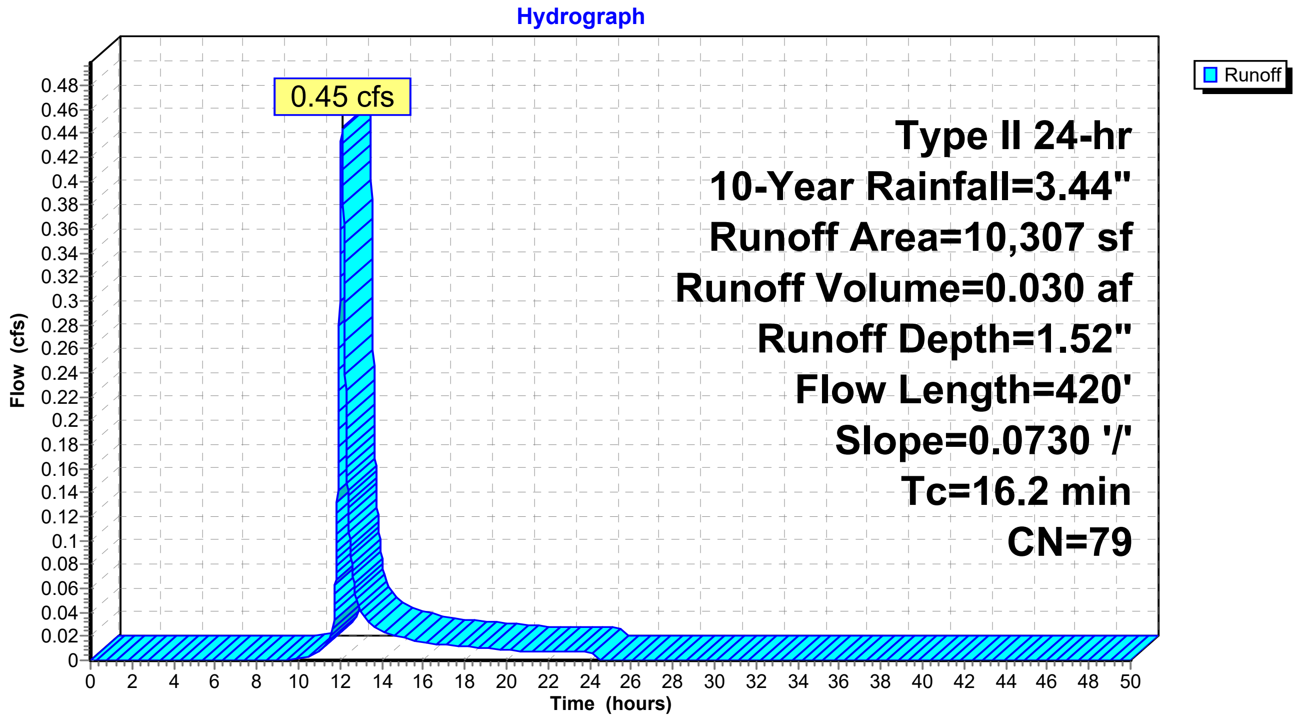
Runoff = 0.45 cfs @ 12.09 hrs, Volume= 0.030 af, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
3,347	80	>75% Grass cover, Good, HSG D
6,960	79	Woods, Fair, HSG D
10,307	79	Weighted Average
10,307		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100	0.0730	0.11		**Sheet Flow, sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
1.2	320	0.0730	4.35		**Shallow Concentrated Flow, Shallow Concentrated Flow** Unpaved Kv= 16.1 fps
16.2	420	Total			

Subcatchment 11S: Area #5 (AP #4)



Summary for Subcatchment 13S: Area 2B

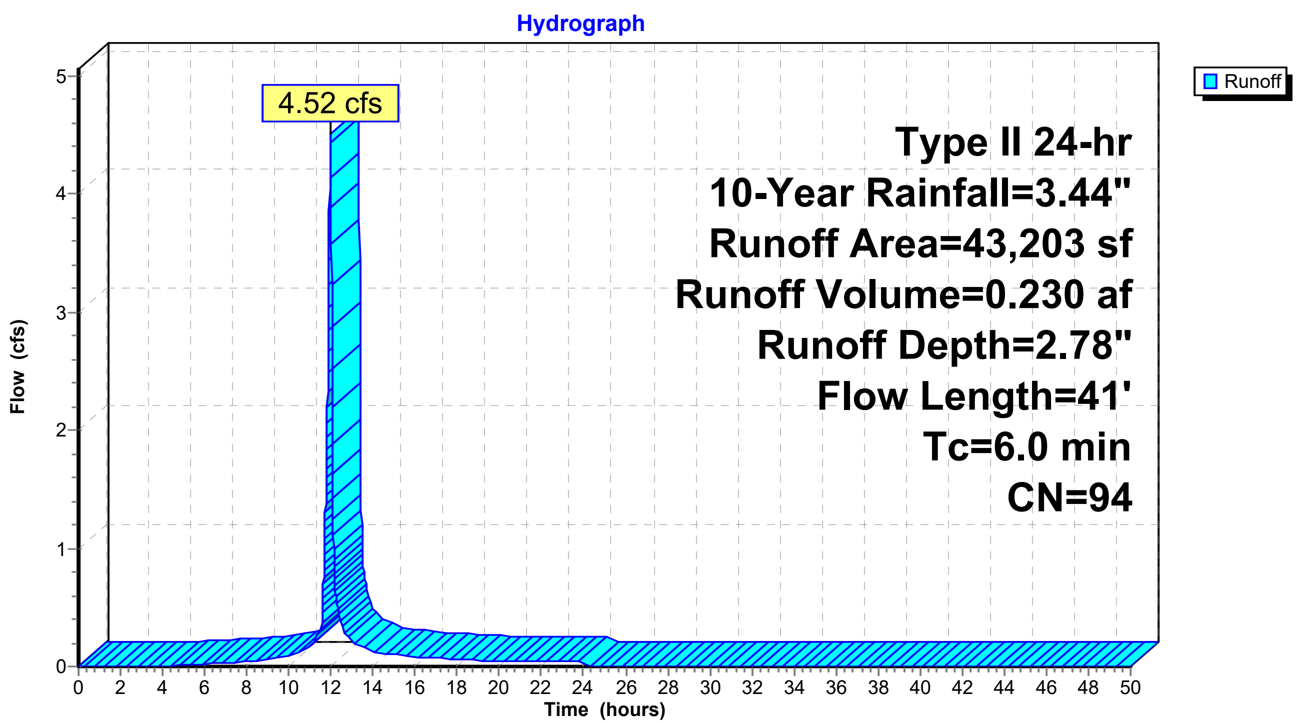
Runoff = 4.52 cfs @ 11.97 hrs, Volume= 0.230 af, Depth= 2.78"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
33,580	98	Paved parking, HSG D
9,623	80	>75% Grass cover, Good, HSG D
43,203	94	Weighted Average
9,623		22.27% Pervious Area
33,580		77.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	10	0.5000	0.33		**Sheet Flow, sheet flow** Grass: Short n= 0.150 P2= 2.34"
1.6	15	0.0667	0.16		**Sheet Flow, sheet flow lawn** Grass: Short n= 0.150 P2= 2.34"
1.4	16	0.2400	0.19		**Sheet Flow, detention pond slope** Grass: Dense n= 0.240 P2= 2.34"
3.5	41	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Area 2B



Summary for Subcatchment 14S: Area #7 (AP #2)

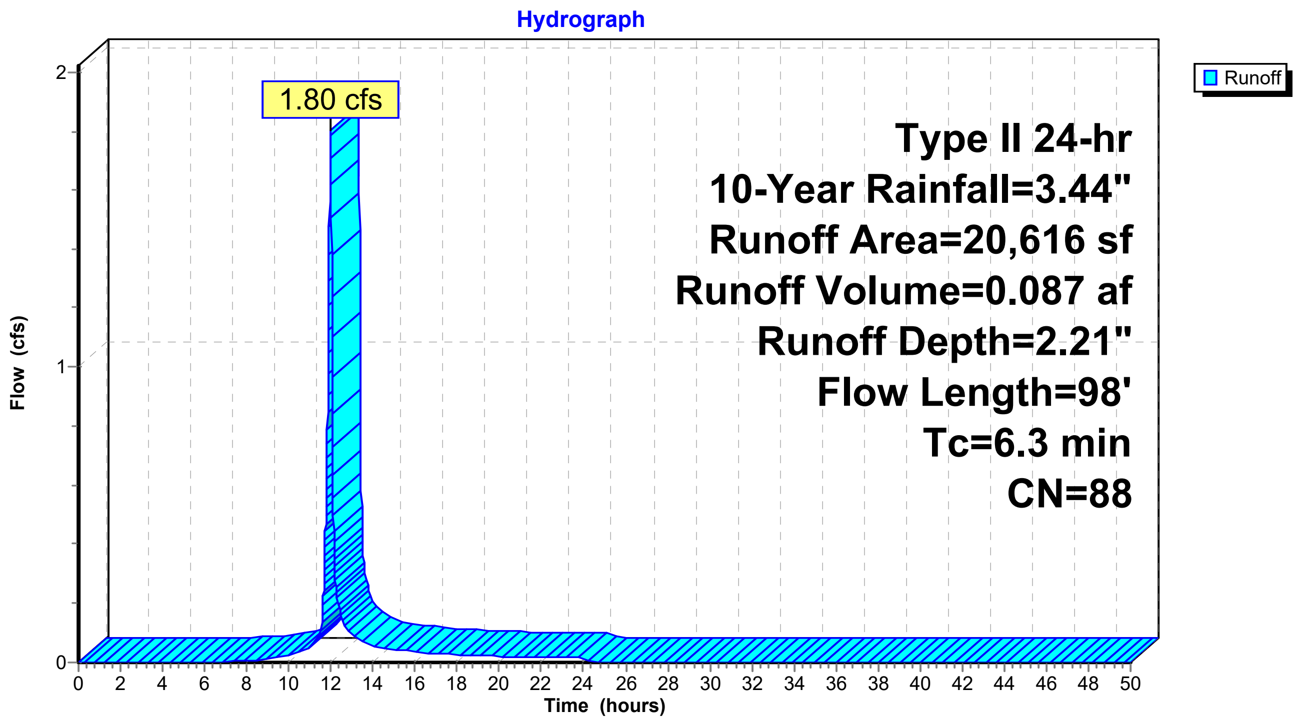
Runoff = 1.80 cfs @ 11.97 hrs, Volume= 0.087 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
8,749	98	Paved parking, HSG D
11,867	80	>75% Grass cover, Good, HSG D
20,616	88	Weighted Average
11,867		57.56% Pervious Area
8,749		42.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	34	0.0588	1.46		**Sheet Flow, impervious** Smooth surfaces n= 0.011 P2= 2.34"
5.9	64	0.1090	0.18		**Sheet Flow, sheet flow grass** Grass: Dense n= 0.240 P2= 2.34"
6.3	98	Total			

Subcatchment 14S: Area #7 (AP #2)



Summary for Subcatchment 15S: Area #6

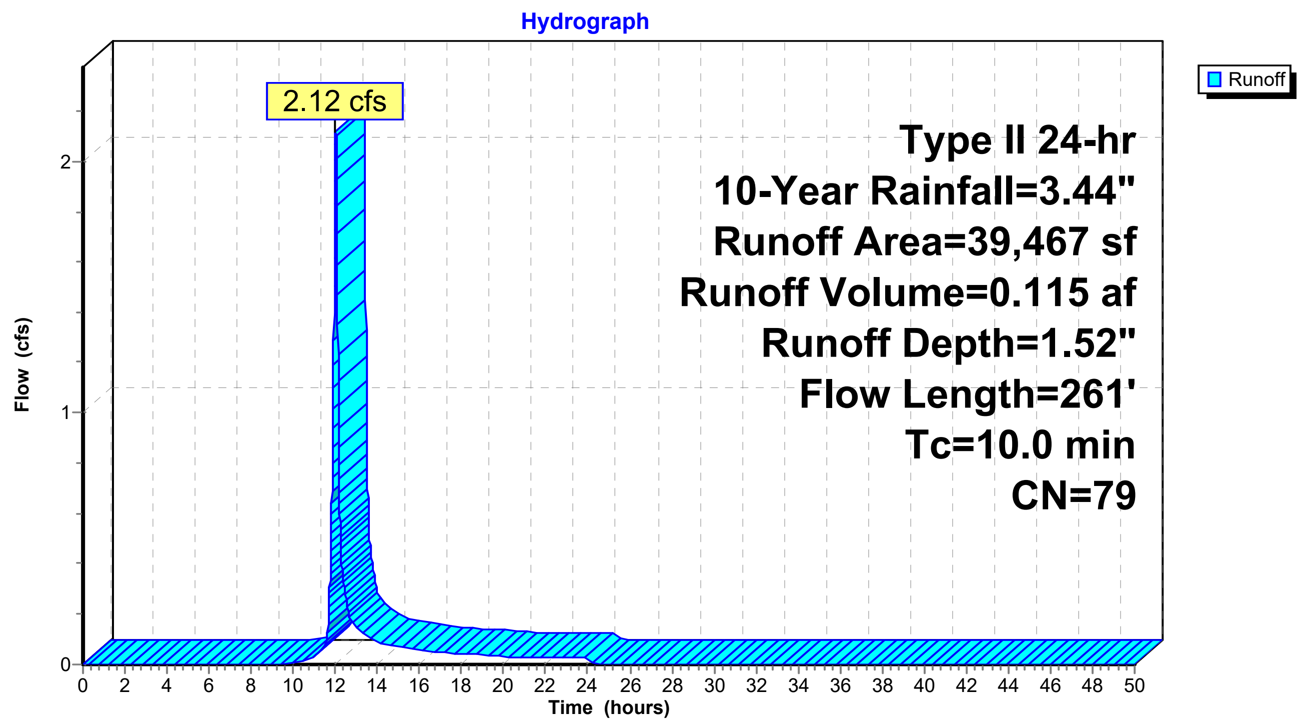
Runoff = 2.12 cfs @ 12.02 hrs, Volume= 0.115 af, Depth= 1.52"
Routed to Link 6L : Analysis Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
1,249	98	Paved parking, HSG D
24,099	80	>75% Grass cover, Good, HSG D
14,119	77	Woods, Good, HSG D
39,467	79	Weighted Average
38,218		96.84% Pervious Area
1,249		3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0925	0.18		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
0.7	64	0.0100	1.61		**Shallow Concentrated Flow, concentrated** Unpaved Kv= 16.1 fps
0.3	97	0.1600	6.44		**Shallow Concentrated Flow, concentrated** Unpaved Kv= 16.1 fps
10.0	261	Total			

Subcatchment 15S: Area #6



Summary for Subcatchment 16S: Area 2A

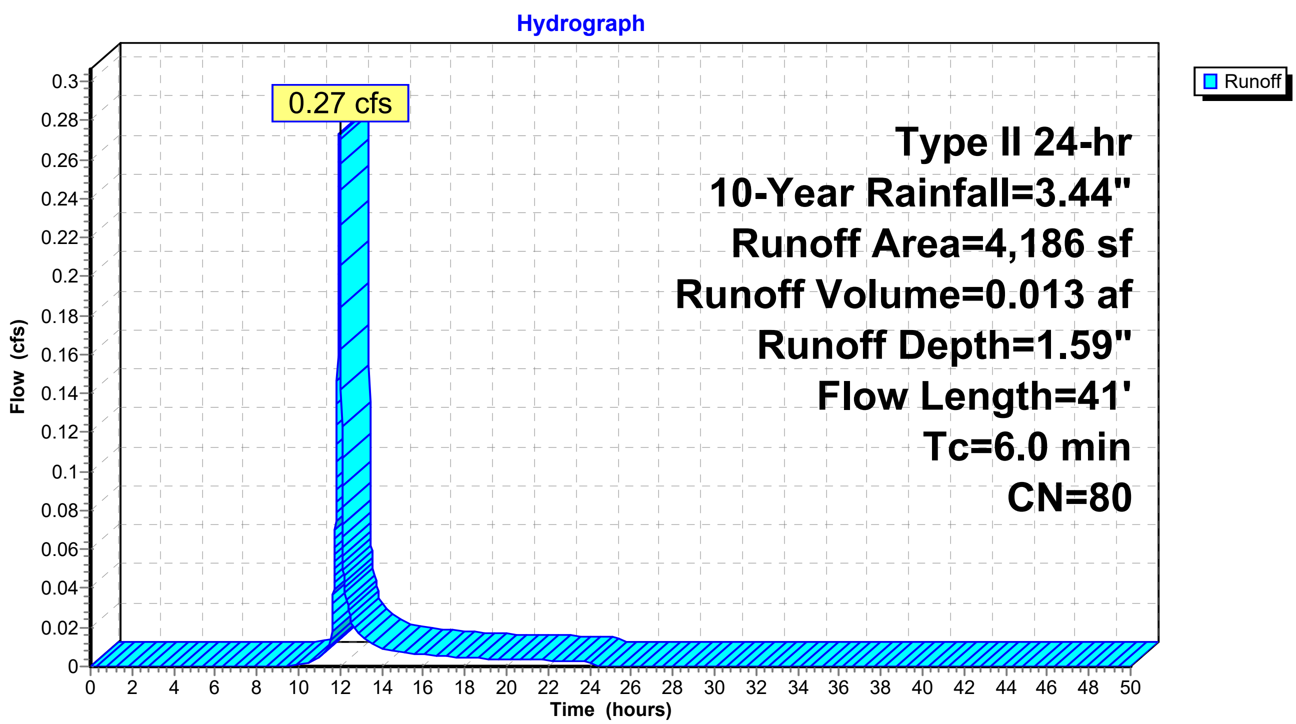
Runoff = 0.27 cfs @ 11.98 hrs, Volume= 0.013 af, Depth= 1.59"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.44"

Area (sf)	CN	Description
64	98	Paved parking, HSG D
4,122	80	>75% Grass cover, Good, HSG D
4,186	80	Weighted Average
4,122		98.47% Pervious Area
64		1.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	10	0.5000	0.33		**Sheet Flow, sheet flow** Grass: Short n= 0.150 P2= 2.34"
1.6	15	0.0667	0.16		**Sheet Flow, sheet flow lawn** Grass: Short n= 0.150 P2= 2.34"
1.4	16	0.2400	0.19		**Sheet Flow, detention pond slope** Grass: Dense n= 0.240 P2= 2.34"
3.5	41	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 16S: Area 2A



Summary for Pond 1P: Detention Pond

[79] Warning: Submerged Pond 5P Primary device # 1 INLET by 2.90'

Inflow Area = 3.087 ac, 22.94% Impervious, Inflow Depth = 1.78" for 10-Year event
Inflow = 5.23 cfs @ 12.20 hrs, Volume= 0.459 af
Outflow = 3.20 cfs @ 12.43 hrs, Volume= 0.459 af, Atten= 39%, Lag= 13.8 min
Primary = 3.20 cfs @ 12.43 hrs, Volume= 0.459 af
Routed to Pond 3P : Infiltration Basin

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,014.40' @ 12.43 hrs Surf.Area= 3,203 sf Storage= 6,919 cf

Plug-Flow detention time= 296.2 min calculated for 0.459 af (100% of inflow)
Center-of-Mass det. time= 296.2 min (1,146.5 - 850.3)

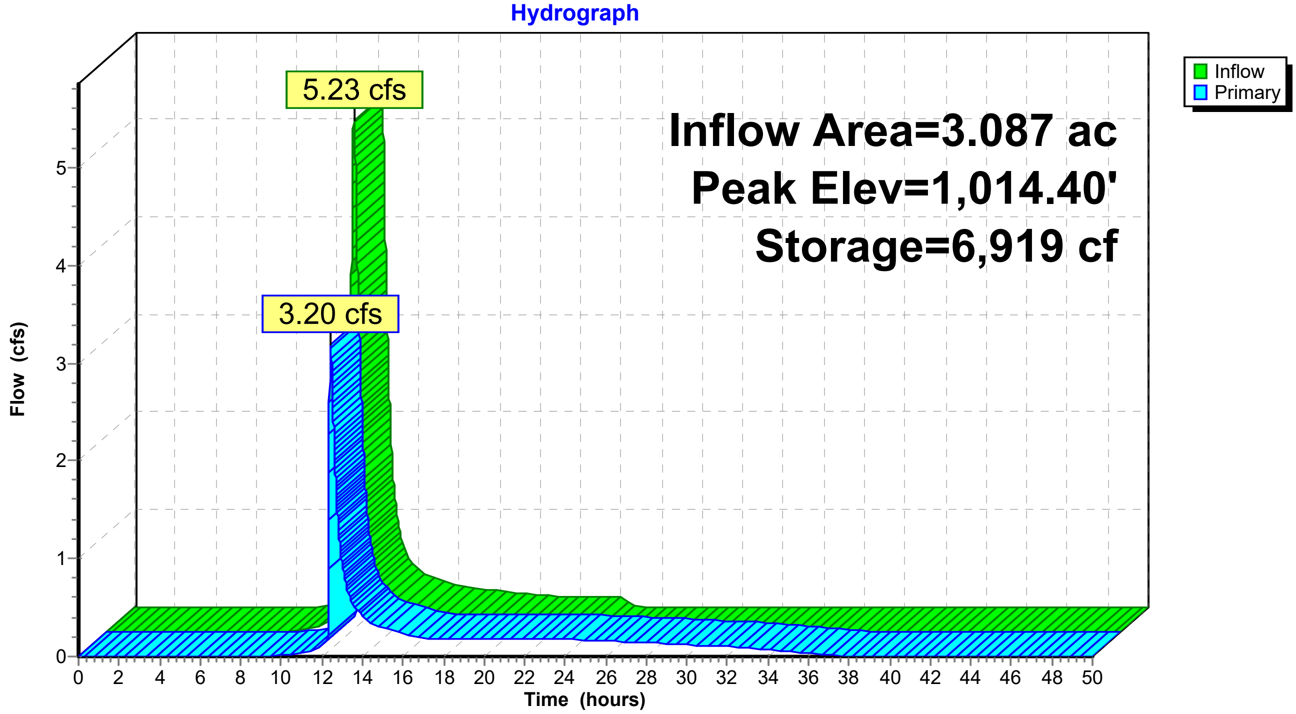
Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	12,988 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	721	0	0
1,012.00	1,632	1,177	1,177
1,013.00	2,239	1,936	3,112
1,014.00	2,909	2,574	5,686
1,015.00	3,637	3,273	8,959
1,016.00	4,421	4,029	12,988

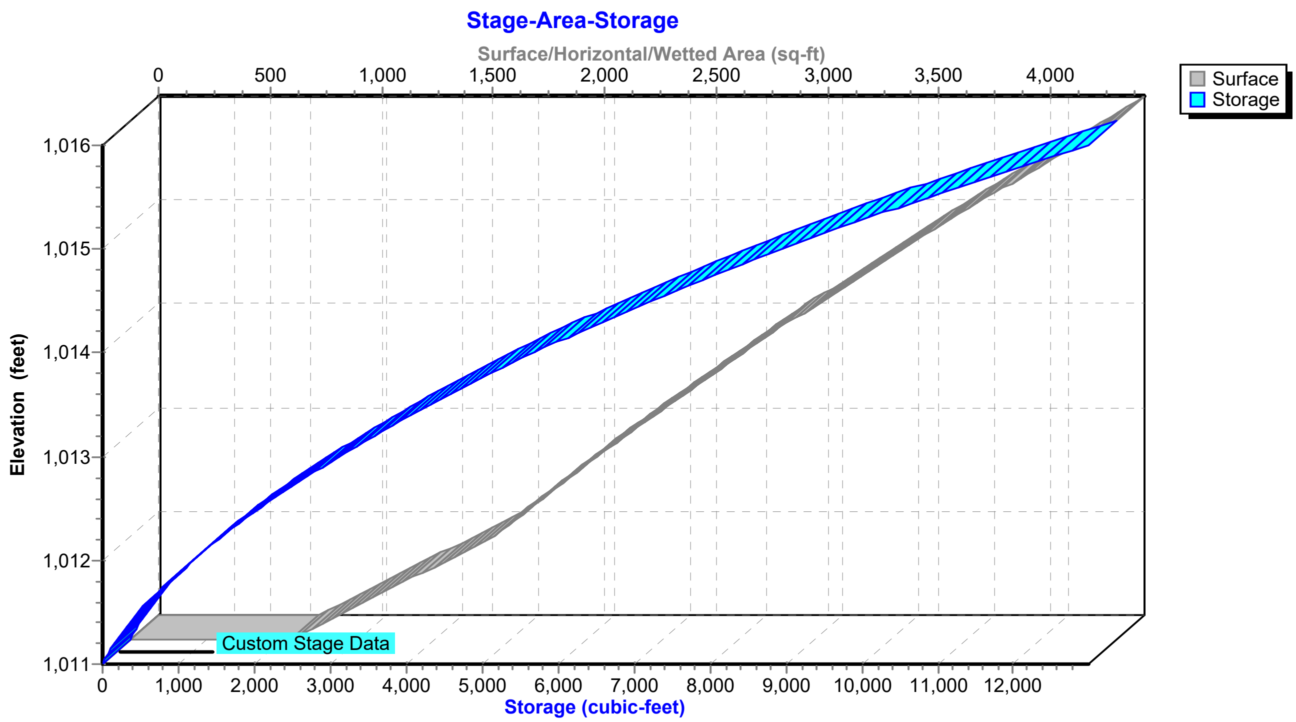
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	**18.0" Round Culvert** L= 42.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0238 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	1,011.00'	**2.0" Vert. Low Flow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,014.20'	**30.0" x 30.0" Horiz. High Flow** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.19 cfs @ 12.43 hrs HW=1,014.40' (Free Discharge)
└─**1=Culvert** (Passes 3.19 cfs of 12.23 cfs potential flow)
  ├─**2=Low Flow** (Orifice Controls 0.19 cfs @ 8.77 fps)
  └─**3=High Flow** (Weir Controls 3.00 cfs @ 1.48 fps)

Pond 1P: Detention Pond



Pond 1P: Detention Pond



Summary for Pond 3P: Infiltration Basin

[81] Warning: Exceeded Pond 1P by 0.96' @ 37.45 hrs

Inflow Area = 4.419 ac, 34.53% Impervious, Inflow Depth = 2.00" for 10-Year event
Inflow = 5.68 cfs @ 11.97 hrs, Volume= 0.738 af
Outflow = 1.18 cfs @ 13.03 hrs, Volume= 0.660 af, Atten= 79%, Lag= 63.7 min
Discarded = 0.07 cfs @ 13.03 hrs, Volume= 0.119 af
Primary = 1.11 cfs @ 13.03 hrs, Volume= 0.541 af
Routed to Link 6L : Analysis Point #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 6L : Analysis Point #1

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,013.62' @ 13.03 hrs Surf.Area= 4,080 sf Storage= 10,238 cf

Plug-Flow detention time= 284.1 min calculated for 0.660 af (89% of inflow)
Center-of-Mass det. time= 183.8 min (1,195.4 - 1,011.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	22,225 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,010.00	1,701	0	0	1,701
1,011.00	2,285	1,986	1,986	2,306
1,012.00	2,924	2,598	4,584	2,970
1,013.00	3,621	3,266	7,850	3,696
1,014.00	4,374	3,992	11,842	4,481
1,015.00	5,183	4,773	16,614	5,327
1,016.00	6,049	5,610	22,225	6,232

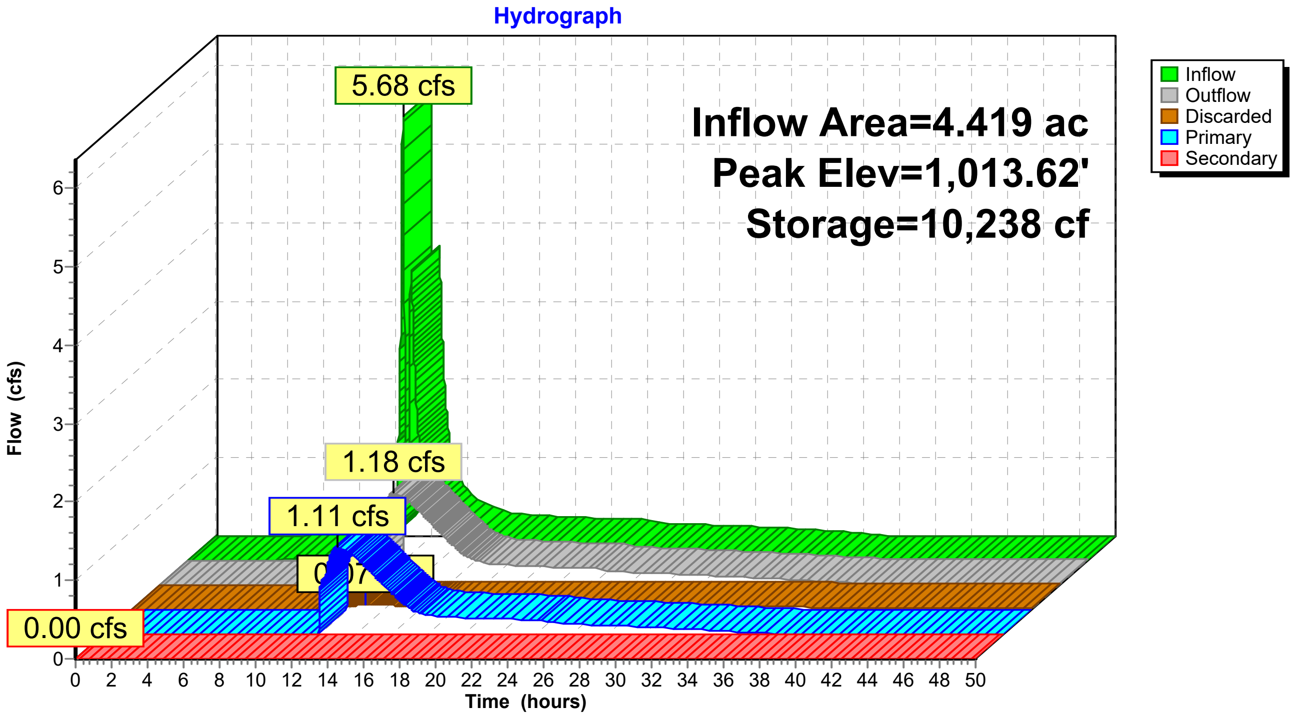
Device	Routing	Invert	Outlet Devices
#1	Primary	1,005.70'	**24.0" Round Culvert** L= 30.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,005.70' / 1,003.00' S= 0.0900 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	1,012.00'	**6.0" Vert. Intermediate Flow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,013.70'	**24.0" x 24.0" Horiz. High Flow** C= 0.600 Limited to weir flow at low heads
#4	Secondary	1,014.30'	**Emergency Spillway, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 15.00 21.00
#5	Discarded	1,010.00'	**1.000 in/hr Exfiltration over Surface area from 1,010.00' - 1,016.00'** Conductivity to Groundwater Elevation = 1,005.00' Excluded Surface area = 1,701 sf

Discarded OutFlow Max=0.07 cfs @ 13.03 hrs HW=1,013.62' (Free Discharge)
└─**5=Exfiltration** (Controls 0.07 cfs)

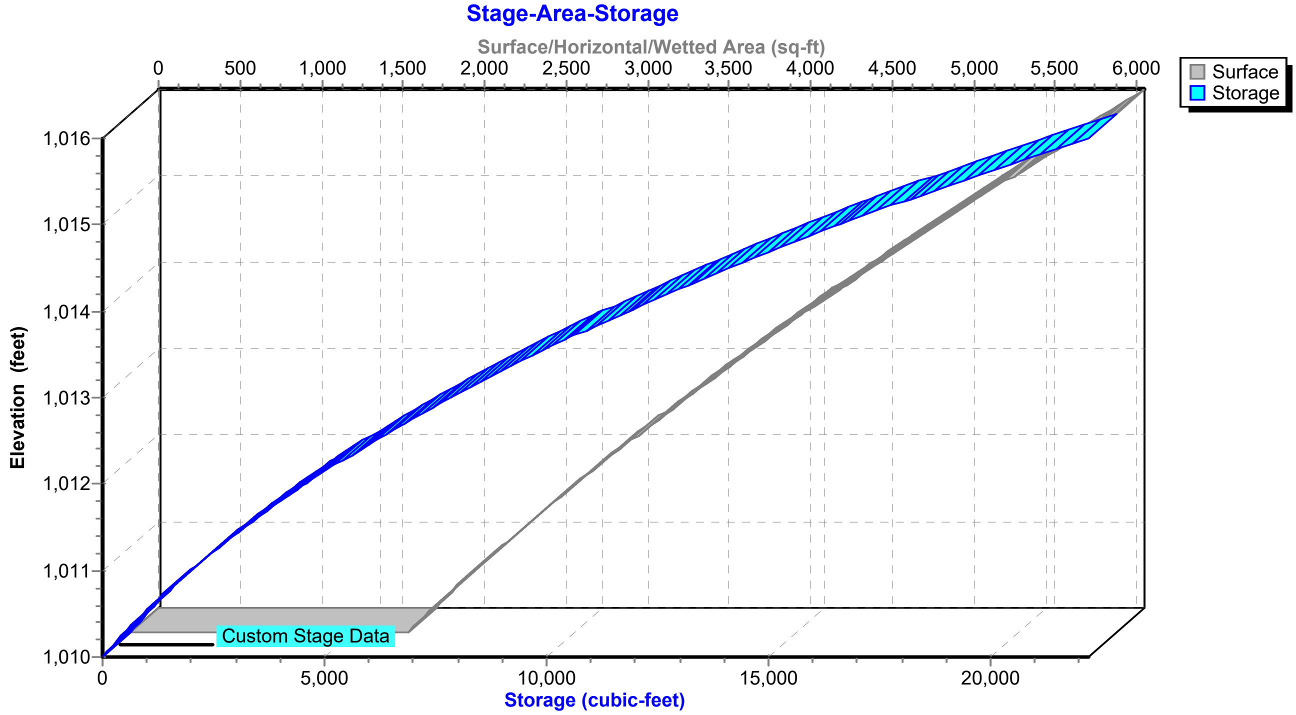
Primary OutFlow Max=1.11 cfs @ 13.03 hrs HW=1,013.62' (Free Discharge)
└─**1=Culvert** (Passes 1.11 cfs of 39.79 cfs potential flow)
  ├─**2=Intermediate Flow** (Orifice Controls 1.11 cfs @ 5.64 fps)
  └─**3=High Flow** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,010.00' (Free Discharge)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond 3P: Infiltration Basin



Pond 3P: Infiltration Basin



Summary for Pond 5P: Bioretention Basin

Inflow Area = 0.518 ac, 67.11% Impervious, Inflow Depth = 2.58" for 10-Year event
Inflow = 1.02 cfs @ 12.30 hrs, Volume= 0.111 af
Outflow = 1.02 cfs @ 12.32 hrs, Volume= 0.088 af, Atten= 1%, Lag= 1.0 min
Primary = 1.02 cfs @ 12.32 hrs, Volume= 0.088 af
Routed to Pond 1P : Detention Pond

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,015.58' @ 12.32 hrs Surf.Area= 1,270 sf Storage= 1,118 cf

Plug-Flow detention time= 129.3 min calculated for 0.088 af (79% of inflow)
Center-of-Mass det. time= 47.0 min (866.5 - 819.5)

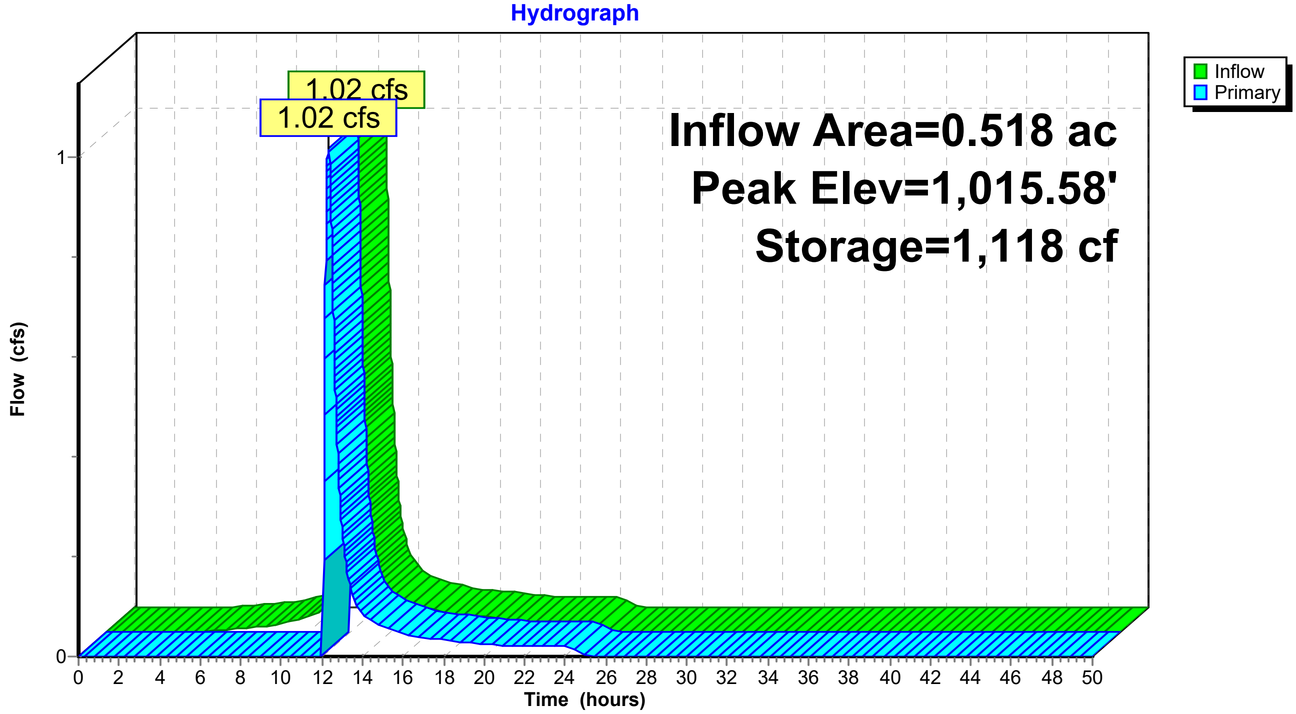
Volume	Invert	Avail.Storage	Storage Description
#1	1,014.50'	1,684 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,014.50	804	0	0
1,015.00	1,007	453	453
1,016.00	1,456	1,232	1,684

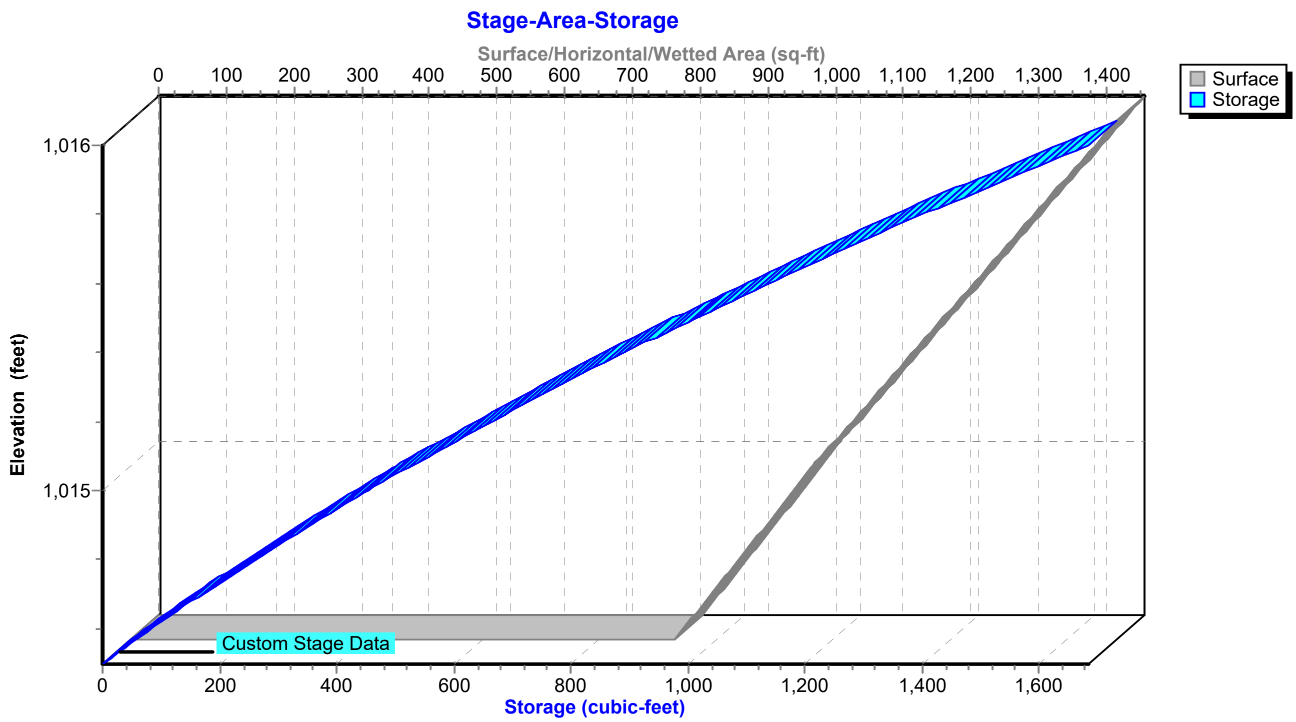
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.50'	**12.0" Round Culvert** L= 27.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,011.50' / 1,011.00' S= 0.0185 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	1,015.50'	**24.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.02 cfs @ 12.32 hrs HW=1,015.58' (Free Discharge)
1=Culvert (Passes 1.02 cfs of 7.16 cfs potential flow)
2=Orifice/Grate (Weir Controls 1.02 cfs @ 0.95 fps)

Pond 5P: Bioretention Basin



Pond 5P: Bioretention Basin

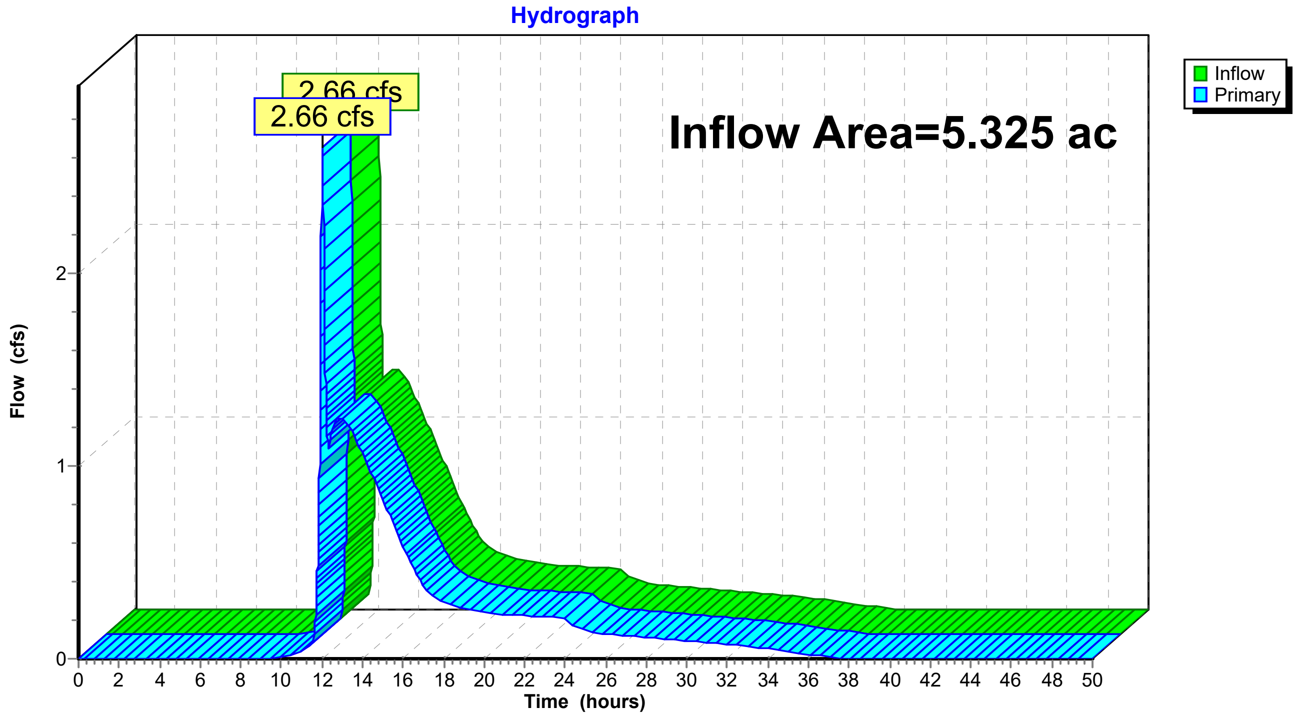


Summary for Link 6L: Analysis Point #1

Inflow Area =	5.325 ac,	29.19% Impervious,	Inflow Depth = 1.48"	for 10-Year event
Inflow =	2.66 cfs @	12.03 hrs, Volume=	0.656 af	
Primary =	2.66 cfs @	12.03 hrs, Volume=	0.656 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link 6L: Analysis Point #1



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Area #3 Runoff Area=10,645 sf 18.60% Impervious Runoff Depth=4.04"
Flow Length=47' Slope=0.2500 '/' Tc=6.0 min CN=83 Runoff=1.70 cfs 0.082 af

Subcatchment 4S: Area #2 Runoff Area=22,581 sf 67.11% Impervious Runoff Depth=5.02"
Flow Length=790' Tc=35.6 min CN=92 Runoff=1.94 cfs 0.217 af

Subcatchment 6S: Area #1 Runoff Area=111,872 sf 14.02% Impervious Runoff Depth=3.94"
Flow Length=527' Slope=0.0586 '/' Tc=24.2 min CN=82 Runoff=10.03 cfs 0.843 af

Subcatchment 10S: Area #4 (AP #3) Runoff Area=26,877 sf 39.06% Impervious Runoff Depth=4.47"
Flow Length=120' Tc=10.2 min CN=87 Runoff=4.03 cfs 0.230 af

Subcatchment 11S: Area #5 (AP #4) Runoff Area=10,307 sf 0.00% Impervious Runoff Depth=3.64"
Flow Length=420' Slope=0.0730 '/' Tc=16.2 min CN=79 Runoff=1.07 cfs 0.072 af

Subcatchment 13S: Area 2B Runoff Area=43,203 sf 77.73% Impervious Runoff Depth=5.25"
Flow Length=41' Tc=6.0 min CN=94 Runoff=8.19 cfs 0.434 af

Subcatchment 14S: Area #7 (AP #2) Runoff Area=20,616 sf 42.44% Impervious Runoff Depth=4.58"
Flow Length=98' Tc=6.3 min CN=88 Runoff=3.58 cfs 0.181 af

Subcatchment 15S: Area #6 Runoff Area=39,467 sf 3.16% Impervious Runoff Depth=3.64"
Flow Length=261' Tc=10.0 min CN=79 Runoff=5.02 cfs 0.274 af

Subcatchment 16S: Area 2A Runoff Area=4,186 sf 1.53% Impervious Runoff Depth=3.74"
Flow Length=41' Tc=6.0 min CN=80 Runoff=0.63 cfs 0.030 af

Pond 1P: Detention Pond Peak Elev=1,014.69' Storage=7,872 cf Inflow=11.65 cfs 1.037 af
Outflow=11.47 cfs 1.037 af

Pond 3P: Infiltration Basin Peak Elev=1,014.27' Storage=13,046 cf Inflow=12.90 cfs 1.583 af
Discarded=0.09 cfs 0.134 af Primary=12.57 cfs 1.366 af Secondary=0.00 cfs 0.000 af Outflow=12.66 cfs 1.500 af

Pond 5P: Bioretention Basin Peak Elev=1,015.63' Storage=1,176 cf Inflow=1.94 cfs 0.217 af
Outflow=1.93 cfs 0.194 af

Link 6L: Analysis Point #1 Inflow=13.80 cfs 1.641 af
Primary=13.80 cfs 1.641 af

Total Runoff Area = 6.652 ac Runoff Volume = 2.363 af Average Runoff Depth = 4.26"
69.99% Pervious = 4.656 ac 30.01% Impervious = 1.996 ac

Summary for Subcatchment 2S: Area #3

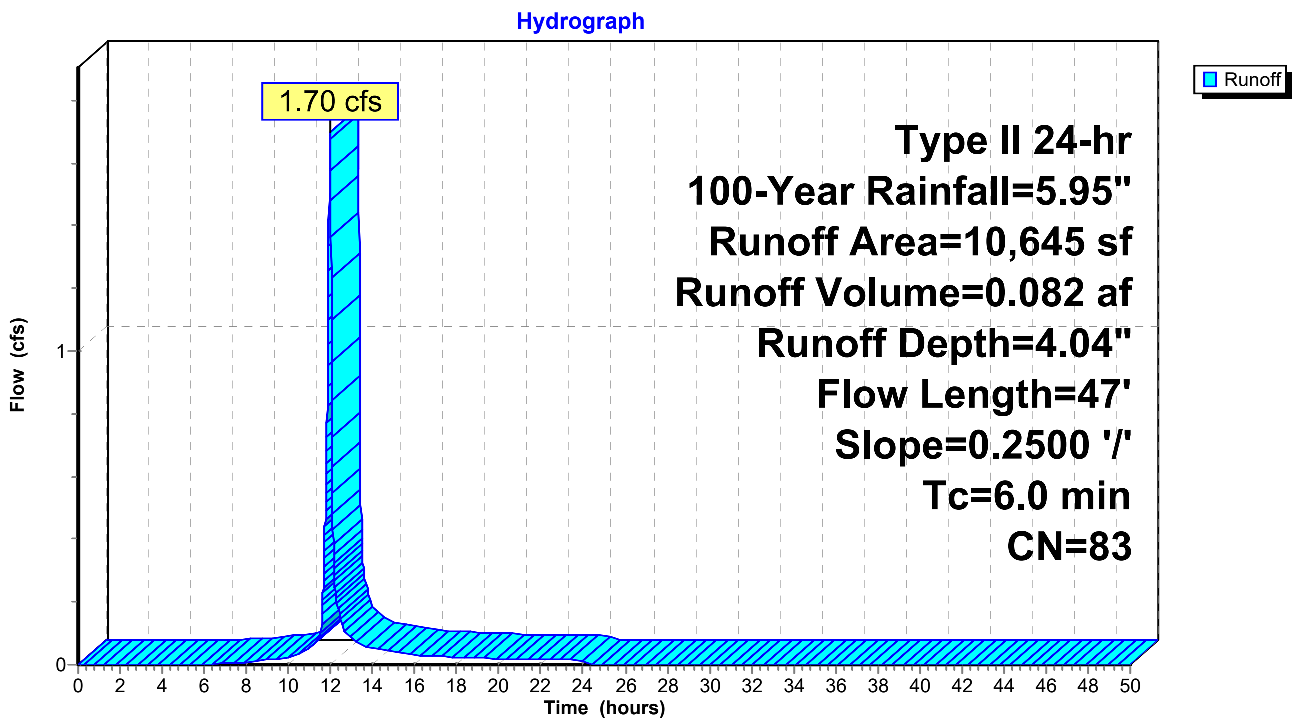
Runoff = 1.70 cfs @ 11.97 hrs, Volume= 0.082 af, Depth= 4.04"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
1,980	98	Paved parking, HSG D
8,665	80	>75% Grass cover, Good, HSG D
10,645	83	Weighted Average
8,665		81.40% Pervious Area
1,980		18.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	47	0.2500	0.24		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
3.3	47	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: Area #3



Summary for Subcatchment 4S: Area #2

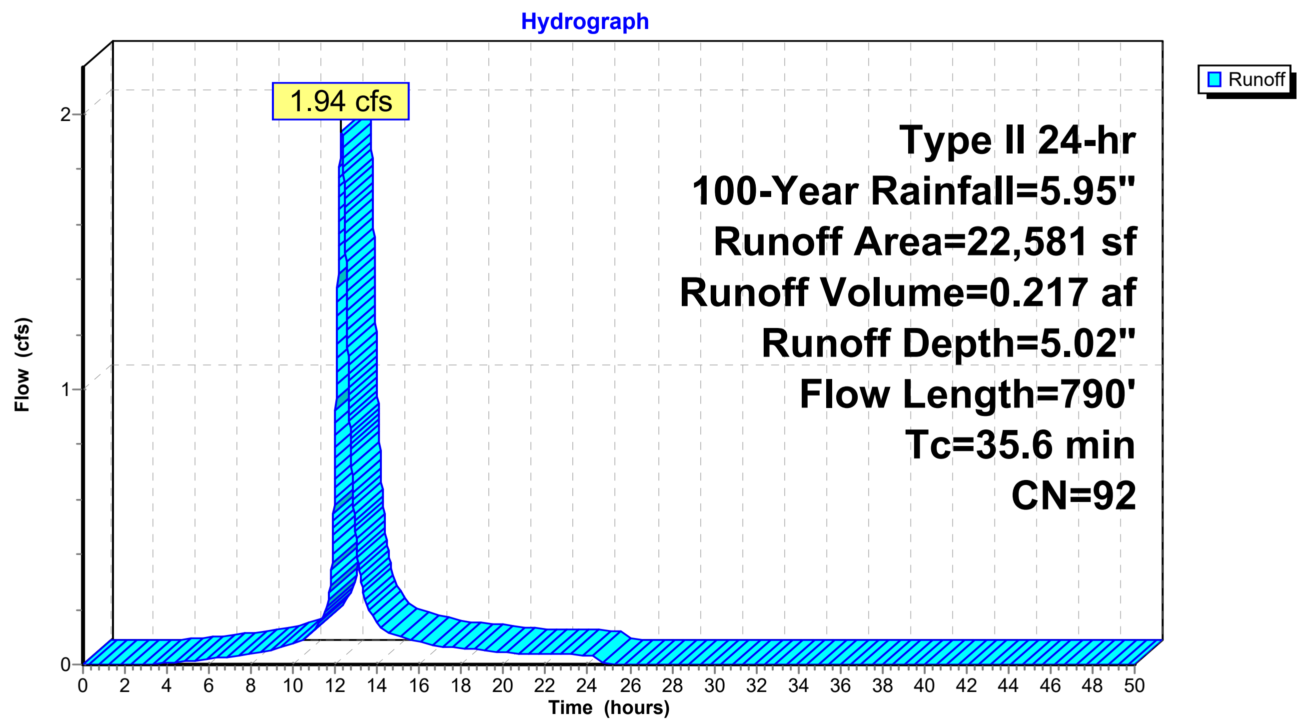
Runoff = 1.94 cfs @ 12.30 hrs, Volume= 0.217 af, Depth= 5.02"
Routed to Pond 5P : Bioretention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
15,153	98	Paved parking, HSG D
7,428	80	>75% Grass cover, Good, HSG D
22,581	92	Weighted Average
7,428		32.89% Pervious Area
15,153		67.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.7	150	0.0200	0.07		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
0.1	21	0.0200	2.87		**Shallow Concentrated Flow, Shallow concentrate** Paved Kv= 20.3 fps
0.8	619	0.0300	13.38	23.65	**Pipe Channel, storm pipe system** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
35.6	790	Total			

Subcatchment 4S: Area #2



Summary for Subcatchment 6S: Area #1

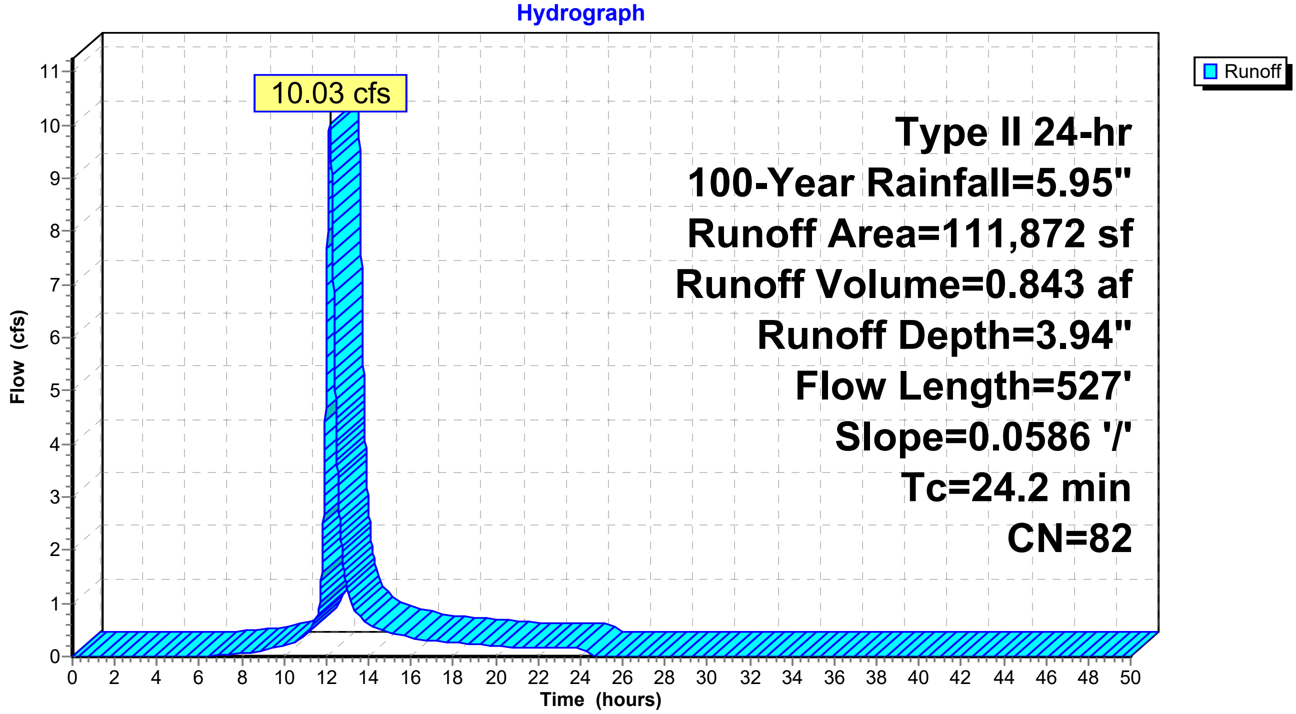
Runoff = 10.03 cfs @ 12.18 hrs, Volume= 0.843 af, Depth= 3.94"
Routed to Pond 1P : Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
15,686	98	Paved parking, HSG D
47,047	79	Woods, Fair, HSG D
49,139	80	>75% Grass cover, Good, HSG D
111,872	82	Weighted Average
96,186		85.98% Pervious Area
15,686		14.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6	150	0.0586	0.11		**Sheet Flow, sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
0.4	100	0.0586	3.90		**Shallow Concentrated Flow, Concentrated flow lawn** Unpaved Kv= 16.1 fps
0.5	117	0.0586	3.90		**Shallow Concentrated Flow, concetrated flow lawn** Unpaved Kv= 16.1 fps
0.1	24	0.0586	4.91		**Shallow Concentrated Flow, Shallow Concentrated driveway** Paved Kv= 20.3 fps
0.6	136	0.0586	3.90		**Shallow Concentrated Flow, Concentrated flow lawn** Unpaved Kv= 16.1 fps
24.2	527	Total			

Subcatchment 6S: Area #1



Summary for Subcatchment 10S: Area #4 (AP #3)

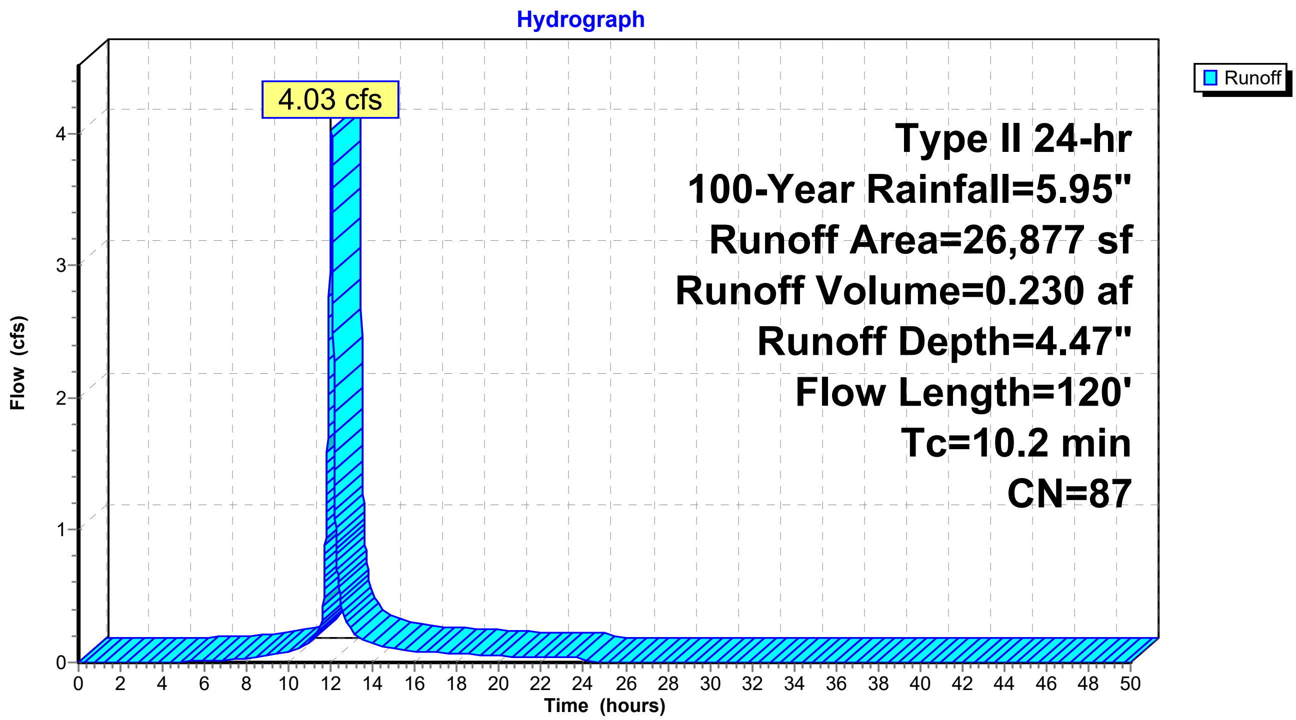
Runoff = 4.03 cfs @ 12.02 hrs, Volume= 0.230 af, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
16,379	80	>75% Grass cover, Good, HSG D
10,498	98	Paved parking, HSG D
26,877	87	Weighted Average
16,379		60.94% Pervious Area
10,498		39.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0700	0.16		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
0.1	20	0.1500	6.24		**Shallow Concentrated Flow, shallow concentrated** Unpaved Kv= 16.1 fps
10.2	120	Total			

Subcatchment 10S: Area #4 (AP #3)



Summary for Subcatchment 11S: Area #5 (AP #4)

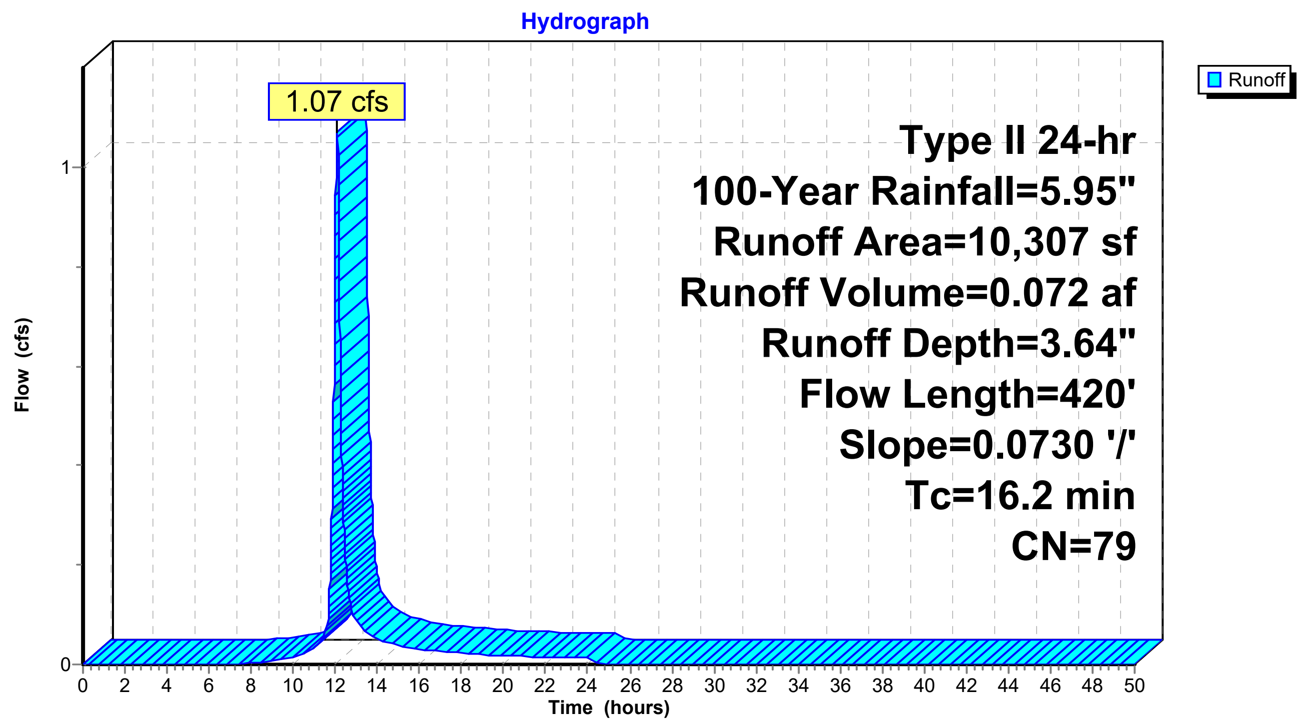
Runoff = 1.07 cfs @ 12.08 hrs, Volume= 0.072 af, Depth= 3.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
3,347	80	>75% Grass cover, Good, HSG D
6,960	79	Woods, Fair, HSG D
10,307	79	Weighted Average
10,307		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100	0.0730	0.11		**Sheet Flow, sheet flow** Woods: Light underbrush n= 0.400 P2= 2.34"
1.2	320	0.0730	4.35		**Shallow Concentrated Flow, Shallow Concentrated Flow** Unpaved Kv= 16.1 fps
16.2	420	Total			

Subcatchment 11S: Area #5 (AP #4)



Summary for Subcatchment 13S: Area 2B

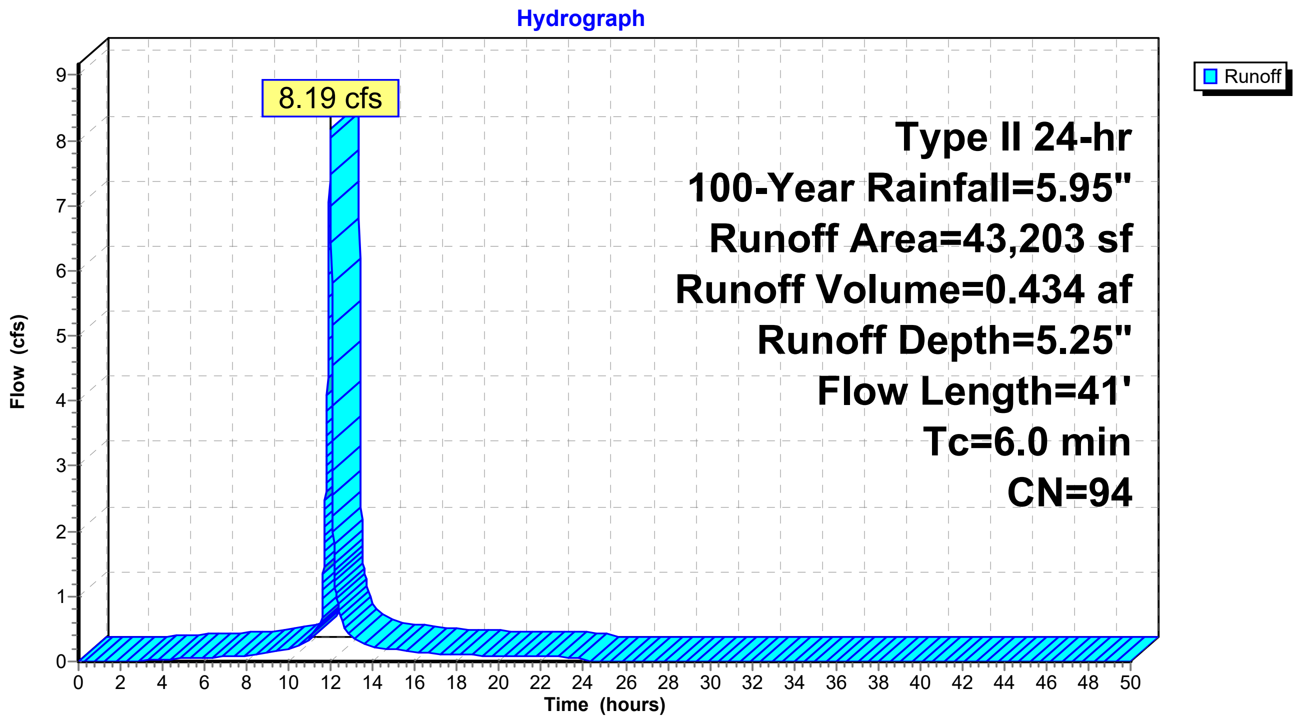
Runoff = 8.19 cfs @ 11.97 hrs, Volume= 0.434 af, Depth= 5.25"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
33,580	98	Paved parking, HSG D
9,623	80	>75% Grass cover, Good, HSG D
43,203	94	Weighted Average
9,623		22.27% Pervious Area
33,580		77.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	10	0.5000	0.33		**Sheet Flow, sheet flow** Grass: Short n= 0.150 P2= 2.34"
1.6	15	0.0667	0.16		**Sheet Flow, sheet flow lawn** Grass: Short n= 0.150 P2= 2.34"
1.4	16	0.2400	0.19		**Sheet Flow, detention pond slope** Grass: Dense n= 0.240 P2= 2.34"
3.5	41	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Area 2B



Summary for Subcatchment 14S: Area #7 (AP #2)

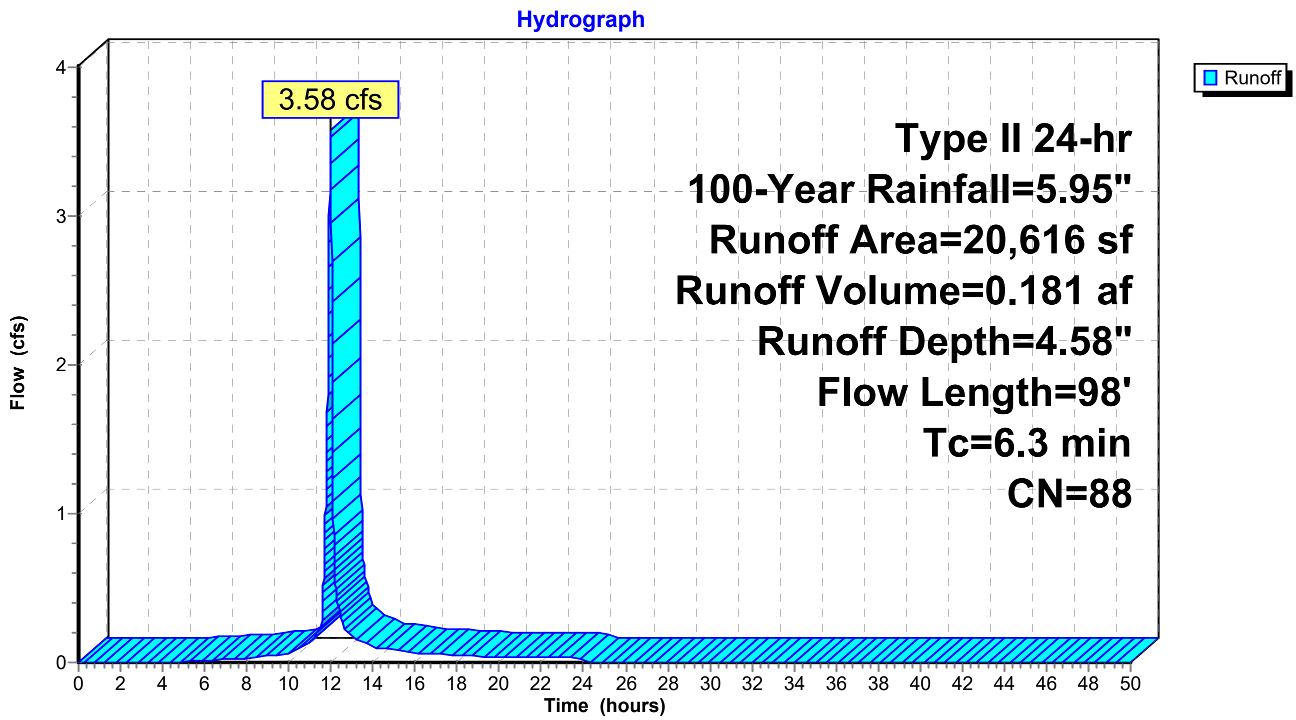
Runoff = 3.58 cfs @ 11.97 hrs, Volume= 0.181 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
8,749	98	Paved parking, HSG D
11,867	80	>75% Grass cover, Good, HSG D
20,616	88	Weighted Average
11,867		57.56% Pervious Area
8,749		42.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	34	0.0588	1.46		**Sheet Flow, impervious** Smooth surfaces n= 0.011 P2= 2.34"
5.9	64	0.1090	0.18		**Sheet Flow, sheet flow grass** Grass: Dense n= 0.240 P2= 2.34"
6.3	98	Total			

Subcatchment 14S: Area #7 (AP #2)



Summary for Subcatchment 15S: Area #6

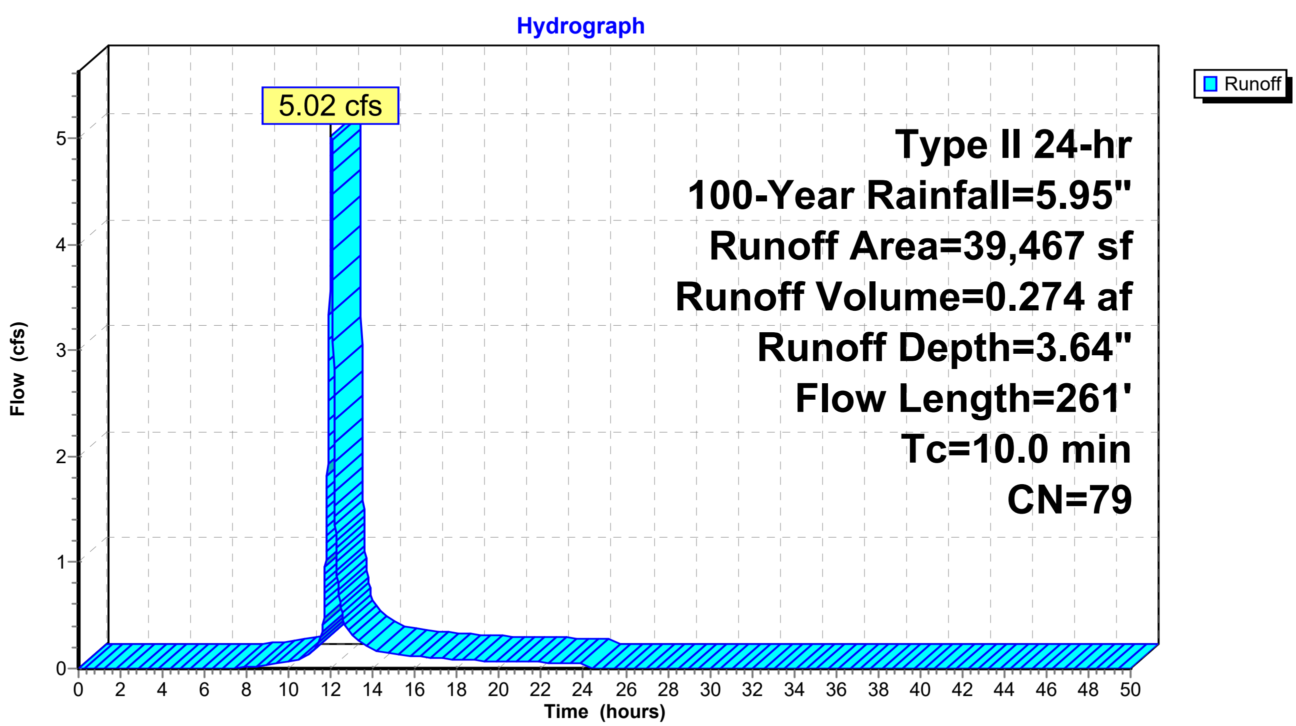
Runoff = 5.02 cfs @ 12.01 hrs, Volume= 0.274 af, Depth= 3.64"
Routed to Link 6L : Analysis Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
1,249	98	Paved parking, HSG D
24,099	80	>75% Grass cover, Good, HSG D
14,119	77	Woods, Good, HSG D
39,467	79	Weighted Average
38,218		96.84% Pervious Area
1,249		3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0925	0.18		**Sheet Flow, sheet flow** Grass: Dense n= 0.240 P2= 2.34"
0.7	64	0.0100	1.61		**Shallow Concentrated Flow, concentrated** Unpaved Kv= 16.1 fps
0.3	97	0.1600	6.44		**Shallow Concentrated Flow, concentrated** Unpaved Kv= 16.1 fps
10.0	261	Total			

Subcatchment 15S: Area #6



Summary for Subcatchment 16S: Area 2A

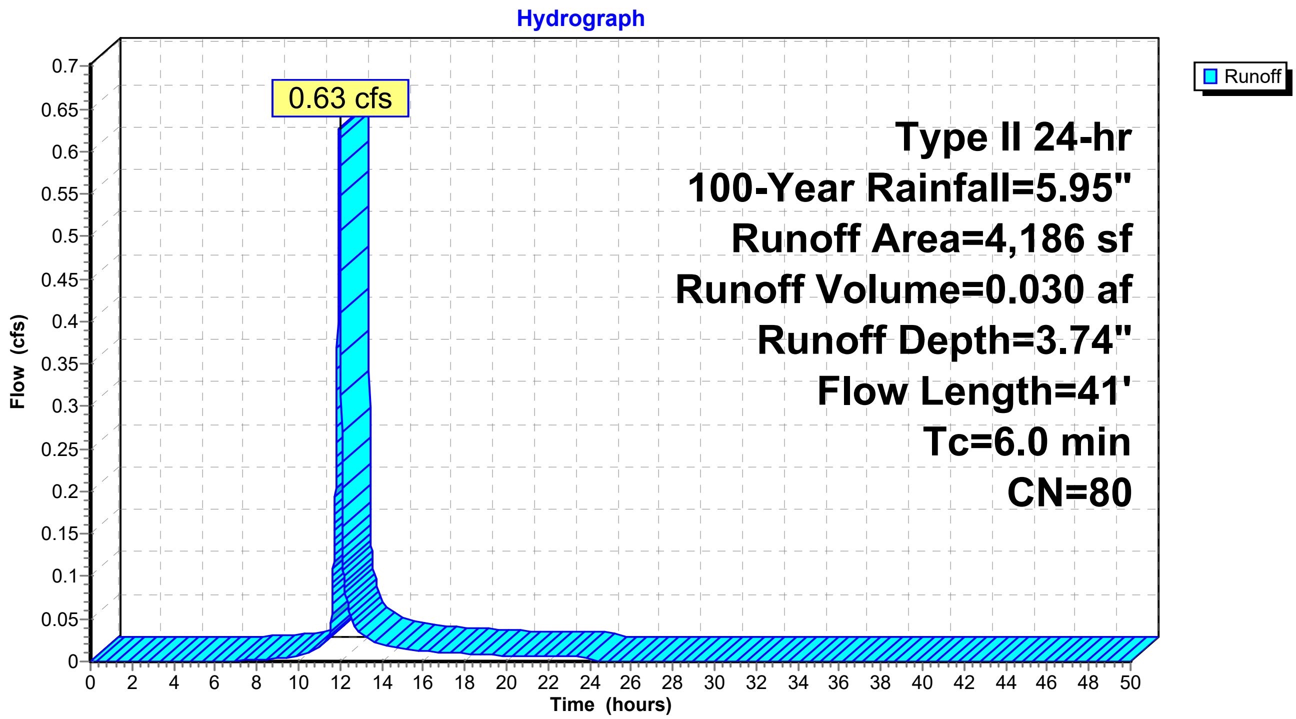
Runoff = 0.63 cfs @ 11.97 hrs, Volume= 0.030 af, Depth= 3.74"
Routed to Pond 3P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.95"

Area (sf)	CN	Description
64	98	Paved parking, HSG D
4,122	80	>75% Grass cover, Good, HSG D
4,186	80	Weighted Average
4,122		98.47% Pervious Area
64		1.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	10	0.5000	0.33		**Sheet Flow, sheet flow** Grass: Short n= 0.150 P2= 2.34"
1.6	15	0.0667	0.16		**Sheet Flow, sheet flow lawn** Grass: Short n= 0.150 P2= 2.34"
1.4	16	0.2400	0.19		**Sheet Flow, detention pond slope** Grass: Dense n= 0.240 P2= 2.34"
3.5	41	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 16S: Area 2A



Summary for Pond 1P: Detention Pond

[79] Warning: Submerged Pond 5P Primary device # 1 INLET by 3.19'

Inflow Area = 3.087 ac, 22.94% Impervious, Inflow Depth = 4.03" for 100-Year event
Inflow = 11.65 cfs @ 12.18 hrs, Volume= 1.037 af
Outflow = 11.47 cfs @ 12.21 hrs, Volume= 1.037 af, Atten= 2%, Lag= 1.8 min
Primary = 11.47 cfs @ 12.21 hrs, Volume= 1.037 af
Routed to Pond 3P : Infiltration Basin

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,014.69' @ 12.21 hrs Surf.Area= 3,412 sf Storage= 7,872 cf

Plug-Flow detention time= 159.9 min calculated for 1.037 af (100% of inflow)
Center-of-Mass det. time= 159.9 min (985.6 - 825.7)

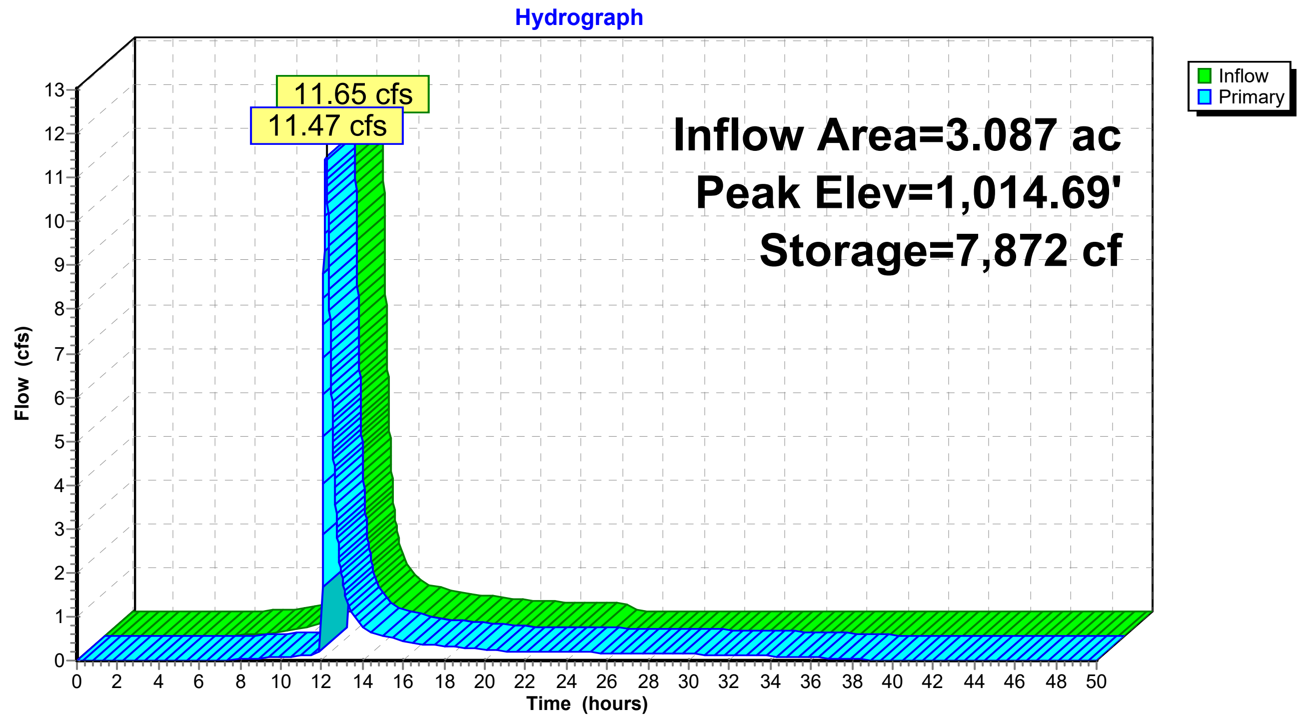
Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	12,988 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	721	0	0
1,012.00	1,632	1,177	1,177
1,013.00	2,239	1,936	3,112
1,014.00	2,909	2,574	5,686
1,015.00	3,637	3,273	8,959
1,016.00	4,421	4,029	12,988

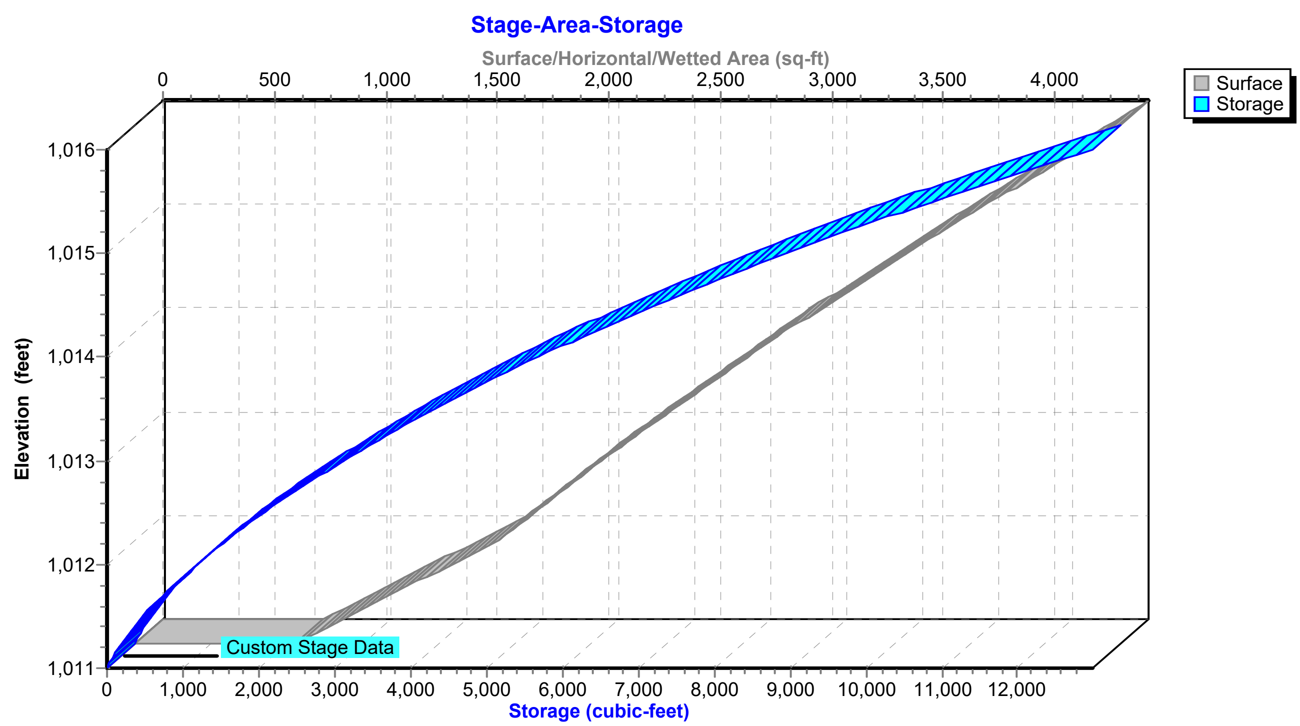
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	**18.0" Round Culvert** L= 42.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0238 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	1,011.00'	**2.0" Vert. Low Flow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,014.20'	**30.0" x 30.0" Horiz. High Flow** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.47 cfs @ 12.21 hrs HW=1,014.69' (Free Discharge)
└─**1=Culvert** (Passes 11.47 cfs of 12.88 cfs potential flow)
  ├─**2=Low Flow** (Orifice Controls 0.20 cfs @ 9.15 fps)
  └─**3=High Flow** (Weir Controls 11.27 cfs @ 2.29 fps)

Pond 1P: Detention Pond



Pond 1P: Detention Pond



Summary for Pond 3P: Infiltration Basin

[81] Warning: Exceeded Pond 1P by 0.96' @ 39.60 hrs

Inflow Area = 4.419 ac, 34.53% Impervious, Inflow Depth = 4.30" for 100-Year event
Inflow = 12.90 cfs @ 12.20 hrs, Volume= 1.583 af
Outflow = 12.66 cfs @ 12.24 hrs, Volume= 1.500 af, Atten= 2%, Lag= 2.5 min
Discarded = 0.09 cfs @ 12.24 hrs, Volume= 0.134 af
Primary = 12.57 cfs @ 12.24 hrs, Volume= 1.366 af
Routed to Link 6L : Analysis Point #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 6L : Analysis Point #1

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,014.27' @ 12.24 hrs Surf.Area= 4,585 sf Storage= 13,046 cf

Plug-Flow detention time= 153.1 min calculated for 1.500 af (95% of inflow)
Center-of-Mass det. time= 94.6 min (1,007.0 - 912.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	22,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,010.00	1,701	0	0	1,701
1,011.00	2,285	1,986	1,986	2,306
1,012.00	2,924	2,598	4,584	2,970
1,013.00	3,621	3,266	7,850	3,696
1,014.00	4,374	3,992	11,842	4,481
1,015.00	5,183	4,773	16,614	5,327
1,016.00	6,049	5,610	22,225	6,232

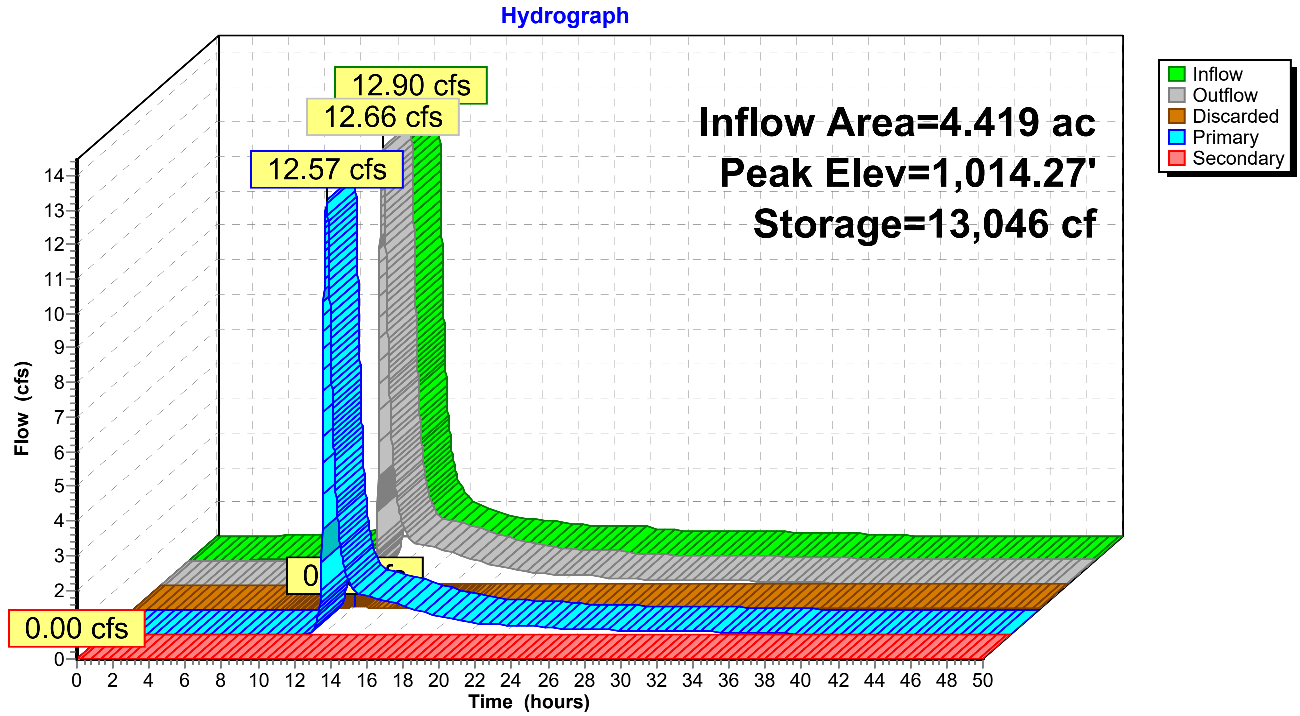
Device	Routing	Invert	Outlet Devices
#1	Primary	1,005.70'	**24.0" Round Culvert** L= 30.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,005.70' / 1,003.00' S= 0.0900 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	1,012.00'	**6.0" Vert. Intermediate Flow** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,013.70'	**24.0" x 24.0" Horiz. High Flow** C= 0.600 Limited to weir flow at low heads
#4	Secondary	1,014.30'	**Emergency Spillway, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 15.00 21.00
#5	Discarded	1,010.00'	**1.000 in/hr Exfiltration over Surface area from 1,010.00' - 1,016.00'** Conductivity to Groundwater Elevation = 1,005.00' Excluded Surface area = 1,701 sf

Discarded OutFlow Max=0.09 cfs @ 12.24 hrs HW=1,014.27' (Free Discharge)
└─**5=Exfiltration** (Controls 0.09 cfs)

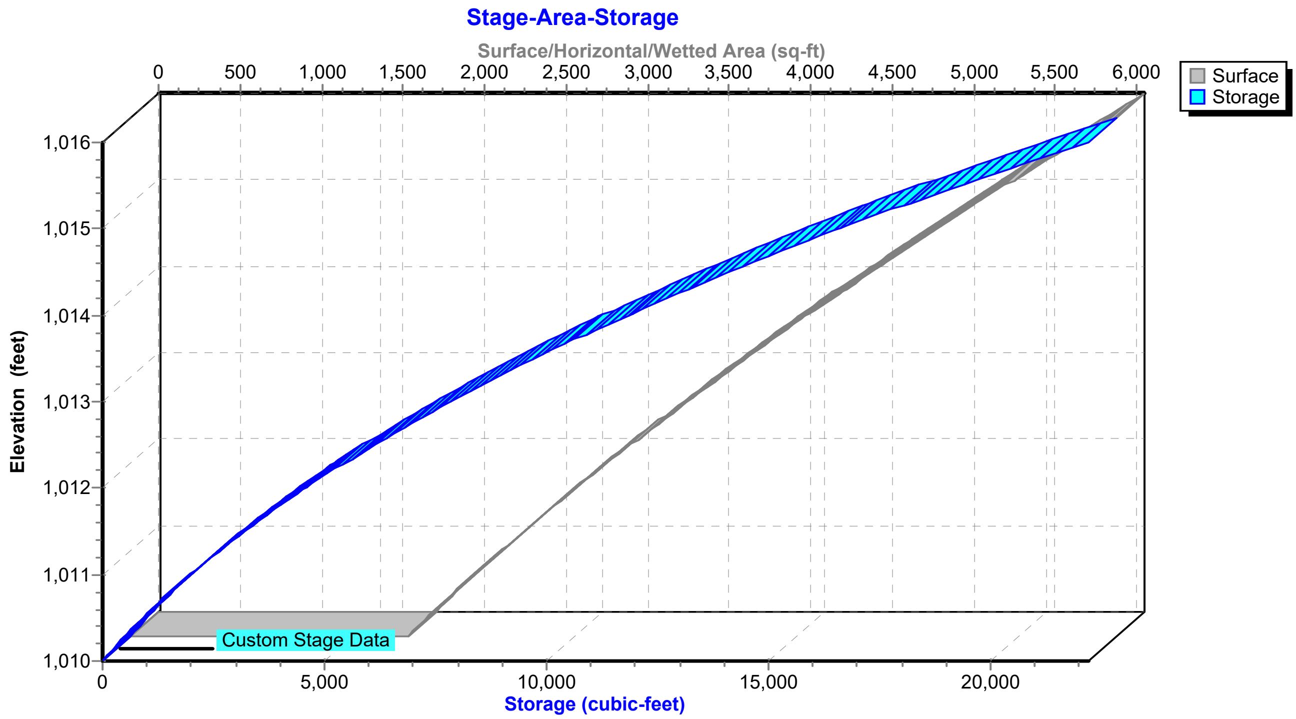
Primary OutFlow Max=12.57 cfs @ 12.24 hrs HW=1,014.27' (Free Discharge)
└─**1=Culvert** (Passes 12.57 cfs of 41.62 cfs potential flow)
  ├─**2=Intermediate Flow** (Orifice Controls 1.34 cfs @ 6.84 fps)
  └─**3=High Flow** (Weir Controls 11.22 cfs @ 2.47 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,010.00' (Free Discharge)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond 3P: Infiltration Basin



Pond 3P: Infiltration Basin



Summary for Pond 5P: Bioretention Basin

Inflow Area = 0.518 ac, 67.11% Impervious, Inflow Depth = 5.02" for 100-Year event
Inflow = 1.94 cfs @ 12.30 hrs, Volume= 0.217 af
Outflow = 1.93 cfs @ 12.31 hrs, Volume= 0.194 af, Atten= 0%, Lag= 0.7 min
Primary = 1.93 cfs @ 12.31 hrs, Volume= 0.194 af
Routed to Pond 1P : Detention Pond

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 1,015.63' @ 12.31 hrs Surf.Area= 1,290 sf Storage= 1,176 cf

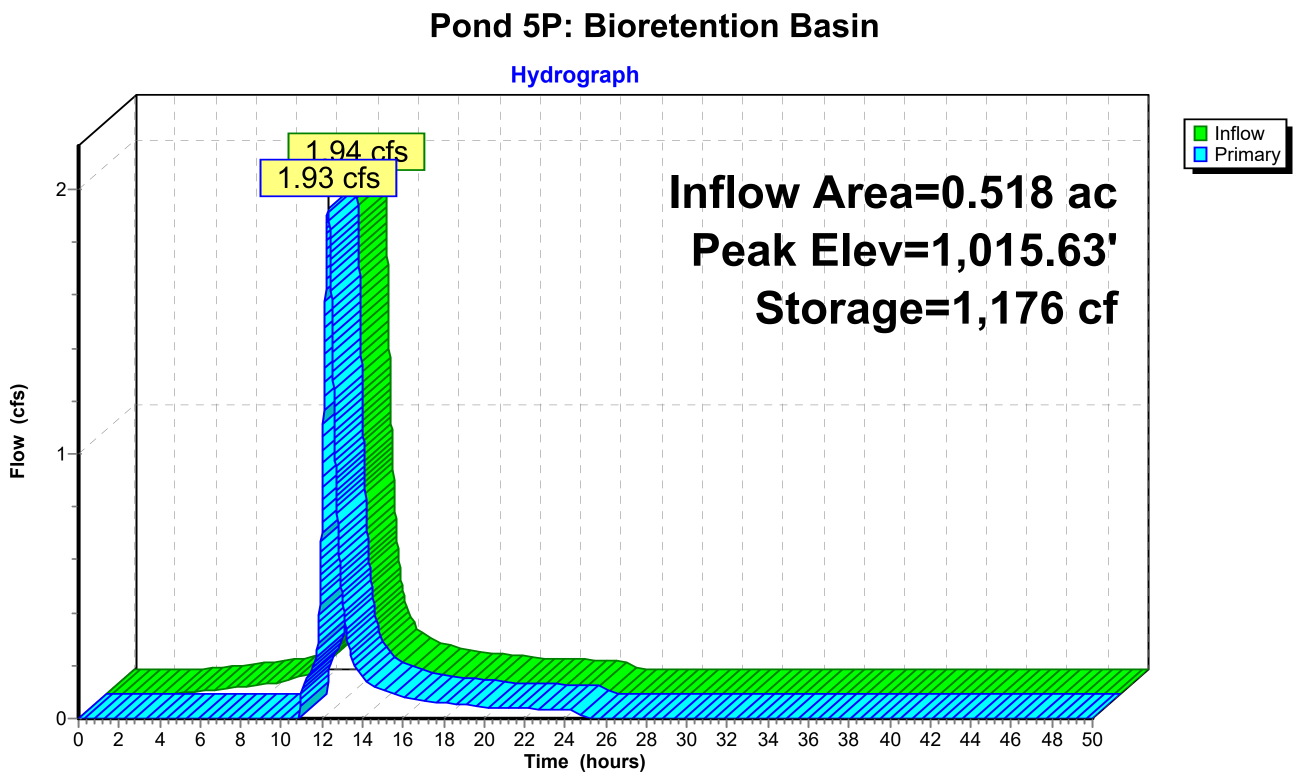
Plug-Flow detention time= 90.1 min calculated for 0.194 af (89% of inflow)
Center-of-Mass det. time= 36.0 min (837.4 - 801.4)

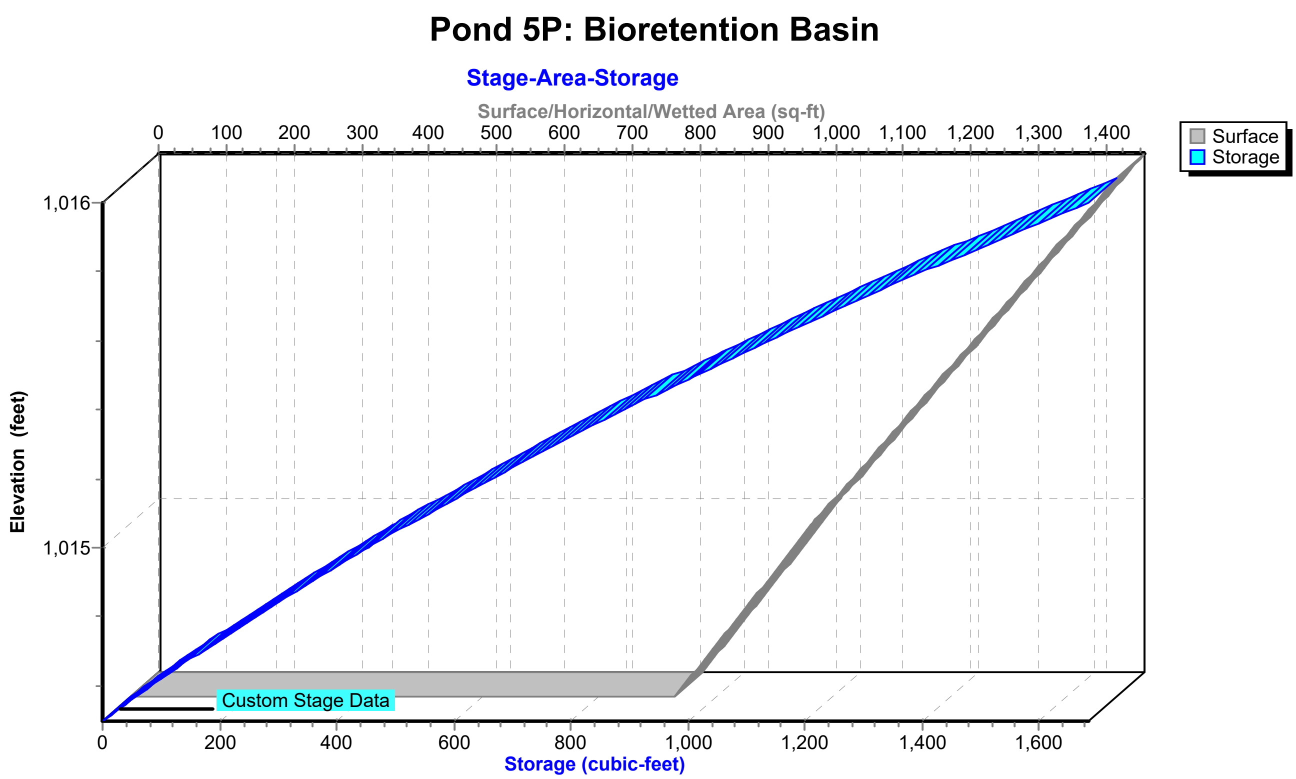
Volume	Invert	Avail.Storage	Storage Description
#1	1,014.50'	1,684 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,014.50	804	0	0
1,015.00	1,007	453	453
1,016.00	1,456	1,232	1,684

Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.50'	**12.0" Round Culvert** L= 27.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,011.50' / 1,011.00' S= 0.0185 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	1,015.50'	**24.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.93 cfs @ 12.31 hrs HW=1,015.63' (Free Discharge)
1=Culvert (Passes 1.93 cfs of 7.21 cfs potential flow)
2=Orifice/Grate (Weir Controls 1.93 cfs @ 1.18 fps)


Pond 5P: Bioretention Basin
Hydrograph
1.94 cfs
1.93 cfs
Inflow Area=0.518 ac
Peak Elev=1,015.63'
Storage=1,176 cf
Inflow
Primary
Flow (cfs)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
Time (hours)

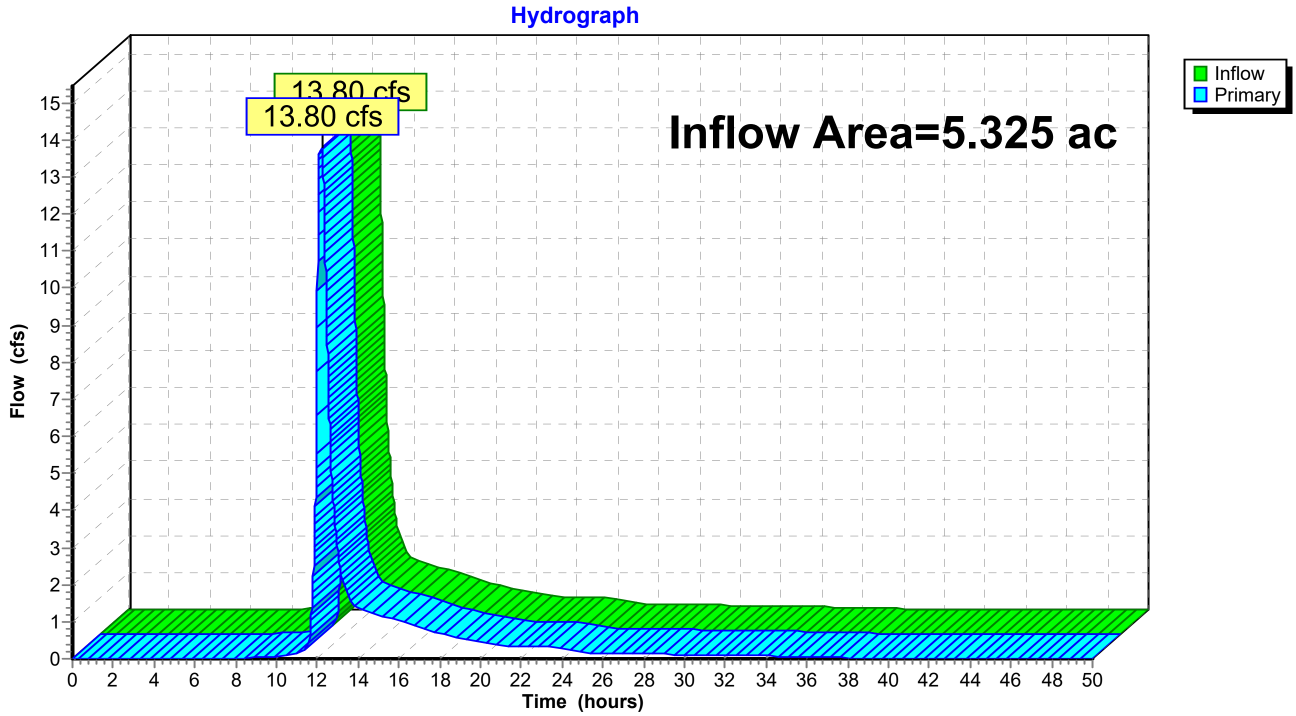

Pond 5P: Bioretention Basin
Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0 100 200 300 400 500 600 700 800 900 1,000 1,100 1,200 1,300 1,400
Surface
Storage
Elevation (feet)
1,016
1,015
Custom Stage Data
0 200 400 600 800 1,000 1,200 1,400 1,600
Storage (cubic-feet)

Summary for Link 6L: Analysis Point #1

Inflow Area = 5.325 ac, 29.19% Impervious, Inflow Depth = 3.70" for 100-Year event
Inflow = 13.80 cfs @ 12.21 hrs, Volume= 1.641 af
Primary = 13.80 cfs @ 12.21 hrs, Volume= 1.641 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link 6L: Analysis Point #1



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MARATHON ENGINEERING
39 Cascade Dr. Rochester NY 14614
840 Hanshaw Rd., Ste 6, Ithaca NY 14850

Project:	**Evergreen Apartments**
Project No.:	**1495-23**
By:	**AMF**
Date:	**10/9/2023**

Channel Protection Volume (CP_V)

Provide 24-hour detention for the runoff from the 1-year design storm:

* The "Short-cut" sizing technique presented in Appendix B of NYSDEC's SMDM is used.

Total Area =	4.80	ac
Composite CN =	87.00	
T_c =	0.100	hrs
I_a =	0.299	in (per Table 4-1 in TR-55)
P =	2	in (per Figure 4.2 in SMDM)
I_a/P =	0.15	
Therefore, q_u =	1000	csm/in (per Exhibit 4-II in TR-55)
T (extended detention time) =	24	hrs
q_o/q_I (ratio of outflow to inflow) =	0.025	(per Figure B.1 in SMDM)
V_s/V_r (ratio of req. stor. Vol. to runoff vol.) =	0.647	(per Eq. (2.1.16) in SMDM)
Q_d (post dev. Runoff for 1yr storm) =	0.921	in (per Table 2-1 in TR-55)
Therefore, V_S =	0.239	ac-ft (per Eq. (2.1.17) in SMDM)
WQ_v Detention =	0.000	ac-ft
Net Required Volume =	0.239	ac-ft
Provided RRv=	0.170	ac-ft
Adjusted CPv=	**0.069**	ac-ft

Discharge Orifice Size

Rate = Net Required CP_V/24 hrs.
= 0.03 cfs

Average Head = (CP_v P.W.S. - N.W.S.)/2
= 1.6 ft

Orifice Discharge

Q = $Cd*A*(2gh)^{1/2}$
Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.60)
g = gravity (32.2)
h = Head (ft)
A = Open area of orifice (ft^2)
= $Q/(Cd(2gh)^{1/2})$
= 0.006 ft^2

Diameter = 1.0 in

Therefore use a 2.0 inch orifice

MARATHON ENGINEERING
39 Cascade Drive / Rochester NY 14614 / 585-458-7770
840 Hanshaw Rd, Suite 6 / Ithaca NY 14850 / 607-241-2917

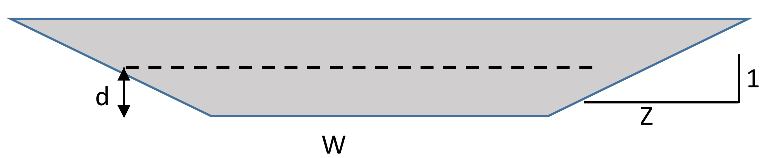
Project: **1061 Dryden Road**
Project No.: **1495-22**
By: **AMF**
Date: **10/9/2023**

INFILTRATION BASIN EMERGENCY SPILLWAY

Design Storm:	100 year	
Design Storm Discharge (cfs):	14	
Swale Side Slope, Z:1 (H:V)	2	
Swale Slope (ft/ft)	0.007	
Manning's Coeff, n	0.025	
Design Flow Depth, d (ft)	0.4	
Channel Width, w (ft)	15	
Wetted Peritmeter, P (ft)	16.79	
Flow Area X-Section, A (sf)	6.32	
Hydraulic Radius, R (ft)	0.376	=(A/P)
Flow Velocity, V (ft/sec)	2.59	
Channel Capacity, Q (cf/sec)	16.39	=A x V

$$V = \frac{1.486}{n} * R^{2/3} * S$$

$$Q = V \times A$$



MARATHON ENGINEERING
39 Cascade Drive / Rochester NY 14614 / 585-458-7770
840 Hanshaw Rd, Suite 6 / Ithaca NY 14850 / 607-241-2917

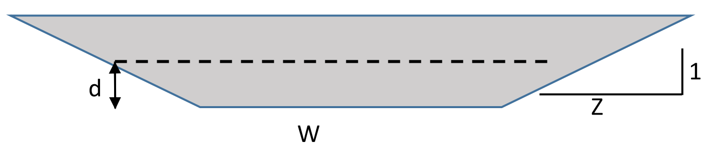
Project: **1061 Dryden Road**
Project No.: **1495-22**
By: **AMF**
Date: **10/9/2023**

DETENTION POND EMERGENCY SPILLWAY

Design Storm:	100 year	
Design Storm Discharge (cfs):	14	
Swale Side Slope, Z:1 (H:V)	2	
Swale Slope (ft/ft)	0.007	
Manning's Coeff, n	0.025	
Design Flow Depth, d (ft)	0.4	
Channel Width, w (ft)	15	
Wetted Peritmeter, P (ft)	16.79	
Flow Area X-Section, A (sf)	6.32	
Hydraulic Radius, R (ft)	0.376	=(A/P)
Flow Velocity, V (ft/sec)	2.59	
Channel Capacity, Q (cf/sec)	16.39	=A x V

$$V = \frac{1.486}{n} * R^{2/3} * S$$

Q = V x A



MARATHON ENGINEERING
39 Cascade Drive / Rochester NY 14614 / 585-458-7770
840 Hanshaw Rd, Suite 6 / Ithaca NY 14850 / 607-241-2917

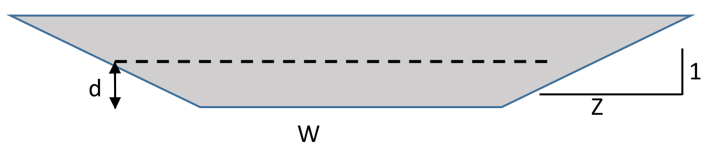
Project: **1061 Dryden Road**
Project No.: **1495-22**
By: **AMF**
Date: **10/9/2023**

BIORETENTION EMERGENCY SPILLWAY

Design Storm:	100 year	
Design Storm Discharge (cfs):	2	
Swale Side Slope, Z:1 (H:V)	2	
Swale Slope (ft/ft)	0.007	
Manning's Coeff, n	0.025	
Design Flow Depth, d (ft)	0.4	
Channel Width, w (ft)	5	
Wetted Peritmeter, P (ft)	6.79	
Flow Area X-Section, A (sf)	2.32	
Hydraulic Radius, R (ft)	0.342	=(A/P)
Flow Velocity, V (ft/sec)	2.43	
Channel Capacity, Q (cf/sec)	5.64	=A x V

$$V = \frac{1.486}{n} * R^{2/3} * S$$

Q = V x A



Total Water Quality Volume Calculation

WQv(acre-feet) = [(P)(Rv)(A)] /12

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

Design Point:		
P=	1.00	*inch*

Breakdown of Subcatchments						
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Description**
1	4.28	1.66	39%	0.40	6,200	To Infiltration
2	0.52	0.34	65%	0.64	1,205	To Bio Ret.
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	4.80	2.00	42%	0.43	**7,405**	**Subtotal 1**
Total	4.80	2.00	42%	0.43	**7,405**	**Initial WQv**

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

Recalculate WQv after application of Area Reduction Techniques					
	Total Area *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Runoff Coefficient Rv**	**WQv** *(ft^3)*
"<<Initial WQv"	4.80	2.00	42%	0.43	7,405
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	**4.80**	**2.00**	42%	0.43	7,405
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	4.80	2.00	42%	0.43	**7,405**
WQv reduced by Area Reduction techniques					0

Version 1.8
Last Updated: 11/09/2015

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

0.17	**af**

0.17	**af**
0.00	**af**

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**
			(acres)	**(acres)**	**cf**	**cf**
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	4.28	1.66	6200	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4				
	Bioretention & Infiltration Bioretention	F-5	0.52	0.34	1205	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			0.00	0.00	0	
Totals by Volume Reduction →			0.00	0.00	0	
Totals by Standard SMP w/RRV →			4.80	2.00	7405	0
Totals by Standard SMP →			0.00	0.00		0
Totals (Area + Volume + all SMPs) →			4.80	2.00	7,405	0
	Impervious Cover √	okay				

	Total Area √	okay				

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C		30%
D	**4.80**	20%
Total Area	4.8	
Calculate the Minimum RRv		
S =	**0.20**	
Impervious =	2.00	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**1,379**	***ft3***
	0.03	af

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	7405	*0.170*
30	Total RRV Provided	7405	*0.170*
31	Is RRv Provided ≥WQv Required?	Yes	
32	Minimum RRv	1379	*0.032*
32a	Is RRv Provided ≥ Minimum RRv Required?	Yes	
33a	Total WQv Treated	0	*0.000*
34	Sum of Volume Reduced & Treated	7405	*0.170*
34	Sum of Volume Reduced and Treated	7405	*0.170*
35	Is Sum RRv Provided and WQv Provided ≥WQv Required?	Yes	

Apply Peak Flow Attenuation			
36	Channel Protection	*Cpv*	
37	Overbank	*Qp*	
37	Extreme Flood Control	*Qf*	
	Are Quantity Control requirements met?		

NOI QUESTIONS

100.00%

Infiltrating Bioretention Worksheet

(For use on HSG A or B Soils without underdrains)

WQv ≤ VSM + VDL + (DP x ARG)

VSM = ARG x DSM x nSM

VDL (optional) = ARG x DDL x nDL

Design Point:							
Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
2	0.52	0.34	0.65	0.64	1205.16	1.00	To Bio Ret.
Enter Impervious Area Reduced by Disconnection of Rooftops			65%	0.64	1,205	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	
Infiltrating Bioretention Parameters							
Treatment Volume	WQv	1,205	*ft^3*				
Enter depth of soil Media	DSM	2.50	*ft*	*2.5 - 4 ft*			
Enter depth of drainage	DDL	0.50	*ft*	*≥ 0.5 ft*			
Enter ponding depth above surface	DP	0.5	*ft*	*≤ 0.5*			
Enter porosity of Soil Media	nSM	20.00		*≥20%*			
Enter porosity of Drainage	nDL	40.00		*≥ 40%*			
Required Bioretention Area	ARG	17	*sf*				
Bioretention Area Provided		1050	*ft2*				
Native Soil Infiltration Rate		0.50	*in/hr*	*Okay*			
Are you using underdrains?		Yes					
Total Volume Provided		74,025	*ft^3*	*Sum of storage Volume Provided in each layer*			
Determine Runoff Reduction							
Runoff Reduction		**1,205**	***ft^3***	***This is 80% of storage volume provided or WQv whichever is less***			
Volume Treated		0	*ft^3*	*This is the portion of the WQv that is not reduced in the practice*			
Sizing √		*OK*		*Check to be sure Area provided ≥ Af*			

Infiltration Basin Worksheet

Design Point:							
Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	4.28	1.66	0.39	0.40	6200.04	1.00	To Infiltration
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	39%	0.40	6,200	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.					0	*ft^3*	

Pretreatment Techniques to Prevent Clogging			
Infiltration Rate	2.80	*in/hour*	*Okay*
Pretreatment Sizing	50	*% WQv*	*25% minimum;* *50% if >2 in/hr* *100% if >5in/hour*
Pretreatment Required Volume	3,100	*ft^3*	
Pretreatment Provided	3,400	*ft^3*	
Pretreatment Techniques utilized	*Other*		

Size An Infiltration Basin			
Design Volume	6,200	*ft^3*	WQv
Basal Area Required	1,378	*ft^2*	*Infiltration practices shall be designed to exfiltrate the entire WQv through the floor of each practice.*
Basal Area Provided	1,700	*ft^2*	
Design Depth	4.50	*ft*	
Volume Provided	7,650	*ft^3*	*Storage Volume provided in infiltration basin area (not including pretreatment.*
Determine Runoff Reduction			
RRv	**6,200**	***ft^3***	***90% of the storage provided in the basin or WQv whichever is smaller***
Volume Treated	0	*ft^3*	*This is the portion of the WQv that is not reduced/infiltrated*
Sizing √	OK		*The infiltration basin must provide storage equal to or greater than the WQv of the contributing area.*

ITEM 208.01030022 BIORETENTION AND DRY SWALE SOIL
ITEM 208.01040022 LABORATORY TESTING FOR SOIL PHOSPHORUS CONCENTRATION

DESCRIPTION

This work shall consist of installing Bioretention and Dry Swale Soil in accordance with the contract documents and as directed by the Engineer.

The work shall also consist of having the Bioretention and Dry Swale Soil tested for total soil phosphorus concentration at a qualified laboratory. A qualified laboratory shall be defined as a laboratory that is certified by the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) to test soil for total soil phosphorous.

MATERIALS

The following sections of the standard specifications apply:

§703-07	Concrete Sand
§713-01	Topsoil, Type A (see exceptions below)

The soil for Bioretention areas and Dry Swales shall be a uniform mix, free of stones, stumps, roots or other objects larger than two inches (2") in diameter. The Bioretention and Dry Swale soil shall be visibly free of noxious weeds.

Bioretention and Dry Swale Soil shall be a well blended mixture of three (3) parts sand and one (1) part topsoil, by volume. The Bioretention and Dry Swale Soil shall have a pH range of 5.2 to 7.6, and an organic content of 3-7%.

Sand shall meet the requirements of §703-07 *Concrete Sand*.

Topsoil shall be in accordance with the requirements of §713-01 *Topsoil* for Topsoil Type A, except as follows:

- All topsoil shall be sampled and tested, regardless of the source.
- Sampling of topsoil, amended topsoil, and the Bioretention and Dry Swale Soil shall be done by the Contractor/Supplier. Sampling protocol shall be in accordance with §713-01 *Topsoil*.

Soil amendments to increase organic content shall be peat moss. Peat moss shall be commercially produced and shall be composed of the partly decomposed stems and leaves of any or several species of sphagnum moss. It shall be free from wood, decomposed colloidal residue, and other foreign matter. It shall have a pH range between 3.5 pH - 5.5 pH as determined in accordance with the Association of Official Agricultural Chemists' testing methods. It's water-absorbing ability shall be a minimum of 1100% by weight on an oven-dry basis.

Acceptance of Bioretention and Dry Swale soil will be based upon a material certification that the material conforms to the above requirements. The Contractor/Supplier shall provide to the Engineer copies of testing results of the sand gradation, topsoil gradation, organic content percentage of the Bioretention and Dry Swale Soil, and pH of the Bioretention and Dry Swale Soil. These tests are to be paid under the Bioretention and Dry Swale Soil item.

The Contractor shall provide to the Engineer copies of testing results for Soil Phosphorus Concentration. Samples to be submitted to the qualified laboratory shall be obtained in accordance with §713-01 *Topsoil*. Sampling shall be paid under the pay item for Bioretention and Dry Swale Soil. The results of the Soil Phosphorus analysis shall not be used as the basis for material acceptance.

Sampling frequency for total phosphorous shall be one composite sample for the first 100 to 500 cubic yards of soil, and an additional composite sample for each additional 500 cubic yards, or portion thereof. No samples are required for stockpiles of less than 100 cubic yards.

CONSTRUCTION DETAILS

Bioretention and Dry Swale Soil shall be installed at the locations and to the depth(s) as shown in the contract documents. Placement of Bioretention and Dry Swale Soil shall be done in lifts of 12 inches to 18 inches. The soil shall be loosely compacted, such as by tamping lightly with a dozer or backhoe bucket. No other materials or substances shall be mixed or dumped within the Bioretention area and Dry Swale that may be harmful to plant growth, or prove a hindrance to planting or maintenance operations.

METHOD OF MEASUREMENT

Bioretention and Dry Swale Soil

The work will be measured as the number of cubic yards of Bioretention and Dry Swale Soil installed, computed from payment lines shown in the contract documents.

Laboratory Testing for Soil Phosphorus Concentration

The work will be measured by the number of soil samples analyzed for Soil Phosphorus Concentration by a qualified laboratory.

BASIS OF PAYMENT

The unit price bid for a cubic yard of Bioretention and Dry Swale Soil shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including costs for testing.

The unit price bid for Laboratory Testing for Soil Phosphorus Concentration, shall include the receipted costs of testing, including the cost of the laboratory test(s) and all labor, materials and equipment required to obtain and deliver soil sample(s) to the qualified laboratory plus 5% for profit and overhead.

New York State
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water

Deep-Ripping and Decompaction

April 2008

New York State
Department of Environmental Conservation

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Alternative Stormwater Management
Deep-Ripping and Decompaction

Description

The two-phase practice of 1) "Deep Ripping;" and 2) "Decompaction" (deep subsoiling), of the soil material as a step in the cleanup and restoration/landscaping of a construction site, helps mitigate the physically induced impacts of soil compression; i.e.: soil compaction or the substantial increase in the bulk density of the soil material.

Deep Ripping and Decompaction are key factors which help in restoring soil pore space and permeability for water infiltration. Conversely, the physical actions of cut-and-fill work, land grading, the ongoing movement of construction equipment and the transport of building materials throughout a site alter the architecture and structure of the soil, resulting in: the mixing of layers (horizons) of soil materials, compression of those materials and diminished soil porosity which, if left unchecked, severely impairs the soil's water holding capacity and vertical drainage (rainfall infiltration), from the surface downward.

In a humid climate region, compaction damage on a site is virtually guaranteed over the duration of a project. Soil in very moist to wet condition when compacted, will have severely reduced permeability. Figure 1 displays the early stage of the deep-ripping phase (Note that all topsoil was stripped prior to construction access, and it remains stockpiled until the next phase – decompaction – is complete). A heavy-duty tractor is pulling a three-shank ripper on the first of several series of incrementally deepening passes through the construction access corridor's densely compressed subsoil material. Figure 2 illustrates the approximate volumetric composition of a loam surface soil when conditions are good for plant growth, with adequate natural pore space for fluctuating moisture conditions.

Fig. 1. A typical deep ripping phase of this practice, during the first in a series of progressively deeper "rips" through severely compressed subsoil.

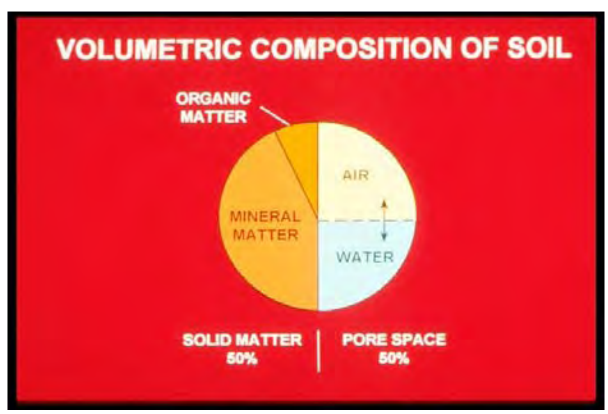

Fig. 2. About 50% of the volume of undisturbed loam surface soil is pore space, when soil is in good condition for plant growth. Brady, 2002.

Recommended Application of Practice

The objective of Deep Ripping and Decompaction is to effectively fracture (vertically and laterallly) through the thickness of the physically compressed subsoil material (see Figure 3), restoring soil porosity and permeability and aiding infiltration to help reduce runoff. Together with topsoil stripping, the "two-phase" practice of Deep Ripping and Decompaction first became established as a "best management practice" through ongoing success on commercial farmlands affected by heavy utility construction right-of-way projects (transmission pipelines and large power lines).

Fig. 3. Construction site with significant compaction of the deep basal till subsoil extends 24 inches below this exposed cut-and-fill work surface.

Soil permeability, soil drainage and cropland productivity were restored. For broader construction application, the two-phase practice of Deep Ripping and Decompaction is best adapted to areas impacted with significant soil compaction, on contiguous open portions of large construction sites and inside long, open construction corridors used as temporary access over the duration of construction. Each mitigation area should have minimal above-and-below-ground obstructions for the easy avoidance and maneuvering of a large tractor and ripping/decompacting implements. Conversely, the complete two-phase practice is not recommended in congested or obstructed areas due to the limitations on tractor and implement movement.

Benefits

Aggressive "deep ripping" through the compressed thickness of exposed subsoil before the replacement/respreading of the topsoil layer, followed by "decompaction," i.e.: "sub-soiling," through the restored topsoil layer down into the subsoil, offers the following benefits:

- Increases the project (larger size) area's direct surface infiltration of rainfall by providing the open site's mitigated soil condition and lowers the demand on concentrated runoff control structures

- Enhances direct groundwater recharge through greater dispersion across and through a broader surface than afforded by some runoff-control structural measures

- Decreases runoff volume generated and provides hydrologic source control

- May be planned for application in feasible open locations either alone or in conjunction with plans for structural practices (e.g., subsurface drain line or infiltration basin) serving the same or contiguous areas

- Promotes successful long-term revegetation by restoring soil permeability, drainage and water holding capacity for healthy (rather than restricted) root-system development of trees, shrubs and deep rooted ground cover, minimizing plant drowning during wet periods and burnout during dry periods.

Feasibility / Limitations

The effectiveness of Deep Ripping and Decompaction is governed mostly by site factors such as: the original (undisturbed) soil's hydrologic characteristics; the general slope; local weather/timing (soil moisture) for implementation; the space-related freedom of equipment/implement maneuverability (noted above in **Recommended Application of Practice**), and by the proper selection and operation of tractor and implements (explained below in **Design Guidance**). The more notable site-related factors include:

Soil

In the undisturbed condition, each identified soil type comprising a site is grouped into one of four categories of soil hydrology, Hydrologic Soil Group A, B, C or D, determined primarily by a range of characteristics including soil texture, drainage capability when thoroughly wet, and depth to water table. The natural rates of infiltration and transmission of soil-water through the undisturbed soil layers for Group A is "high" with a low runoff potential while soils in Group B are moderate in infiltration and the transmission of soil-water with a moderate runoff potential, depending somewhat on slope. Soils in Group C have slow rates of infiltration and transmission of soil-water and a moderately high runoff potential influenced by soil texture and slope; while soils in Group D have exceptionally slow rates of infiltration and transmission of soil-water, and high runoff potential.

In Figure 4, the profile displays the undisturbed horizons of a soil in Hydrologic Soil Group C and the naturally slow rate of infiltration through the subsoil. The slow rate of infiltration begins immediately below the topsoil horizon (30 cm), due to the limited amount of macro pores, e.g.: natural subsoil fractures, worm holes and root channels. Infiltration after the construction-induced mixing and compression of such subsoil material is virtually absent; but can be restored back to this natural level with the two-phase practice of deep ripping and decompaction, followed by the permanent establishment of an appropriate, deep taproot

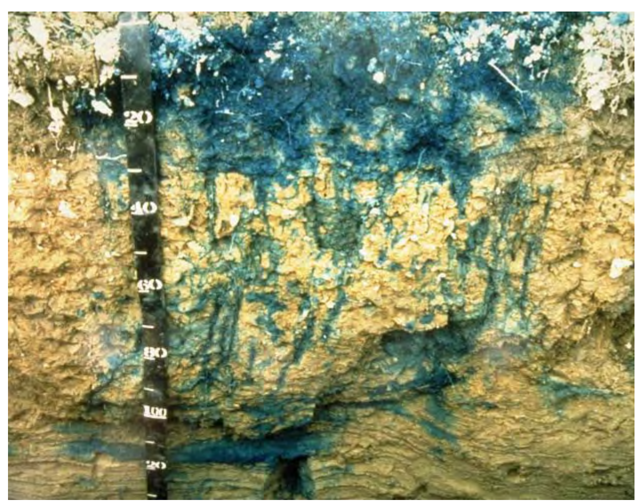

Fig. 4. Profile (in centimeters) displaying the infiltration test result of the natural undisturbed horizons of a soil in Hydrologic Soil Group C.

lawn/ground cover to help maintain the restored subsoil structure. Infiltration after construction-induced mixing and compression of such subsoil material can be notably rehabilitated with the Deep Ripping and Decompaction practice, which prepares the site for the appropriate long-term lawn/ground cover mix including deep taproot plants such as clover, fescue or trefoil, etc. needed for all rehabilitated soils.

Generally, soils in Hydrologic Soil Groups A and B, which respectively may include deep, well-drained, sandy-gravelly materials or deep, moderately well-drained basal till materials, are among the easier ones to restore permeability and infiltration, by deep ripping and decompaction. Among the many different soils in Hydrologic Soil Group C are those unique glacial tills having a natural fragipan zone, beginning about 12 to 18 inches (30 – 45cm), below surface. Although soils in Hydrologic Soil Group C do require a somewhat more carefully applied level of the Deep Ripping and Decompaction practice, it can greatly benefit such affected areas by reducing the runoff and fostering infiltration to a level equal to that of pre-disturbance.

Soils in Hydrologic Soil Group D typically have a permanent high water table close to the surface, influenced by a clay or other highly impervious layer of material. In many locations with clay subsoil material, the bulk density is so naturally high that heavy trafficking has little or no added impact on infiltration; and structural runoff control practices rather than Deep Ripping and Decompaction should be considered.

The information about Hydrologic Soil Groups is merely a general guideline. Site-specific data such as limited depths of cut-and-fill grading with minimal removal or translocation of the inherent subsoil materials (as analyzed in the county soil survey) or, conversely, the excavation and translocation of deeper, unconsolidated substratum or consolidated bedrock materials (unlike the analyzed subsoil horizons' materials referred to in the county soil survey) should always be taken into account.

Sites made up with significant quantities of large rocks, or having a very shallow depth to bedrock, are not conducive to deep ripping and decompation (subsoiling); and other measures may be more practical.

Slope

The two-phase application of 1) deep ripping and 2) decompaction (deep subsoiling), is most practical on flat, gentle and moderate slopes. In some situations, such as but not limited to temporary construction access corridors, inclusion areas that are moderately steep along a project's otherwise gentle or moderate slope may also be deep ripped and decompacted. For limited instances of moderate steepness on other projects, however, the post-construction land use and the relative alignment of the potential ripping and decompaction work in relation to the lay of the slope should be reviewed for safety and practicality. In broad construction areas predominated by moderately steep or steep slopes, the practice is generally not used.

Local Weather/Timing/Soil Moisture

Effective fracturing of compressed subsoil material from the exposed work surface, laterally and vertically down through the affected zone is achieved only when the soil material is moderately dry to moderately moist. Neither one of the two-phases, deep ripping nor decompaction (deep subsoiling), can be effectively conducted when the soil material (subsoil or replaced topsoil) is in either a “plastic” or “liquid” state of soil consistency. Pulling the respective implements legs through the soil when it is overly moist only results in the “slicing and smearing” of the material or added “squeezing and compression” instead of the necessary fracturing. Ample drying time is needed for a “rippable” soil condition not merely in the material close to the surface, but throughout the material located down to the bottom of the physically compressed zone of the subsoil.

The “poor man’s Atterberg field test” for soil plasticity is a simple “hand-roll” method used for quick, on-site determination of whether or not the moisture level of the affected soil material is low enough for: effective deep ripping of subsoil; respreading of topsoil in a friable state; and final decompaction (deep subsoiling). Using a sample of soil material obtained from the planned bottom depth of ripping, e.g.: 20 - 24 inches below exposed subsoil surface, the sample is hand rolled between the palms down to a 1/8-inch diameter thread. (Use the same test for stored topsoil material before respreading on the site.) If the respective soil sample crumbles apart in segments no greater than 3/8 of an inch long, by the time it is rolled down to 1/8 inch diameter, it is low enough in moisture for deep ripping (or topsoil replacement), and decompaction. Conversely, as shown in Figure 5, if the rolled sample stretches out in increments greater than 3/8 of an inch long before crumbling, it is in a “plastic” state of soil consistency and is too wet for subsoil ripping (as well as topsoil replacement) and final decompaction.

Fig. 5. Augered from a depth of 19 inches below the surface of the replaced topsoil, this subsoil sample was hand rolled to a 1/8-inch diameter. The test shows the soil at this site stretches out too far without crumbling; it indicates the material is in a plastic state of consistence, too wet for final decompaction (deep subsoiling) at this time.

Design Guidance

Beyond the above-noted site factors, a vital requirement for the effective Deep Ripping and Decompaction (deep subsoiling), is implementing the practice in its distinct, two-phase process:

1) Deep rip the affected thickness of exposed subsoil material (see Figure 10 and 11), aggressively fracturing it before the protected topsoil is reapplied on the site (see Figure 12); and

2) Decompact (deep subsoil), simultaneously through the restored topsoil layer and the upper half of the affected subsoil (Figure 13). The second phase, “decompaction,” mitigates the partial recompaction which occurs during the heavy process of topsoil spreading/grading. Prior to deep ripping and decompacting the site, all construction activity, including construction equipment and material storage, site cleanup and trafficking (Figure 14), should be finished; and the site closed off to further disturbance. Likewise, once the practice is underway and the area’s soil permeability and

rainfall infiltration are being restored, a policy limiting all further traffic to permanent travel lanes is maintained.

The other critical elements, outlined below, are: using the proper implements (deep, heavy-duty rippers and subsoilers), and ample pulling-power equipment (tractors); and conducting the practice at the appropriate speed, depth and pattern(s) of movement.

Note that an appropriate plan for the separate practice of establishing a healthy perennial ground cover, with deep rooting to help maintain the restored soil structure, should be developed in advance. This may require the assistance of an agronomist or landscape horticulturist.

Implements

Avoid the use of all undersize implements. The small-to-medium, light-duty tool will, at best, only "scarify" the uppermost surface portion of the mass of compacted subsoil material. The term "chisel plow" is commonly but incorrectly applied to a broad range of implements. While a few may be adapted for the moderate subsoiling of non-impacted soils, the majority are less durable and used for only lighter land-fitting (see Figure 6).

Fig. 6. A light duty chisel implement, not adequate for either the deep ripping or decompaction (deep subsoiling) phase.

Fig. 7. One of several variations of an agricultural ripper. This unit has long, rugged shanks mounted on a steel V-frame for deep, aggressive fracturing through Phase 1.

Use a "heavy duty" agricultural-grade, deep ripper (see Figures 7,9,10 and 11) for the first phase: the lateral and vertical fracturing of the mass of exposed and compressed subsoil, down and through, to the bottom of impact, prior to the replacement of the topsoil layer. (Any oversize rocks which are uplifted to the subsoil surface during the deep ripping phase are picked and removed.) Like the heavy-duty class of implement for the first phase, the decompaction (deep subsoiling) of Phase 2 is conducted with the heavy-duty version of the deep subsoiler. More preferable is the angled-leg variety of deep subsoiler (shown in Figures 8 and 13). It minimizes the inversion of the subsoil and topsoil layers while laterally and vertically fracturing the upper half of the previously ripped subsoil layer and all of the topsoil layer by delivering a momentary, wave-like "lifting and shattering" action up through the soil layers as it is pulled.

Pulling-Power of Equipment

Use the following rule of thumb for tractor horsepower (hp) whenever deep ripping and decompacting a significantly impacted site: For both types of implement, have at least 40 hp of tractor pull available for each mounted shank/ leg.

Using the examples of a 3-shank and a 5-shank implement, the respective tractors should have 120 and 200 hp available for fracturing down to the final depth of 20-to-24 inches per phase. Final depth for the deep ripping in Phase 1 is achieved incrementally by a progressive series of passes (see Depth and Patterns of Movement, below); while for Phase 2, the full operating depth of the deep subsoiler is applied from the beginning.

The operating speed for pulling both types of implement should not exceed 2 to 3 mph. At this slow and managed rate of operating speed, maximum functional performance is sustained by the tractor and the implement performing the soil fracturing. Referring to Figure 8, the implement is the 6-leg version of the deep angled-leg subsoiler. Its two outside legs are "chained up" so that only four legs will be engaged (at the maximum depth), requiring no less than 160 hp, (rather than 240 hp) of pull. The 4-wheel drive, articulated-frame tractor in Figure 8 is 174 hp. It will be decompacting this unobstructed, former construction access area simultaneously through 11 inches of replaced topsoil and the upper 12 inches of the previously deep-ripped subsoil. In constricted areas of Phase 1) Deep Ripping, a medium-size tractor with adequate hp, such as the one in Figure 9 pulling a 3-shank deep ripper, may be more maneuverable.

Fig. 8. A deep, angled-leg subsoiler, ideal for Phase 2 decompaction of after the topsoil layer is graded on top of the ripped subsoil.

Fig. 9. This medium tractor is pulling a 3-shank deep ripper. The severely compacted construction access corridor is narrow, and the 120 hp tractor is more maneuverable for Phase 1 deep ripping (subsoil fracturing), here.

Some industrial-grade variations of ripping implements are attached to power graders and bulldozers. Although highly durable, they are generally not recommended. Typically, the shanks or "teeth" of these rippers are too short and stout; and they are mounted too far apart to achieve the well-distributed type of lateral and vertical fracturing of the soil materials necessary to restore soil permeability and infiltration. In addition, the power graders and bulldozers, as pullers, are far less maneuverable for turns and patterns than the tractor.

Depth and Patterns of Movement

As previously noted both Phase 1 Deep Ripping through significantly compressed, exposed subsoil and Phase 2 Decompaction (deep subsoiling) through the replaced topsoil and upper subsoil need to be performed at maximum capable depth of each implement. With an implement's guide wheels attached, some have a "normal" maximum operating depth of 18 inches, while others may go deeper. In many situations, however, the tractor/implement operator must first remove the guide wheels and other non essential elements from the implement. This adapts the ripper or the deep subsoiler for skillful pulling with its frame only a few inches above surface, while the shanks or legs, fracture the soil material 20-to-24 inches deep.

There may be construction sites where the depth of the exposed subsoil's compression is moderate, e.g.: 12 inches, rather than deep. This can be verified by using a ¾ inch cone penetrometer and a shovel to test the subsoil for its level of compaction, incrementally, every three inches of increasing depth. Once the full thickness of the subsoil's compacted zone is finally "pieced" and there is a significant drop in the psi measurements of the soil penetrometer, the depth/thickness of compaction is determined. This is repeated at several representative locations of the construction site. If the thickness of the site's subsoil compaction is verified as, for example, ten inches, then the Phase 1 Deep Ripping can be correspondingly reduced to the implement's minimum operable depth of 12 inches. However, the Phase 2 simultaneous Decompation (subsoiling) of an 11 inch thick layer of replaced topsoil and the upper subsoil should run at the subsoiling implements full operating depth.

Fig. 10. An early pass with a 3-shank deep ripper penetrating only 8 inches into this worksite's severely compressed subsoil.

Fig. 11. A repeat run of the 3-shank ripper along the same patterned pass area as Fig. 9; here, incrementally reaching 18 of the needed 22 inches of subsoil fracture.

Typically, three separate series (patterns) are used for both the Phase 1 Deep Ripping and the Phase 2 Decompaction on significantly compacted sites. For Phase 1, each series begins with a moderate depth of rip and, by repeat-pass, continues until full depth is reached. Phase 2 applies the full depth of Decompation (subsoiling), from the beginning.

Every separate series (pattern) consists of parallel, forward-and-return runs, with each progressive pass of the implement's legs or shanks evenly staggered between those from the previous pass. This compensates for the shank or leg-spacing on the implement, e.g., with 24-to-30 inches between each shank or leg. The staggered return pass ensures lateral and vertical fracturing actuated every 12 to 15 inches across the densely compressed soil mass.

Large, Unobstructed Areas
For larger easy areas, use the standard patterns of movement:

- The first series (pattern) of passes is applied lengthwise, parallel with the longest spread of the site; gradually progressing across the site's width, with each successive pass.

- The second series runs obliquely, crossing the first series at an angle of about 45 degrees.

- The third series runs at right angle (or 90 degrees), to the first series to complete the fracturing and shattering on severely compacted sites, and avoid leaving large unbroken blocks of compressed soil material. (In certain instances, the third series may be optional, depending on how thoroughly the first two series loosen the material and eliminate large chunks/blocks of material as verified by tests with a ¾-inch cone penetrometer.)

Fig. 12. Moderately dry topsoil is being replaced on the affected site now that Phase 1 deep ripping of the compressed subsoil is complete.

Fig. 13. The same deep, angled-leg subsoiler shown in Fig. 7 is engaged at maximum depth for Phase 2, decompaction (deep soiling), of the replaced topsoil and the upper subsoil materials.

Corridors
In long corridors of limited width and less maneuverability than larger sites, e.g.: along compacted areas used as temporary construction access, a modified series of pattern passes are used.

- First, apply the same initial lengthwise, parallel series of passes described above.

● A second series of passes makes a broad "S" shaped pattern of rips, continually and gradually alternating the "S" curves between opposite edges inside the compacted corridor.

● The third and final series again uses the broad, alternating S pattern, but it is "flip-flopped" to continually cross the previous S pattern along the corridor's centerline. This final series of the S pattern curves back along the edge areas skipped by the second series.

Maintenance and Cost

Once the two-phase practice of Deep Ripping and Decompation is completed, two items are essential for maintaining a site's soil porosity and permeability for infiltration. They are: planting and maintaining the appropriate ground cover with deep roots to maintain the soil structure (see Figure 15); and keeping the site free of traffic or other weight loads.

Note that site-specific choice of an appropriate vegetative ground-cover seed mix, including the proper seeding ratio of one or more perennial species with a deep taproot system and the proper amount of lime and soil nutrients (fertilizer mix) adapted to the soil-needs, are basic to the final practice of landscaping, i.e: surface tillage, seeding/planting/fertilizing and culti-packing or mulching is applied. The "maintenance" of an effectively deep-ripped and decompacted area is generally limited to the successful perennial (long-term) landscape ground cover; as long as no weight-bearing force of soil compaction is applied.

Fig. 14. The severely compacted soil of a temporary construction yard used daily by heavy equipment for four months; shown before deep ripping, topsoil replacement, and decompaction.

Fig. 15. The same site as Fig. 14 after deep ripping of the exposed subsoil, topsoil replacement, decompaction through the topsoil and upper subsoil and final surface tillage and revegetation to maintain soil permeability and infiltration.

The Deep Ripping and Decompaction practice is, by necessity, more extensive than periodic subsoiling of farmland.The cost of deep ripping and decompacting (deep subsoiling), will vary according to the depth and severity of soil-material compression and the relative amount of tractor and implement time that is required. In some instances, depending on open maneuverability, two-to-three acres of compacted project area may be deep-ripped in one day. In other situations of more severe compaction and - or less maneuverability, as little as one acre may be fully ripped in a day. Generally, if the Phase 1) Deep Ripping is fully effective, the Phase 2) Decompaction should be completed in 2/3 to 3/4 of the time required for Phase 1.

Using the example of two acres of Phase 1) Deep Ripping in one day, at $1800 per day, the net cost is $900 per acre. If the Phase 2) Decompacting or deep subsoiling takes 3/4 the time as Phase 1, it costs $675 per acre for a combined total of $1575 per acre to complete the practice (these figures do not include the cost of the separate practice of topsoil stripping and replacement). Due to the many variables, it must be recognized that cost will be determined by the specific conditions or constraints of the site and the availability of proper equipment.

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V-Rippers. Access by internet search of *John Deere Ag -New Equipment for 915* (larger-frame model) *V-Rippe*; and, *for 913* (smaller-frame model) *V-Ripper*. Deep, angled-leg subsoiler. Access by internet search of: B*igham Brothers Shear Bolt Paratill-Subsoiler.* http://salesmanual.deere.com/sales/salesmanual/en_NA/primary_tillage/2008/feature/rippers/915v_pattern_frame.html?sbu=ag&link=prodcat Last visited March 08.

- Soils data of USDA Natural Resources Conservation Service. *NRCS Web Soil Survey.* http://websoilsurvey.nrcs.usda.gov/app/ and *USDA-NRCS Official Soil Series Descriptions; View by Name.* http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi . *Last visited Jan. 08.*

- Soil penetrometer information. Access by internet searches of: *Diagnosing Soil Compaction using a Penetrometer (soil compaction tester), PSU Extension;* as well as *Dickey-john Soil Compaction Tester.* http://www.dickey-johnproducts.com/pdf/SoilCompactionTest.pdf and http://cropsoil.psu.edu/Extension/Facts/uc178pdf Last visited Sept. 07

Appendix F

NYS DEC SPDES General Permit

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

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

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

Authorized Signature

1-23-20

Date

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

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

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

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

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

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

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

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

B. Effluent Limitations Applicable to Discharges from Construction Activities

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

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

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

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

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

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

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

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

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

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

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

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

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

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

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

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

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

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

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

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

(i) Wastewater from washout of concrete;

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

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

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

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

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

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

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

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

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

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

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be calculated in accordance with the criteria in Section 10.3 of the Design Manual.

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

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

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

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

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

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

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

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

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

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

D. Maintaining Water Quality

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

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

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

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

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

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

E. Eligibility Under This General Permit

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

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

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

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

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

All of the following are **<u>not</u>** authorized by this permit:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

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

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

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

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

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

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

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

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

B. Notice of Intent (NOI) Submittal

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

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

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

   (i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

   (ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

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

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, <u>in writing,</u> of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

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

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

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

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

B. Required SWPPP Contents

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

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

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* <u>and</u> all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

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

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, <u>with the exception of</u>:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

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

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

   a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

   c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

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

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

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

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

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

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

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

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

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

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

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

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

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

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

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

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities*" and "*Larger Common Plan of Development or Sale*" *also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department’s receipt and acceptance of a complete Notice of Intent. This letter documents the owner’s or operator’s authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the “Required Elements” sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres: • Single family home <u>not</u> located in one of the watersheds listed in Appendix C or <u>not</u> *directly discharging* to one of the 303(d) segments listed in Appendix E • Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E • Construction of a barn or other *agricultural building*, silo, stock yard or pen.
The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land: All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.
The following construction activities that involve soil disturbances of one (1) or more acres of land: • Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains • Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects • Pond construction • Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover • Cross-country ski trails and walking/hiking trails • Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development; • Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path. • Slope stabilization projects • Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

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

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* <u>and</u> do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State”, excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2

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

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

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW’s, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

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

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

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* <u>or</u> *alter the hydrology from pre to post development* conditions, <u>and</u> are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

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

Figure 1 - New York City Watershed East of the Hudson

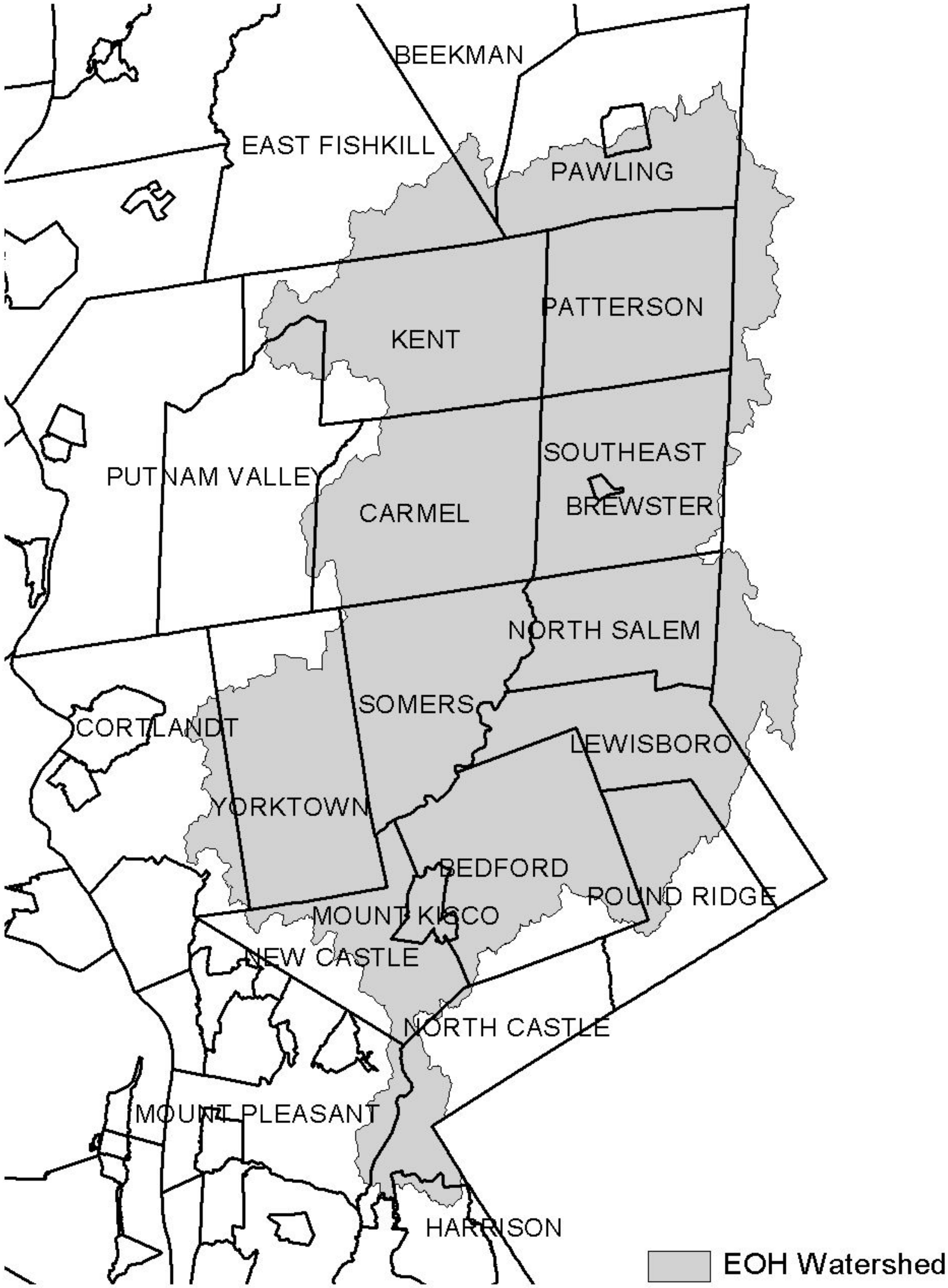


Figure 2 - Onondaga Lake Watershed

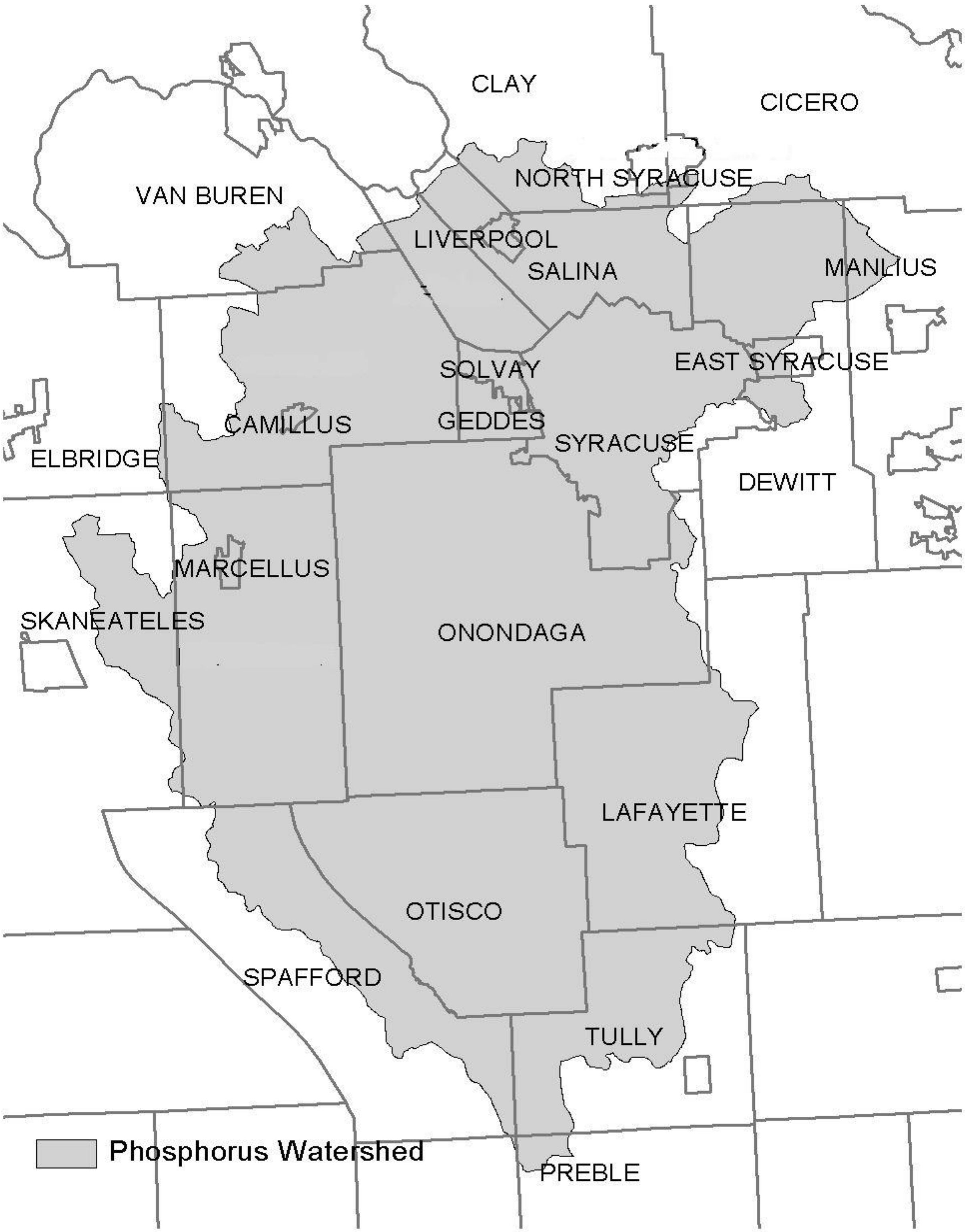


Figure 3 - Greenwood Lake Watershed

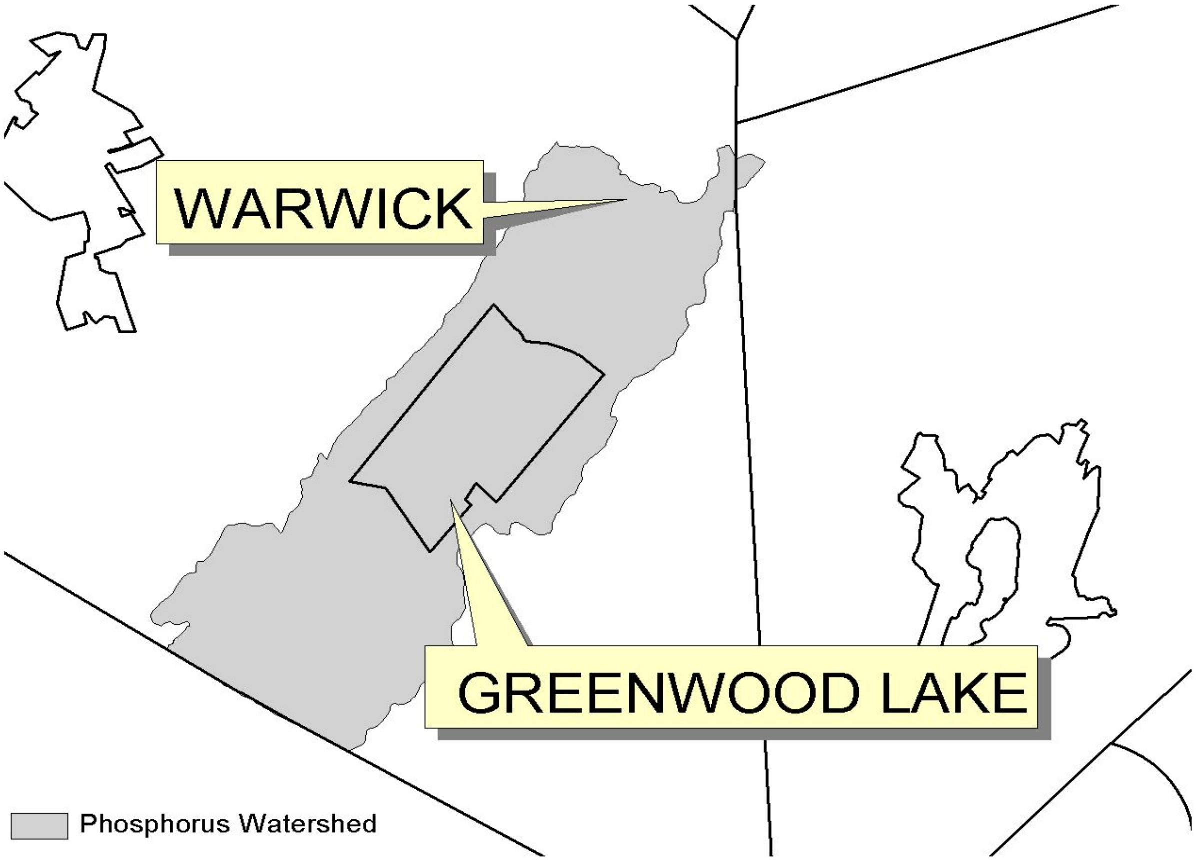


Figure 4 - Oscawana Lake Watershed

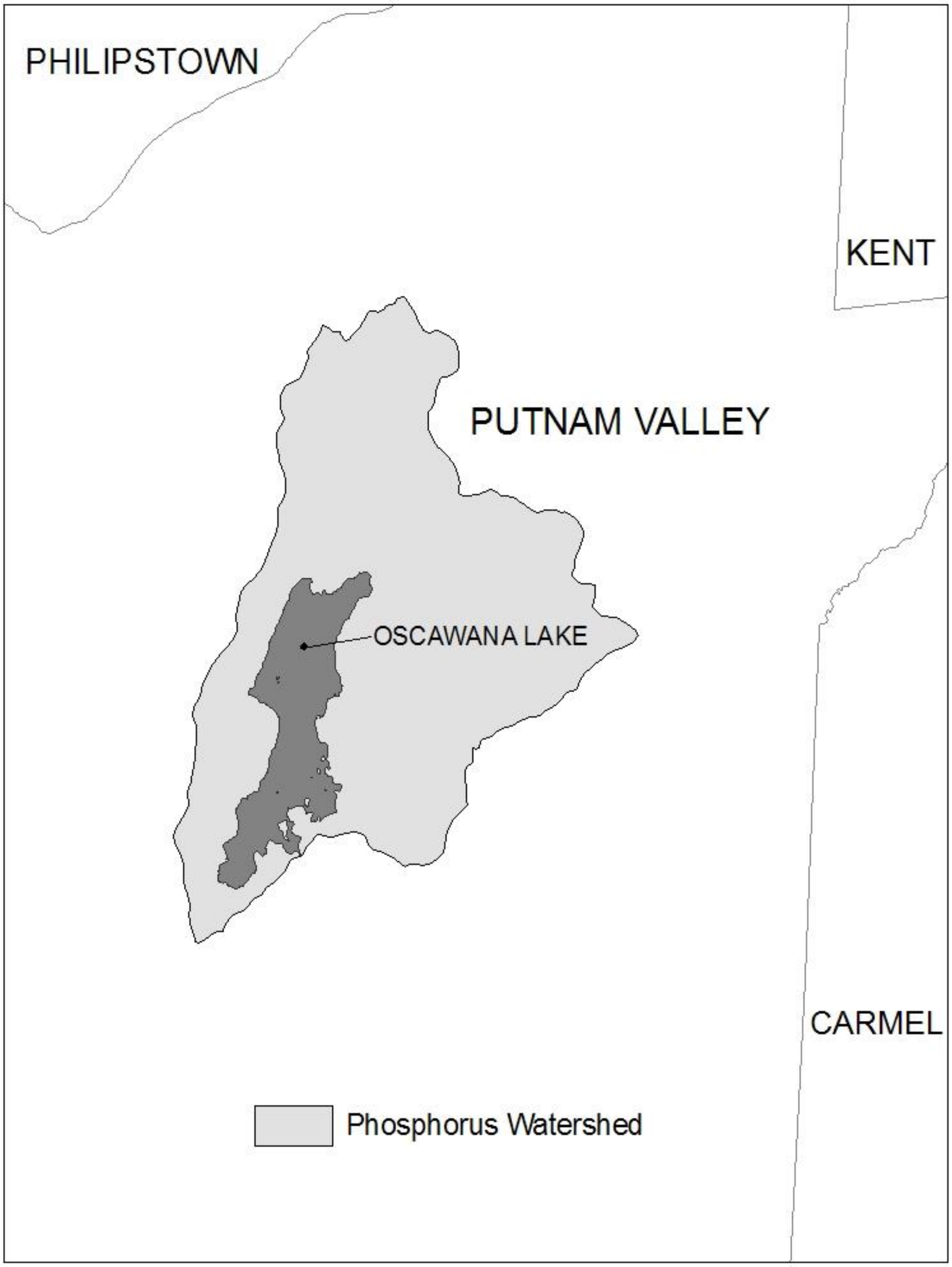
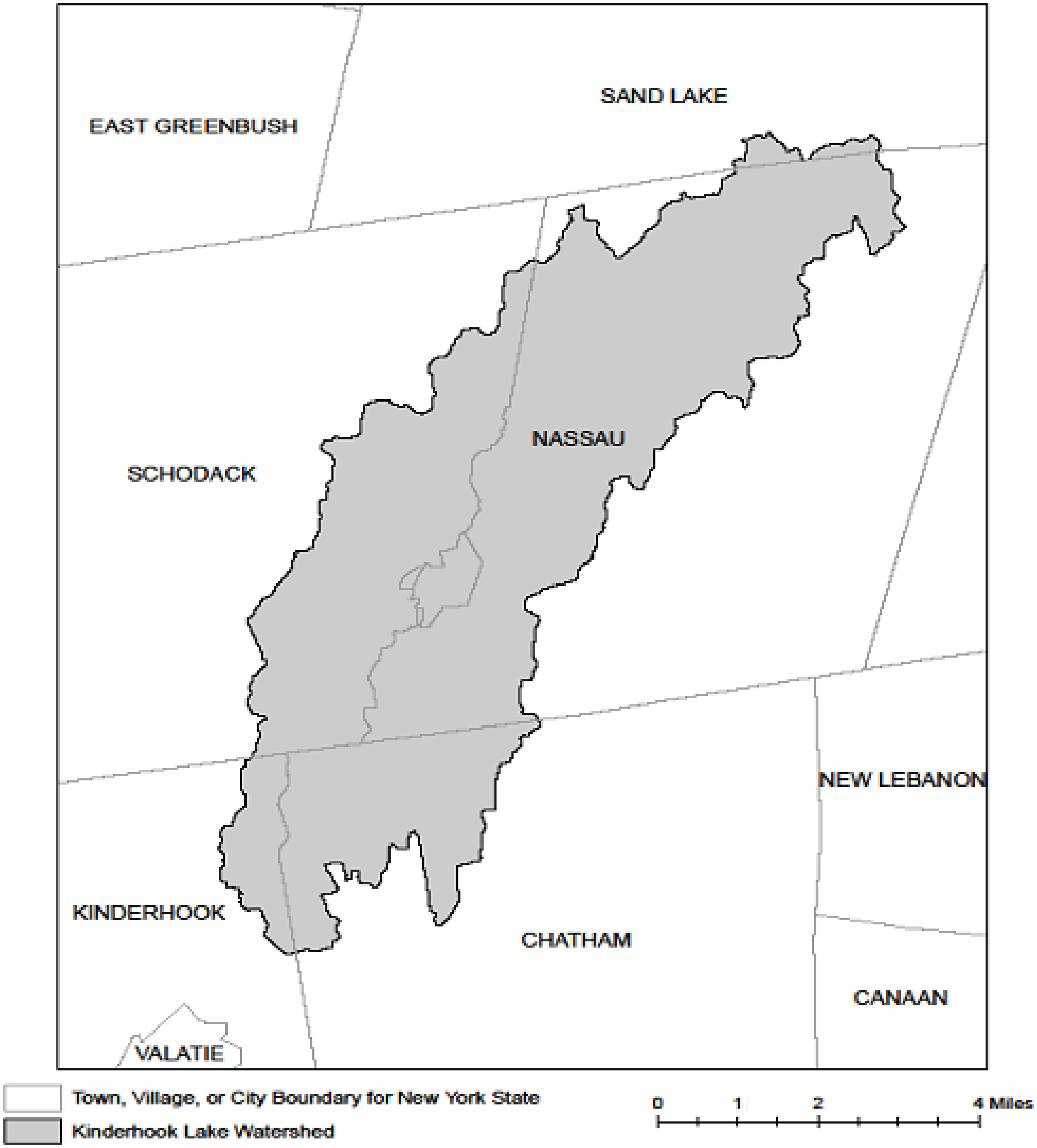


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River **-** See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

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

Appendix G

Erosion & Sediment Control Plan Review Checklist

Appendix H

Construction Site Log Book

APPENDIX F
CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG BOOK

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

SAMPLE CONSTRUCTION SITE LOG BOOK

Table of Contents

I. **PRE-CONSTRUCTION MEETING DOCUMENTS**

Project Name ____

Permit No. ____________________________ **Date of Authorization** ______________

Name of Operator ____

Prime Contractor ____

a. **Preamble to Site Assessment and Inspections**

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

The Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] 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. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.
2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?________________________________
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_______________
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_______________
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page ______
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? ___________________

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

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

Required Elements:

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

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

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

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

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

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

SITE PLAN/SKETCH

______________________________ ______________________________
Inspector (print name) **Date of Inspection**

______________________________ ______________________________
Qualified Inspector (print name) **Qualified Inspector Signature**

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

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA
[ ] [ ] [ ] Is construction site litter, debris and spoils appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA
[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

Yes No NA
[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Flow Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

Yes No NA
[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2” x 4” frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Manufactured insert fabric is free of tears and punctures.
[ ] [ ] [ ] Filter Sock is not torn or flattened and fill material is contained within the mesh sock.
Sediment accumulation ___% of design capacity.

3. Temporary Sediment Trap

Yes No NA
[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment trap slopes and disturbed areas are stabilized.
Sediment accumulation is ___% of design capacity.

4. Temporary Sediment Basin

Yes No NA
[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment basin dewatering pool is dewatering at appropriate rate.
Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

Appendix I

Agency Correspondence

Appendix J

Corrective Action Log

Appendix K

Revisions to the SWPPP